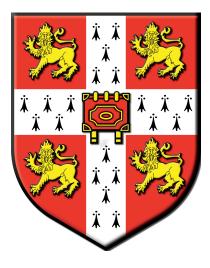
Living Together: A Capability Approach to Spatially Segregated Areas of Bogota



PhD Thesis

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PREFACE

This dissertation is the result of my own work and includes nothing which is the outcome of work done in collaboration except as declared in the Preface and specified in the text.

It is not substantially the same as any that I have submitted, or, is being concurrently submitted for a degree or diploma or other qualification at the University of Cambridge or any other University or similar institution except as declared in the Preface and specified in the text. I further state that no substantial part of my dissertation has already been submitted, or, is being concurrently submitted for any such degree, diploma or other qualification at the University of Cambridge or any other University or similar institution except as declared in the Preface and specified in the text.

It does not exceed the prescribed word limit for the relevant Degree Committee.

Abstract

Living Together: A Capability Approach to Spatially Segregated Areas of Bogota

Juan Fernando Bucheli Guevara

The rapid and ongoing process of urbanisation in Bogota has brought about significant socio-spatial segregation between city-dwellers. Such segregation is becoming increasingly complex as patterns of fragmentation are evolving towards a more 'cellular' differentiation between rich and poor –urban segregation which changes in terms of scale: from macro (neighbourhoods) to micro scales (blocks, streets). Urban segregation has been associated as a barrier for disadvantaged communities, especially when it becomes an intensifier of inequalities. Unequal access to services, availability of local employment, urban facilities, opportunities and supportive social relationships are examples of how segregation affects the distribution of quality of life, undermines attempts for social inclusion and, ultimately, creates unjust geographies. Alongside this context, public policy and measurements of quality of life have frequently overlooked spatial contexts of inequalities since a utility-based definition of well-being is often taken for granted. With the city of Bogota as a testing ground, this thesis analyses how and to what extent new patterns of urban segregation affect the distribution of capabilities and quality of life among young adults. Based on a capability place-based approach to wellbeing, this research will attempt to conceptualise urban quality of life, look at how patterns of urban segregation affect urban functionings, and quantify to what extent microsegregation explains differentials in capability achievement of quality of life among young adults in Bogota.

Statement of Purpose

The purpose of this study is to investigate how quality of life is affected by the existence of new patterns of urban segregation in the city of Bogota. Urban segregation has created a fragmented city with high levels of inequalities for city-dwellers. Based on a place-based approach to well-being, this research will attempt to conceptualize urban quality of life from the perspective of the Capability Approach, looking at how and to what extent urban segregation affects urban functionings in young adults in Bogota.

Keywords

Capability approach; urban fragmentation; spatial justice; young adults; neighbourhood effects; Bogota.



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TABLE OF CONTENT

PREFACE	iii
Abstract	V
Acknowledgements	ix
TABLE OF CONTENT	
LIST OF TABLES	
LIST OF FIGURES	
Introduction	1
PART I: THEORETICAL SECTION	9
Chapter 1 Cities and Inequality: The Urban Segregation Problem	11
1.1 Urbanisation: A Tale of Growth and Polarisation	11
1.1.1 The Expansion of the City Project	
1.1.2 The Urban Gap: Unequal and Polarised Cities	
1.2 From Urban Inequalities to Urban Segregation	15
1.2.1 Emergence and Drivers of Spatial Segregation in Latin America	15
1.2.2 Urban Segregation and its Implications for Well-being	
1.3 Urban Fragmentation: The Production of Segregation at the Micro	Scale.
••••••	21
1.3.1 The Notion of Scale: Uses and Applications	21
1.3.2 Urban Fragmentation and Microsegregation	24
1.3.2.1 Mixed Communities	28
1.3.2.2 Gated Communities	30
1.4 Residential Segregation Processes and Institutional Drivers of Sepa	
and Exclusion in Bogota.	
1.4.1 Urban Growth and the Unfolding Residential Segregation Problems	
Bogota	
1.4.2 Institutional agents and dynamics of residential segregation	
1.4.2.1 Housing production and the polarisation of the city	
1.4.2.2 The stratification system: production of stigmas and low social mobile and the stratification system:	
1.4.2.3 Effects of the Densification of the City	
1.4.2.4 Strategies for Social Mix in Bogota	
1.5 Discussion	48
Chapter 2 Placing Capabilities in Urban Spaces: The Capability Approa	
Urban Segregation	
2.1 Introduction	
2.2 Does Place Matter for Well-being?	
2.2.1 Space, Place and Well-being	
2.2.2 Two Currencies of Well-being: Hedonic and Eudaimonic Views	
2.2.3 Urban Quality of Life: A Spatial Dimension of Well-being	
2.2.3.1 Territorial Social Indicators	
2.2.3.2 Place and Quality of Life	
2.2.4 Discussion	
2.3 From Space to Place: A Capability Approach to Quality of Life in	
2.3.1 A Normative Thinking for the Promotion of Spatial Justice	64

2.3.2 From Utility to Capabilities: Assessing Quality of Life in Cities	es68
2.3.3 Framework for Conceptualising Spatial Context under the CA	72
2.4 Urban Poverty and Young Adults' Quality of Life in Bogota	81
2.4.1 Applying the CA to Young Adults' Life Trajectories	81
2.4.2 Spatial Opportunities and Poverty Deprivation in Bogota	91
2.5 Aims, Research Questions and Rationale	98
2.5.1 General Research Question	98
2.5.2 Specific Research Questions	99
PART II: EMPIRICAL SECTION	105
Chapter 3 Extended Transitions: Exploring the Human Developme	ent
Perspective on Spatially Disadvantaged Young Adults	
3.1 Introduction	
3.2 Why is the Capability Approach Important for Young Adult Life?	
3.3 Discussion	
Chapter 4 Quality of Life in Segregated Places: What Does It Mea	n for Voung
Adults in Bogota?	
4.1 Introduction	
4.2 Conceptualising Relevant Capabilities	
4.3 Study Area and Methods	
4.3.1 Selection of Urban Districts and Participants	
4.4 Identifying and Choosing Domains of Urban Quality of Life.	
4.5 Effects of Residential Segregation on Domains of Quality of	
4.5.1 Linking Domains of Quality of Life and Lynch's Framework	
Performance Criteria	
4.5.1.1 Vitality	
4.5.1.2 Sense	
4.5.1.3 Fit	
4.5.1.4 Access	
4.5.1.5 Control	
4.5.2 Testing for Place Effects on Equality, Opportunities and Agen	
4.6 Ranking Domains of Quality of Life	
4.6.1 Refining and Classifying Domains of Quality of Life	
4.7 Discussion	
Chapter 5 Before Entering Adulthood: Developing an Index of Cap	
Young Adults in Bogota5.1 Introduction	
5.2 Materials and Reliability Test	
5.2.1 Data	
5.2.2 Psychometric Testing for the J14 Survey	
5.3 Methods	
5.3.1 Exploratory and Confirmatory Factor Analysis	103 1 <i>6</i> 2
5.3.2 Regression Analysis	
5.4 Results	
5.4.1 Principal Component Analysis	
5.4.2 Descriptive Results of the Capability Index	
5.4.3 Regression Analysis	
5.5 Discussion	182 187

Chapter		•
6.1	Introduction	
6.2	Data and Variables	
6.3	Methods	
6.3.1	1	
6.3.2		
6.3.3	$\mathcal{E}^{-}\mathcal{E}^{-}$	
	Results	
6.4.1	1	
6.4.2	ϵ	
6.4.3	8 8	
6.5	Discussion	222
Chapter	7 The Influence of the 'Fragmented City' on Well-being: Do	
	neous Neighbourhoods Affect Young Adults' Trajectories in Bogota	2229
7.1	Introduction	
7.2	Data	234
7.2.1	Study Area	234
7.2.2	Questionnaire Design and Sampling Procedure	236
7.2.3		
7.2.4	Independent Variables	238
7.3	Method and Empirical Model	240
7.3.1	The Counterfactual Framework for Estimation of Treatment Effects	240
7.3.2	Model Specification and Matching Variables	242
7.4	Results	
7.4.1	Propensity Score Estimation	244
7.5	Discussion	249
7.6	Limitations	254
Chapter	8 Conclusions	257
8.1	Introduction	
8.2	Contribution to Literature: Linking Urban Studies with the Human	
	pment Perspective	258
8.3	Reflection on the Methodology	
8.3.1		
8.3.2	· ·	
8.3.3		
8.4	Answers to Research Questions	
8.5	Policy Recommendations	
8.6	Future Research	
Referenc		281

LIST OF TABLES

Table 1-1 Minimum percentages for provision of social housing in urban development projects	
Table 2-1 CA concepts adapted to spatial thinking	
Table 2-2 Basic distinctions between freedom and achievement and well-being and	
agency	
Table 4-1 Socioeconomic residential segregation index, Bogota (2007, 2011)	
Table 4-2 Socioeconomic strata system and percentage of contribution	
Table 4-3 Case studies: Chapinero and Ciudad Bolivar urban settings	
Table 4-4 Domains of urban quality of life for young adults in Bogota (all FGD)	
Table 4-5 Effects of residential segregation on domains of quality of life (summary	
results)(summary	
Table 4-6 Ranking of quality of life for young adults using Borda count (each FGD)	
Table 4-7 Ranking of quality of life for young adults using Borda count (aggregation)	
Table 4-7 Ranking of quanty of file for young adults using Dorda count (aggregation	
Table 4-8 Ranking of quality of life for each urban setting	
Table 4-9 Subthemes identified in each FGD for the dimension of 'security'	
Table 4-10 Refined list of quality of life domains for young adults in segregated spa	
Table 4-10 Kernied list of quanty of the domains for young adults in segregated spa	
Table 5-1 Descriptive statistics J14 survey	
<u>*</u>	133
Table 5-2 Observable variables from the J14 survey and identified dimensions of	161
QOUL for young adults	
Table 5-3 Differences in terms of gender, age, race and strata for the capability inde	
Table 5. 4. Test of appropriateness for CatDCA	
Table 5-4 Test of appropriateness for CatPCA	
Table 5-5 Summary of fit indicators for the capability index	
Table 5-6 Fixed effect regression model for each component of the capability index	
(differences by predictors)	
Table 6-1 Young adult population groups by level of capability scores	
Table 6-2 Selected indices of segregation.	
Table 6-3 Significant clusters for the capability index (urban district level)	
Table 6-4 Significant clusters and outliers for the capability index (UPZ level)	
Table 6-5 Comparison OLS and spatial regression (SAR model) results	
Table 6-6 Results of selected indices of segregation for evenness	217
Table 6-7 Results of selected indices of segregation for exposure, clustering and	210
concentration	
Table 6-8 Pairwise interaction index (xPy) for the capability index	
Table 6-9 Pairwise spatial proximity index (SP) for the capability index	
Table 6-10 Multi-group indices D, G and H for components of the CI	
Table 7-1 Spatial and socioeconomic criteria for control group selection	
Table 7-2 Outcome variables and questionnaire questions	238
Table 7-3 Descriptive statistics of outcome and covariance variables	
Table 7-4 Probit regression for propensity score matching	245
Table 7-5 Average treatment effect among the treated based on nearest-neighbour	
matching (1-NN)	246
Table 7-6 Average treatment effect among the treated on subjective and objective	
measures of well-being. Results from different matching methods	247

LIST OF FIGURES

Figure 1-1 Patterns of residential segregation according to scale
Figure 1-2 Socioeconomic Stratification in Bogota 201742
Figure 1-3 Population and Employment Density44
Figure 2-1 Spatially informed CA: Place-based framework for the development of
capabilities78
Figure 4-1 Methodology sequence to identify relevant functionings and capabilities .118
Figure 4-2 Frequency of emergent domains of quality of life using data from FGDs144
Figure 5-1 Structural and measurement model in structural equation modelling165
Figure 5-2 Scree plot of non-linear PCA using K1
Figure 5-3 Capability Index by dimensions of quality of life177
Figure 5-4 Capability Index by each socio-economic strata
Figure 5-5 Box plot of Capability Index by dimensions of quality of life178
Figure 5-6 Capability Index by strata (per dimension of quality of life)179
Figure 5-7 Capability Index by gender and age
Figure 5-8 Capability Index by gender and dimensions of quality of life
Figure 5-9 Capability Index by group age and dimensions of quality of life180
Figure 5-10 Capability Index by gender and socio-economic strata181
Figure 5-11 Capability Index by group age and socio-economic strata182
Figure 6-1 Connectivity histograms at different administrative scales196
Figure 6-2 Capability index by natural breaks (Jenks) (five classes)203
Figure 6-3 Box plots and raw rate calculations for the capability index at different areal
units
Figure 6-4 LISA indicators by urban district, UPZ and block level205
Figure 6-5 LISA indicators for strata and CI scores at address level208
Figure 6-6 Capability Index by each component (at urban district level)210
Figure 6-7 Cluster and significance maps for each domain of the capability index211
Figure 6-8 Spatial distribution of capability scores using location quotient (LQ)215
Figure 6-9 Diversity by capability scores and socioeconomic strata216
Figure 7-1 Areas of social mix (Chapinero) and social homogeneity (Ciudad Bolivar)
234



Introduction

It takes only a few minutes after boarding a bus to travel across the city, to realise that poverty and wealth live together in the urban fabric of Bogota. The insurmountable inequality of the Colombian capital is visible in the urban mosaic seen through the window and is a distant diversion from the long and tedious journey, product of traffic congestion and the increasingly precarious road network of the city. Suddenly, the mixture of potholes and pollution monopolises our attention, and we forget the obvious social inequity as we are overwhelmed by the whistles, bicycles and shouts of a city that claims it is best 'for all'.¹ Comparisons between different housing units seem to be inevitable. The city is a cement cage in which the socioeconomic differences extend into the spatial dimension. A pluricentric structure and a segregated residential order becomes clear in our journey through the urban structure of Bogota, which provides an insight into what has become one of the most salient features of today's developing cities in the Global South (Graham & Marvin, 2001; Thrift & Amin, 2002; Caldeira Teresa, 2009; Parnell & Oldfield, 2014; Oviedo & Dávila, 2016).

In 2014, the mayor of Bogota, Gustavo Petro, proposed a plan to create mixed neighbourhoods in affluent areas of the city. His idea was to force the coexistence of social sectors of different socioeconomic conditions in the same territory and move towards a less segregated society. The idea was to build 372 housing units of social interest in areas where high income groups were located. This strategy generated an active public debate that reinforced the arguments of opponents of the strategy. An increase in insecurity and social conflict, as well as patrimonial detriment leading to the erosion of urban plusvalia taxes were some of the most convincing reasons presented to put a stop to neighbourhood integration in Bogota, ultimately leading to a class action suit and a damning verdict ('Casas para pobres en zona de ricos es detrimento, dice decisión judicial [Houses for the poor in wealthy areas is detrimental, says judicial decision]', 2015).

¹ The district development plan 2016-2019 has the political slogan "Better Bogotá For All".

The fact that the rhetoric of efficiency in public resources is used as a mechanism to perpetuate class discourses and nurture the actions of social inequality, gave rise to the idea of understanding the situation of socio-spatial differentiation in Bogota from a more holistic perspective. A first question that emerged was whether the city, as a unit of analysis, revealed any other levels or facets of social inequality. Concentrated poverty serves as a fertile research ground for understanding inequality and social instability. What it has explained in part is why urban research has wholeheartedly immersed itself into understanding the causes, dynamics and consequences of urban marginality. Less attention has been given to understanding alternative forms of urban marginality, particularly that which is not located on the periphery or in the margins of the city, but rather that is sprinkled, as enclaves, along the urban structure of cities. More precisely, socio-spatial differentiation in cities is not only a matter of spatial exclusion where the dichotomy of rich and poor cities takes aggregative values, but is also about those interstices where poverty becomes more fragmented – spatial inequality does not have a single spatial representation, but it is presented differently depending on the scales that are employed. In this way, residential integration becomes a research subject in itself.

A second aspect that shaped this research was the idea of critically evaluating the effects of this sort of spatial inequality in cities. Linking research with development action, this investigation wanted to equip urban poverty research with evidence about how and to what extent processes of urban fragmentation are impacting people's lives. Thus, and with the aim of generating evidence-based policy, the research embarked on the qualification and quantification of the effects of urban fragmentation on people's quality of life (QoL). The cross fertilisation of ideas and frameworks that the field of development studies promotes led to the employment of the conceptual architecture of the capability approach (CA) to understand how spatial inequalities occur in cities and to assess to what extent people's well-being² is affected. The use of the CA to interpret and measure the effects led to new questions and challenges. Thus, the need to understand the spatial dimension of inequality, and the need for evaluation evolved in

.

² As will be explained in a greater detail in the theoretical chapters of this thesis, the concept of well-being is used interchangeably with concepts related to quality of life (QoL) and human advantage. The concept of well-being is used as a macro-concept which includes additional informational spaces of welfare such as freedom and individual agency. When alternative concepts of well-being are used, this will be clarified accordingly.

the direction of understanding the spatial dynamics of inequity, particularly in its connotations of individual separation and segregation in Bogota.

Therefore, this thesis is about bringing together people-based approaches to well-being and processes of urban marginality and fragmentation to understand how spatial inequalities are affecting people's lives. It is an intellectual response to amalgamate discourses of urban inequality, residential segregation and assessment of QoL from a perspective of spatial justice as well as a human perspective. But as well as linking approaches in an interdisciplinary manner, this thesis questions the approaches, particularly the utilitarian and commodity-oriented approach, with which QoL in cities has been evaluated, particularly those that position the provision of infrastructure as a satisfactory solution to correct the unequal development characteristics present in the cities of the Global South. The use of the CA in these matters has revealed that policies that aim to tackle urban marginality from an exclusively physical determinism perspective tend to fail and thus worsen levels of urban fragmentation. Indeed, sociospatial differentiation in contemporary cities is instead the combination of a wide range of historical, cultural, economic and social factors that keep a vast number of people in disadvantaged conditions and cannot be reversed by reductionist approaches that stimulate the commoditisation of urban development. Taking this into account, assessing urban policies implies at the outset that a normative framework of evaluation that precludes distinguishing these differences is doomed to fail in identifying relevant aspects that can provide a better assessment of the QoL of people in cities.

Although this thesis tries to make sense of current debates associated with the concepts of post-colonialism, informality and marginality in Latin American cities (Wacquant, 2008b; Caldeira Teresa, 2009; Hernandez & Becerra, 2017), the analysis does not engage directly in explaining the production of marginality or the causes that have disenfranchised the urban poor from being active agents in social or economic transformation. Other studies have focused exclusively on this aspect, concluding for instance that a major factor in alleviating inequality in the urban space of Bogota is going against the rentier spirit of local developers who have found stability of their operating profits, in the segmentation of the real estate market (Alfonso, 2012). In the case of residential segregation, drivers of urban fragmentation tend to be associated with status, lifestyle and security, all of which are heavily rooted in colonial institutionalism, contributing to the isolation of well-off households from marginalised and concentrated

poverty areas (Coy, 2006a). On the contrary, the logic of research in this thesis is developed in the higher part of the theory of change of urban marginality, in the sense that the impact of the phenomenon, and not the phenomenon itself, is reviewed.

In more practical terms, this thesis is interested in the operationalisation of the CA. It has drawn on the case of marginalised young adults in the context of urban fragmentation with the intention of measuring well-being at the individual level in order to perform intra-person comparisons. Unlike other studies that operationalise the CA by using a particular demographic group, which have not been directly scrutinised by normative frameworks of well-being, this study first questions urban social reality and then identifies potential disadvantaged groups of young adults who are both significantly affected in their life trajectories and de-prioritised by public agendas. This way of proceeding ensured a certain objectivity in the selection of the demographic group analysed. At the beginning of the research project it was considered that one major challenge would be the selection of the research areas, due to financial constraints and security issues. Nevertheless, and bearing in mind that spatial differentiation should be first enquired into through antagonistic cases of fragmentation and polarisation, this thesis opted to use urbans areas that demonstrate extreme examples of spatial segregation in Bogota. Thus, the urban districts of Chapinero and Ciudad Bolivar were chosen as case studies, in order to better appreciate the spatial differences in QoL in Bogota. Once the research areas were chosen, young adults were identified in both areas with the aim of testing the research hypothesis.

For the operationalisation of the approach, this thesis uses a research design that combines qualitative and quantitative methods of formulating and testing hypotheses. Mixed methods have been embedded in the research design in order to draw uniform conclusions, keeping population and urban contexts equal. The decision to integrate methodological approaches is part of the generalised recommendation of the literature specialising in neighbourhood effects, to combine the quantitative interpretation of causal proxies of the studied phenomenon with social observations collected systematically through qualitative techniques (Leventhal & Brooks-Gunn, 2000; Sampson, Morenoff, & Gannon-Rowley, 2002; Galster, 2012). In this aspect, the affiliation of this thesis to development studies allowed a natural landing for this approach.

The thesis is divided into two main parts: theoretical considerations and empirical operation. The first part provides the context and sets the stage for the subsequent discussions in the thesis, as well as presenting the literature review and framing the research questions. The second part extends the application of the CA to the context of spatial inequality by identifying and evaluating young adults' domains of QoL.

Chapter 1 'Cities and Inequality: The Urban Segregation Problem' describes the process of socio-spatial differentiation in cities. It does this by framing the idea that the construction of fairer societies can only be achieved through the recognition of spatial justice (Soja, 2010). Cities have ended up being places for reproducing unjust geographies as their ability to positively transform people's QoL is patchy and uneven. The chapter posits how spatial injustices in cities are changing the urban landscape of cities by introducing the case of residential segregation in Bogota and its corresponding micro scale representation of 'cellular segregation'. It argues that urban polarisation, or the product of a 'divided city' by the inertia of the process of residential segregation, has reproduced a more granular process of segregation which becomes evident when different geographic scales are considered. The chapter stresses how residential segregation is becoming increasingly complex as patterns of fragmentation are evolving towards a more 'cellular' differentiation between the rich and the poor at the micro level. Although contemporary literature in urban conflict has brought attention to these new forms of closure and exclusion (Sassen, 2001; Wacquant, 2008a), the tendency to over-theorise by using paradigmatic examples – a sort of 'problem of synecdoche' (Amin & Graham, 1997), mostly from Anglo-Saxon heritage, has ended by limiting our understanding of how the process of urban fragmentation occurs in other contexts.

Chapter 2 'Placing Capabilities in Urban Spaces: The Capability Approach of Urban Segregation' aims first to integrate the CA conceptually to the roles that place and space have in shaping cultural, social, economic and political life in contemporary cities. This chapter outlines the theoretical considerations and research questions that will frame the empirical research of later chapters. Based on postcolonial urban theory, the chapter reviews how academic discussions have evolved in integrating notions of well-being to quantify the level of QoL people experience in cities. The chapter then critically analyses how the application of a place-based perspective on regional public policy (Barca, McCann, & Rodríguez-Pose, 2012) alongside the CA can overcome the

spatial blindness that ongoing normative approaches to well-being often suffer from. Grounded in the case of residential segregation in Bogota, the chapter identifies major drawbacks for well-being due to the existence of a distinct socio-spatial differentiation in Bogota's urban landscape. The case of residential segregation in Bogota helps to frame the limitations of resource-based approaches to well-being that prevail in urban public policy as well as serving as a case study to apply a place-based approach to capabilities, in order to understand the effects of spatial inequalities in contemporary cities. After presenting the theoretical framework, the overarching research question that will guide this study is introduced.

The empirical part of the thesis begins with Chapter 3 'Extended Transitions: Exploring the Human Development Perspective on Spatially Disadvantaged Young Adults'. The chapter provides a background to the case study by introducing how sociospatial differentiation across urban areas has been a factor in reproducing spatial inequalities among young adults in Bogota. The chapter aims to justify the use of the 'young adult' age category as a demographic collective where spatial inequality has a distinct representation. It shows how young adults have been neglected from a comprehensive development agenda and how spatial injustices are a vehicle for generating and sustaining processes of inequality, exploitation and segregation. The chapter serves to put together ideas of spatial cognition to understand how inequalities affect young adults in Bogota, and how a people-based approach to development can be fruitful to assess more integrally young adult's quality of life.

Chapter 4 'Quality of Life in Segregated Places: What Does It Mean for Young Adults in Bogota?' turns to the operationalisation of the CA in the context of sociospatial differentiation by using the case of residential segregation as a factor of spatial inequality in the city. The chapter tackles two main actions. First, it outlines the major steps conducted for the identification of relevant capabilities and functionings of young adults, proposing a methodology that adapts the existing benchmark procedural criteria for selecting capabilities (Robeyns, 2006). The result here is the production of a list of central and valuable capabilities. Second, it assesses how the normative domains perform when two different urban spaces are considered. For the first action, the central list of functionings and capabilities is used as an instrumental tool for assessing the effects of location on young adults' trajectories. The assessment of relevant domains of QoL is drawn from Kevin Lynch's performance dimension for a good city form which

is evaluated from the perspective of the CA. The overall result here is the operationalisation of the CA in identifying relevant domains of QoL in the context of residential segregation, but also in assessing well-being under a capability–normative framework.

Building on the results from Chapter 4, Chapter 5 'Before Entering Adulthood: Developing an Index of Capabilities for Young Adults in Bogota' develops an index of capabilities and functionings for young adults in Bogota. The chapter aims to inform policymakers, practitioners and researchers about the capability condition of young adults in Bogota by opening an avenue of research in QoL studies. By using secondary data, the operationalisation of the CA is generalised to a large segment of young adults and easily interpreted by an indicator of QoL. The chapter breaks new ground by pioneers in providing a state of affairs of young adults' well-being while avoiding obscuring significant deprivations that would not be identified otherwise. It draws on previous qualitative work (Chapter 4) and is intended to be used in decision making across youth policies and urban poverty strategies. In this regard, the index attempts to inform decisions on the allocation of resources in areas that are more sensitive in generating a positive effect on young adults' well-being, rather than just in areas in which there has traditionally been intervention by public policies such as education and job opportunities.

Chapter 6 'Marginal Youth: Mapping Spatial Capability Exclusion in Bogota' complements Chapter 5 by investigating the role of space on the configuration of capabilities. Chapter 6 acts as a test for spatial cognition when a capability place-based perspective to well-being is under scrutiny. Using the index of capabilities developed in Chapter 5, the chapter investigates to what extent location influences young adults' urban well-being. The discussion starts from the assumption that 'the spatial determines the social', which in turn has consequences on how capabilities are configured. By using a spatial analysis framework, the chapter interrogates how the index of capabilities is distributed in the space of Bogota's socio-spatial differences. This chapter not only shows that capabilities can be described spatially, but that young adults' QoL is sensitive to the effects of place.

Chapter 7 'The Influence of the 'Fragmented City' on Well-being: Do Heterogeneous Neighbourhoods Affect Young Adults' Trajectories in Bogota?'

completes the analysis by going back to the case study of microsegregation in Bogota and exploring the causal effect that place might have in the configuration of capabilities. After having reviewed how capabilities behave at the aggregate level, both aspatial and spatial, this chapter returns to the micro level to confirm whether space has an effect on the production of capabilities. More specifically, the chapter investigates the effects of different patterns of residential segregation in Bogota on the level of young adults' well-being. Based on primary data, the chapter compares two processes of residential segregation, macrosegregation (polarisation) and microsegregation (fragmentation), to determine to what extent socio-spatial differentiation in Bogota affects the QoL of young adults. This chapter tests the neighbourhood-effects hypothesis by using capabilities and subjective measures of well-being as outcome variables, as well as employing a counterfactual model to estimate the effects.

Chapter 8 'Conclusions' reflects on the application of mixed-methods research and answering research questions. It concludes that the CA and studies of urban poverty can both benefit when a unified perspective is applied in order to understand spatial inequalities in contemporary cities. The chapter finds evidence that Bogota's urban structure shows an unequal distribution of capabilities. In more concrete terms, the chapter lists qualitative and quantitative effects of residential segregation on young adults' well-being. It finds that social integration at the urban level causes counterintuitive effects on young adults' well-being. Here, residential integration was found to produce a decapitalisation in terms of capabilities among young adults, which is likely to lead to an increase in spatial inequalities if the residential trend in Bogota towards urban fragmentation continues. The thesis ends with some reflections in terms of policy recommendations and outlines future research areas.

PART I: THEORETICAL SECTION

Chapter 1 Cities and Inequality: The Urban Segregation Problem

1.1 Urbanisation: A Tale of Growth and Polarisation

1.1.1 The Expansion of the City Project

Rapid urbanisation is one of the main characteristics of the current process of globalisation. The rapid integration of cities into the global economy has produced enormous changes in the size and spatial distribution of the world's population. Today and for the first time, over half of the world's population is settled in urban areas, making Lipton's argument of an acute *urban bias* in economic development plausible (1977). Although the level of urbanisation around regions is uneven, its pace seems to be a deterministic factor in where people are destined to live and work. Jeremy Seabrook (2007) questions whether we are not already in an urbanising world, pointing out that it has become progressively difficult to maintain the distinction between what is urban and what is rural. Industrial and service society has permeated everyday spaces, making rurality a residual and functional aspect of the growing process of urbanisation.

In this respect, Latin America provides an interesting case for analysis. Broadly speaking, one of the main local development strategies in most Latin American countries has been the increasing primacy of the urban system (Roberts, 2005). The region has undergone a rapid process of urbanisation since the mid-1900s, placing it today as the region with the highest rate of urbanisation in the developing world, where more than 80% of its population lives in urban areas (United Nations, 2014, 2018). Rapid migration from rural areas towards cities in the region has been a feature since 1950, when *campesinos* and other tenant farmers emigrated to urban centres in search of better living conditions and the expansion of opportunities, particularly the diversification of livelihoods that more agglomerated areas offer (Lora, 2010).³

After rapid rates of urbanisation, where the relationship between rural and urban migration has changed in a matter of just 40 years (1950–1990), Latin America's urban population has begun to normalise. From 1990 to today, the urban population has been

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³ The concentration of land ownership and the low productivity of rural workers were also drivers that sparked a marked process of migration from rural areas to urban centres, which still remains in force in some Latin American cities (Praag et al., 2010).

increasing, but at a moderate rate. Several scholars have agreed that internal migration in the region has lost relevance (Guzmán, Rodríguez, Martínez, Contreras, & González, 2006; Rodríguez Vignoli, 2008, 2011; Rodríguez Vignoli & Busso, 2009), particularly rural—urban migration. According to the projections of the United Nations (UN-Habitat, 2012), urban population rates will experience a slowdown in relation to rural population rates in future decades. However, and despite this reduction in urban population dynamics, by the year 2050 the rate of urban population in Latin America will reach levels close to 90%, largely explained by the increasingly representative migration between cities⁴ and other residual migratory processes.⁵

Independently from the most recent changes in migration processes in the region, the consolidation of urban spaces in Latin America has meant a major change in the social and economic structures in most countries. Most of the countries in the region are situated in the second phase of urbanisation where cities emerged as the main urban form of spatial organisation. As urban transition in the region has consolidated, cities have become the main engines of economic development. Two thirds of the GDP of the region come from urban areas (UN-Habitat, 2012), where not only metropolitan areas but also medium sized cities contribute to this process. There are 260 million people living in Latin America's 198 largest cities, 6 which by 2025 will count for roughly 65% of the region's growth and 50 million people entering the labour force (McKinsey, 2011). The consolidation of the globalisation process and the emergence of neoliberalism as the new metaconcept in urban studies have led to the definition of the city as the irreducible place where ideas of growth and investment are produced (Hackworth, 2007) – a sort of neoliberal city which aims to roll back Keynesian artefacts, policies and institutions while rolling out assumptions of urban entrepreneurialism through marketisation and commodification (Brenner & Theodore, 2003; Brenner, 2004).

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⁴ Urban—urban migration has been paid little attention by scholars and policy-makers. Rodriguez Vignoli (2011) underlines that migration between cities has not been considered within academic and political agendas in Latin America for two main reasons. On the one hand, he argues that rapid rural—urban migration in the mid-1950s eclipsed other types of migration due to its relevance in political and economic terms. Once rural—urban migration started to lessen in absolute terms in the mid-1970s, urban—urban migration was considered as a conjectural phenomenon, which would tend to fade away. On the other hand, he comments that international migration was also an aspect that contributed to the decline in the relevance and significance of urban—urban migration for research.

⁵ For example intraregional migration (see Ratha, Bank, & Shaw, 2007).

⁶ Cities with a population of more than 200,000 inhabitants (McKinsey, 2011).

1.1.2 The Urban Gap: Unequal and Polarised Cities

As this urban project consolidates in the region, patterns of inequality and deprivation are embodied in different spatial dimensions of the city. For some commentators (Jordan & Martinez, 2009), in the first phase of urbanisation (1950–1980), countries in the region applied urban modality arrangements that were under implementation in the developed world, often without having the institutional capacity or financial resources to make a sustainable investment. The consolidation of informal settlements in the periphery was marked by the relative absence of the state, and the lack of effective policies or administrative presence (Roberts, 2011). As a result, a sort of 'polarised city' emerged in most of the countries, which is characterised by a series of 'modern city' spaces, alongside areas deprived by poverty and insecurity.

An emergent domain of analysis here is the concept of spatial inequality. Theoretically, the concept of spatial inequality has been used by urban economy theory to explain how the spatial patterning is produced within national and urban areas. From the perspective of economic efficiency, spatial inequality can be beneficial if public policy has decided to allocate resources to take advantage from a comparative advantage. Conversely, spatial inequality is assessed as not efficient when externalities are not internalised and the cost of inequality is higher than the levels of productivity (Kim, 2008). In the case of urban contexts, the existent spatial patterning within a city can be outlined as the result of merging different models of location that predominately trigger the clustering of dwellers by income. Here, for instance, spatial patterning is a product of land users' willingness to pay for the locations that represent their preferences and desires.

In the same vein, the introduction of communication and car ownership in contemporary cities has led to richer households increasing their intra-urban mobility to areas with better provision of amenities and services, while less affluent people have

⁸ A bid—rent curve that depicts the relationship between distance from the city centre and the price of rent (Alonso, 1960); the availability of urban amenities, in particular the provision of public goods and employment for local governments (Tiebout, 1956); and the racial, ethnic (Schelling, 1969) and class composition of urban areas.

⁷ In this case, regional specialisation is associated with an increase in productivity and spatial inequality is compensated by gains in economic efficiency.

had to cluster in informal settlements, in most cases in the periphery of the city. The 'urbanisation of poverty' has been exacerbated by growing social inequality, which is determined by the increasingly wider gap between rich and poor, and visually expressed by the way in which urban space is occupied. The increasingly differentiated access to opportunities, to public services and public spaces, to education and technology, to health services and employment, among other issues, has become the rule rather than the exception (Sabatini, 2006; Lora, 2010; Powell & Sanguinetti, 2010; UN-Habitat, 2016; Hernandez & Becerra, 2017; Deneulin & Sánchez-Ancochea, 2018).

Inequality in Latin America has been explained by different approaches and disciplines. By and large, authors have claimed that Latin America presents high levels of inequality due to a high concentration of land ownership (Lora, 2010; Acemoglu, Naidu, Restrepo, & Robinson, 2013); imperfection in labour markets, limited access to natural resources, education and health (De Ferranti, Perry, Ferreira, & Walton, 2013); and an excessive concentration of income (Amarante, Galván, & Mancero, 2016; Rojas & García Vega, 2017). These constraints have been exacerbated through the implementation of unequal policies, particularly the introduction of structural adjustment programmes in the 1980s and the process of economic liberalisation and neoliberal reforms in the 1990s (Palma, 2010).¹⁰

Although all these reasons have been extensively studied by academics, much less attention has been paid to the explanation of local and urban causes of spatial inequality. As Hay (1995) pointed out, distributional issues related to spatial inequalities are 'second-order questions' (p. 500) for academics and policymakers, and can be tackled by wider analysis of the relation between space and society. The gap between rich and poor has been studied mainly through aggregated indicators of income distribution which are useful in measuring the degree of concentration in resources and in rendering comparisons between countries, but too much emphasis has been placed on

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⁹ Other approaches to spatial inequality, more in line with analyses of the field of economic geographies, put more emphasis on regional disparities where natural advantages and the presence of agglomeration forces are some of the main attributes to explain differences between development trajectories (Kanbur & Venables, 2005b; Venables, 2005).

¹⁰ The Economic Commission for Latin America and the Caribbean (ECLAC) contends that the adoption of economic reforms towards deregulation of markets, policies for the attraction of foreign capital and the increasing interdependence of Latin American markets with international economic flows have been central in the explanation of the deterioration of income equality in the region (Altimir, Beccaria, & Gonzalez Rozada, 2002).

national trends rather than territorial dynamics. National inequality is the sum of variation of income and consumption within countries, which means that an aggregative interpretation of inequality neglects intrinsic causes, manifestations and processes of how unequal societies work – particularly inequalities between and within regions and cities. Urban inequality has been understudied and much of the literature on inequality has focused on national inequality (Glaeser, Resseger, & Tobio, 2009), where countries and regions rather than cities have been at the centre of the analysis.¹¹

The limited attention to tackling urban inequalities and more incisively, the scarce attention paid to its horizontal dimension by urban policymakers, has meant that urban processes such as social differentiation and polarisation are considered part of the Latin American city model. A clear consequence of this has been the consideration of urban segregation as a given fact of modern urban societies, rather than describing it as an adaptive process which could help to explain why inequality develops and transforms.

1.2 From Urban Inequalities to Urban Segregation

1.2.1 Emergence and Drivers of Spatial Segregation in Latin America

Spatial inequality can be observed through the phenomenon of residential segregation. Segregation in the urban space can be recognised by the physical separation of groups due to social, economic or political factors. In these terms, residential segregation can be understood as a deliberative human process that has physical outcomes in how space is thought about, ordered and distributed. Indeed, Morrill (1991) contends that segregation is 'not an accident' (p. 26) but a purposeful behaviour which is at the same time spatial and structural – a sort of urban expression of 'territorial separation'. Residential segregation can be defined as the extent to which individuals of different groups, living in a given geographical area, experience the space in a different manner (Reardon & O'Sullivan, 2004). In this sense, residential

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¹¹ The idea that central governments have exclusive responsibility for putting in place redistribution policies is one of the main reasons for the bias towards the measurement of inequality from national perspectives. Recently, this trend has been increasingly transformed as it has been considered that also local authorities, and particularly city administrations, have a direct influence on the distribution of income and, consequently, the production of wealth.

segregation is a common and natural expression of urban life where groups of individuals compete for space.

As stated by Sabatini (2003), Seguin (2006) and Espino (2015), residential segregation is one of the most distinct features of Latin American cities and is manifested in the unequal appropriation of land and the limited access to the urban public goods of housing, public spaces and social interaction. Sabatini (2006) notes that 'urban space [in Latin America] reflects these social inequalities, as if through a mirror' (p. 12). The concept has been used widely by Latin American scholars to explain how inequality is manifested in the built environment, through the dynamics of exclusion and differentiation. Even though segregation is not just a 'spatial expression of socioeconomic inequalities' (Smets & Salman, 2016, p. 83), most of the analysis to date has tended to approach it from the dimensions of space and place.

Although spatial segregation in Latin America has been strongly influenced by colonial residential planning¹², spatial polarisation is rooted in the first phase of urbanisation (1950–1980) when rural-urban migration reached its highest peak. Under this process of migration, cities developed spatially accordingly to what Kowarick (1977) described as the 'logic of disorder', which stipulates that, with the absence of a satisfactory provision of urban public goods (transport, housing, roads, labour markets, etc.) in addition to the lack of a large middle class, cities developed a high degree of spatial segregation: social heterogeneity in the centre and a concentration of low-income settlements in the periphery (Roberts, 2011). During the import-substitution industrialisation process (ISI), the process described above was exacerbated due to migration within cities being constrained, as local and urban development (highly concentrated in political terms) started to regulate land markets in order to restrict urban expansion. As a consequence, an increased demand for land fuelled high speculation in the centre of the city, forcing low-income families to move inevitably to those areas where land tenure was either affordable or would not exist at all: the periphery (Carter, 2003).

¹² For instance, Janoschka and Borsdorf (2004) allege that colonial legacy introduced elements of segregation inside cities. In particular, they refer to the way residential buildings in colonial times promoted strong internal closure and segregation since guests were prohibited from accessing different locations inside the house.

The pattern of marked polarisation of urban spaces created in the first stage of urbanisation was reinforced by neoliberal policies in the 1980s. Several scholars agree that economic neoliberalism impacted spatial segregation through income polarisation and limited social mobility, where 'differentiation in social status was heavily bound to the localization within the city' (Janoschka & Borsdorf, 2004, p. 7). Another effect was the deregulation of land markets in metropolitan areas. In this respect, neoliberalism encouraged 'free land markets, reduced regulation and private property rights' (p. 47) in Latin American cities. Unlike ISI, the implementation of neoliberal policies brought land speculation to the periphery by allowing the development of suburban infrastructure projects (commercial and residential units for middle class and wealthy households) at the fringes of the city. Actors such as real estate companies and local elites took advantage of the reduced role of the state in the spatial development of the city and allocated a strong inflow of private investment in order to gain control over urban change (Coy, 2006b). As a result, processes of regulation and deregulation of land markets ended up shaping the nature of spatial segregation in major Latin American cities.¹³

Globalisation and stereotypes of a suburban QoL have also contributed to the restructuring of the urban landscape and the intensification of patterns of segregation within the city. Thibert and Osorio (2014) argue that the 'internationalisation of consumer taste' and the rapid pace of suburbanisation, explained by some authors as a consequence of the fear of criminality (Janoschka & Borsdorf, 2004), were strongly interconnected dynamics which gave momentum to the consolidation of so-called 'gated communities' in metropolitan areas.

With the rise of the internationalisation of consumer taste¹⁴, urban elites were attracted to the lifestyle proposed by the cultural influence of globalisation, where association towards homogeneity and a life outside the country are goals in themselves

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¹³ Lefebvre's ideas of *The Right to the City* also capture these dynamics, albeit from a different perspective (Lefebvre, 1992). His argument suggests that the difference between the monetary value of land when it is *exchanged* over when it is *used* produces relations of exclusion and inequality. Within the property market it is clear to see this difference since there are people who can afford to live in certain places and others who cannot and, consequently, are expelled to the periphery.

¹⁴ A common feature of consumer behaviour affecting urban dynamics is car ownership. For instance, average annual growth rate of car ownership in developing countries is higher than in developed countries (UN-Habitat, 2013). Accordingly to CAF, the number of cars in Latin American has expanded from 25 millions to 35 millions between 2007 and 2014 in the region, showing an increase of 40% on the fleet of cars (CAF, 2018)

(Borsdorf & Hidalgo, 2010). For those inhabitants, gated communities offer a connection with a life which is far from their local one and closer to a globalised lifestyle. Indeed, Janoschka and Borsdorf point out how gated communities constitute an integrative element for the middle and upper classes, which associate these spaces with a lifestyle akin to that in a developed country.

The high level of crime found in Latin American cities is also a main factor considered by studies of residential segregation. Caldeira describes how, in the case of Sao Paulo, the fear of violence plays a critical role in the emergence of 'fortified enclaves' (residential, leisure and workplaces), which are used to isolate dwellers from the city, using measures such as private security guards, walls and gates, making the process of isolation more complete than in other cities (Caldeira, 2001, as cited by Freeman, 2003, p. 183).

As a result, a spatial discontinuity is produced within cities. Middle and upper classes self-segregate in places where the built environment provides more amenities, whereas poor households are pushed out to the periphery, where they encounter difficulties in accessing public services, which are either in short supply or managed by informal providers. The movement of these populations to the periphery and to other deprived areas of the city is characterised as a non-voluntary decision where social integration is undermined as areas of social homogeneity are configured across the urban space. Political structures with particular vested interests use spatial segregation – through the creation of different types of neighbourhoods – as an instrument of power to perpetuate injustices and exacerbate social exclusion (Villaca, 1997). As a consequence, visible spatial segregation produces patterns of social classification where not only ethnic and social segregation emerge, but also differences in how people can use and function within the city (Thibert & Osorio, 2014).

1.2.2 Urban Segregation and its Implications for Well-being

The drivers of residential segregation have serious repercussion in terms of levels of quality of life (QoL) and human advantage. The increasing homogeneity in the social composition of Latin American urban areas (e.g. neighbourhoods), and the consequent reduction in opportunities for interaction with people from other social classes, have dramatically reduced options for asset accumulation by poor city-dwellers

(Kaztman, 1999).¹⁵ In cities where spatially segregated areas are readily observable, the progressive reduction in opportunities for informal daily contact that enable people of different socioeconomic status to interact as equals in public places is significant.

Social separation reduces the formation of urban social capital in the sense that it erodes the intangible resources which connect members of the same community and which are embedded in the structure of social relations, which are central to the achievement of individual and collective goals. Lasch (1996) draws attention to this type of reduction of social interaction and lack of reciprocal expectations between the members of an urban area to partially explain the weakness in civic life and social democracy. Granovetter (1973, 1985) goes further and suggests that even in the presence of strong ties and long-term commitment between members of a poor community, social capital can be non-operational as individuals will have little utility if there are no resources to share.

A segregated city also comes with social stratification and deterioration of well-being. Although modern societies are stratified by the creation of social hierarchies, which give support to the division of labour and the use of comparative advantages such as differential talents and skills (Uribe, Vasquez, & Pardo, 2006), within a polarised city those differentials are defined by context-specific circumstances that restrain the right to justice and equality. Rawls (2005) refers to this as 'the second condition of inequality', which happens when inequality is caused by the context in which an individual was born, rather than their ability to access any position in the social structure through merit. In this respect, stratification determines the degree of social mobility within a society and the level of inequality involved. Thus, stratification has important effects in terms of collective action and how places and activities are defined regarding a particular *stratum*, exacerbating social discrimination and divisions within the city. For instance, perceptions of spatial segregation in poor neighbourhoods are expressed by the division

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¹⁵ Kaztman additionally suggests that the vulnerability level of households depends on the possession or control of assets or resources, which in other words means the resources required in order to be able to make use of the opportunities that the environment provides (Kaztman, 1999, p. 20).

¹⁶ From a sociological point of view, the distribution of the ownership of property as well as provision of goods and services determine the types of opportunities which are available to people (J. Scott & Marshall, 2009).

of class and the existence of inhabitants of 'higher *strata*', who do not mix with dwellers of 'lower *strata*' (p. 91–92).¹⁷

Income polarisation and lack of social interaction between city dwellers have not just contributed to the ability of the middle and rich classes to self-segregate over time but also to the weakening of collective social participation. Urban communities in a better economic position have the capacity to 'exit' (Hirschman, 1970) those social relationships which they consider to affect them negatively. The increasingly urban landscape of gated communities that characterises Latin American cities is a clear expression of this, where middle and upper-class households move to fortified enclaves with the intension of isolating themselves from the risks associated with insecurity and social integration. As social segregation has been reinforced by market forces and is bereft of government intervention, self-segregated communities contribute to the deterioration of mechanisms of 'voice' and political participation. Hirschman's principle of 'the greater the availability of an exit, the less likely a voice will be used' (as cited in Koven, 2015, p. 24) is useful to explain how urban societies in Latin America reach higher levels of polarisation, as those who can afford to live in "better" urban locations are easily removed from greater social integration and political action.

In contrast with the above argument, some scholars have contended that residential segregation not only produces negative effects but can also be a trigger for positive social processes. For instance, spatial segregation plays an important role in the configuration, consolidation and sustainability of identity values and codes of conduct. The concentration of members of similar groups when they gather under a voluntary affiliation can be potentially positive since collective identity may stimulate the development of social networks (neighbourhood networking) and consolidate mechanisms of social capital among members. Sabatini (2006) points out that space often takes on a social meaning that determines social conduct.¹⁸ In all these cases,

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¹⁷ This type of segregation can be categorised as subjective segregation and has been poorly studied. The developments of territorial stigmas as well as association of prestige or social stature with particular urban spaces are types of subjective features of segregation that have a negative impact on poor city-dwellers. The trend of 'new poverty' in Latin America is an example of this and encompasses the way that city-dwellers link negative stereotypes of poverty (areas full of drug dealers, delinquency, school desertion, etc.) to particular urban spaces, increasing fragmentation and, consequently, levels of segregation (Sabatini, 2006).

¹⁸ In this case, segregation is more related to segmentation, as individuals tend to group together according to common social characteristics (e.g. areas such as Chinatown or the Latin Quarter).

segregation could serve as a social mechanism to isolate social minorities against exogenous factors or to promote social mobility between dynamic minority groups, displaying residential segregation more as a phenomenon and a process rather that a vector of inequality.

1.3 Urban Fragmentation: The Production of Segregation at the Micro Scale

1.3.1 The Notion of Scale: Uses and Applications

When looking some of the above drivers and consequences of urban segregation within cities, the recurrent idea that contemporary cities are just polarised cities ends up being inaccurate. Over the last two decades an increasingly large number of studies have shown that the polarised city is also a fragmented city (Caldeira, 2001; R. Atkinson & Flint, 2004; Dupont & Houssay-Holzschuch, 2005; Landman, 2011). This discussion brings us to the notion of scale and how changing patterns of residential segregation can have different effects on people's quality of life.

Indeed, geography, as an academic discipline, has been understood in terms of core concepts such as space, time and nature (Harvey, 1997). From the emergence of descriptive regional geography and the incorporation of elements of Marxist theory in the development of geography, a new emphasis has been incorporated into the discipline but without ignoring that concepts such as 'place', 'space' and 'environment' should be guiding notions of analysis. In parallel, the evolution and development of geography have given a notoriously minor importance to the scale dimension.¹⁹

The notorious under-representation of scale as a concept can be found in the rather narrow way in which its use has been encoded and analysed. As a concept, 'scale' has been applied mainly to abstract ideas of size and level. Following Howitt (1998), recurrent metaphors of scale as analogous to size (areal dimension) and level (hierarchical dimension) tend to strip away from its conceptual and explanatory value. For Howitt, 'relation' is a recurrent missing metaphor for scale and can be understood as the interfaces between scale boundaries (Passi, 2004). Scale as relation suggests the

¹⁹ Howitt (1998) points out that the developing of geographical 'scale' has been notably 'treated as a derivative or implicit element in the discipline's intellectual trajectory' (p. 51).

idea that the interactions between frontiers are not just things but also events, relationships and processes (Howitt, 2002). Scale should not be conceptualised as a 'hierarchical framing to ordering the world' (Marston, 2000) where categories of global, regional, national and local schematise world realities but rather as the results of 'contingent outcomes of tensions that exist between structural forces and the practices of human agents' (p. 220). To put it more succinctly, spatial scales do not have a 'pregiven ontological status' (Amin, 2002) but rather are social constructions that change according to struggles and conflict.

The debate about giving 'scale' a more reasonable importance, but without giving it conceptual supremacy, has been intensely theorised for human geographers in the last two decades. However, and despite efforts from scholars to narrow its scope and assign it a conceptual utility, scale as a social and spatial dimension is still loosely defined. Previously, Brenner (2001) pointed out that the research on scale and rescaling processes has been accompanied by 'analytical blunting' (p. 592), which makes it difficult to appreciate its epistemological and methodological utility. More recently, similar concerns have been raised as scale dimensions continue to be blended with traditional core geographical concepts.²⁰

In the case of socio-spatial differentiation, scale becomes a social, fluid and contingent category of analysis. By considering scale as a flexible measure, the study of the phenomenon of residential segregation will consider not only the macro structures that reproduce urban polarisation but also those that occur at more localised scales — those which are not only visually striking but that are also lived on a daily basis. This latter pattern of residential segregation can be understood as spatial representations of forces that produce exclusion and integration within the city but at a more detailed and specific level. As will be mentioned in the next section, the fragmentation of cities is represented in the kind of urban pattern where the spatial scale of segregation tends to decrease to a micro level.

Taking a step back from the meaning of the concept of scale and concentrating on more spatial interpretations, segregation has different connotations depending on which scale is used. In terms of measurement, scale sensitivity of segregation is based

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²⁰ For instance, one of these concerns is that geographers have been using network theories to understand horizontal and vertical socio-spatial relationships (Amin, 2002; Leitner, 2004).

on how large or small areal units are, as larger areal units will result in lower levels of segregation and smaller units will produce higher levels of segregation (Wong, 1997). In addition to the scale sensitivity, some segregation measurements are not able to capture spatial interactions. By all means, these two items pose great challenges for the understanding of micro-scalar processes of segregation.

In the case of 'aspatial' conditions of measurements, there is a large bodily of literature that has paid attention to this subject (D. S. Massey & Denton, 1988; Morrill, 1991; Wong, 1993; Grannis, 2002; Lloyd, Shuttleworth, & Wong, 2014). Methodological tools such as index of dissimilarity, the exposure index, the variance ratio index, and the entropy-based information theory index are all 'aspatial' measurements of the space which, put differently, do not capture the full spatial relationships which occur among neighbourhoods or other specific geographical locations (Reardon & O'Sullivan, 2004). For all those indices, social particularities in the space are similar as they take social environments to be equal to administrative or political divisions – space configurations, particularly the distribution of minorities in the space, are insensitive to the application of these measurements.²¹

Studies of segregation using traditional measurements normally find the same level of segregation, even if cities are divided into large areas with no trace of diversity or are formed, for instance, by a patchwork of mixed and gated communities (Roberto, 2015). As a result, segregation measurements have difficulty in distinguishing between micro and macro scale dimensions of segregation, leaving out the particularities of how places are spatially arranged. In the case of Latin America, where patterns of segregation have been described as more micro than macro²², the application of traditional measurements of segregation miscalculates real dynamics of how segregation

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²¹ A direct consequence of having aspatial measurements of segregation is that analyses based on these indices are not suitable for making statements regarding the spatial nature of urban interactions as they do not include the spatial context of segregation patterns. The idea of equating neighbourhoods within which individuals live with administrative spatial units (census tracts), produces serious misrepresentation of the reality that occurs inside the location analysed, as it has largely discussed by authors such as Reardon and O'Sullivan (2004) and Wong (1997, 2005).

²² Ward (2009) refers to the case of Mexico City where macro residential segregation levels have tended to decrease due to the informality of the market place, in many cases allowed by the state, and a reduced state intervention in the development of Master Plans and zoning projects, contrary to what happened in Europe where large scale housing planning was put in place. In contrast, micro residential segregation levels have risen dramatically as gated communities become a constant in the urban planning of the city, mainly as a result of insecurity..

is evolving in the urban space.²³ The presence of microsegregation, in the form of mixed communities in neighbourhoods, emphasises flawlessly this problem, as measurements based on census tracts (in other cases block group or block) normally assign a low level of segregation, without noticing that substantive residential segregation is taking place. This argument suggests that depending on the scale considered, different patterns of residential segregation can emerge. This has implications for how the subject is studied and reflected as different aspects would be considered. For instance, if the research interest is to know about the effects of segregation on the whole urban agglomeration and understand its effects on variables such as local governability, productivity, security and mobility, aggregated indicators of segregation will be under examination. On the contrary, if the research interest is to look at the effects of segregation on people's trajectories, studying aspects such as labour insertion, educational outcomes and role models, analysis will be framed under the research stream of 'neighbourhood effect' (Arriagada & Rodriguez Vignoli, 2003). This latter framework is the central aspect of research in this thesis.

1.3.2 Urban Fragmentation and Microsegregation

In the same way that urbanisation unfolds as a multi-scalar and polymorphic process, and the spatial borders of the city follow an uneven spatial development (Brenner & Schmid, 2015), urban segregation also modifies its aims, scope and manifestations.²⁴ In the case of residential segregation, a scalar thinking allows us to investigate distinct patterns of urban separation, particularly those that have contributed to create a 'city of fragments'.

In the case of Latin America, Janoschka's (2002) description of the fragmented city, which aptly complements the classical urban structure proposed for the region by Griffin and Ford (1980, 1996), is a genuine attempt to explain the ongoing urban model

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²³ For instance, the rather simple view of using census tracts as proxies of neighbourhoods entails that the unit of analysis is 'compact, recognisable and homogeneous' (Gabriel & Thomas, 2015), which means that the unit of analysis (a hypothetical neighbourhood) does not account for spatial differences between individuals as 'all persons sharing a tract are equally proximate to everyone within its boundaries' (Lee et al., 2008, p. 3). When segregation takes extreme values, such as at macro and micro levels, standard measurements are not able to capture the segregation patterning, obscuring class, racial and income patterns which emerge, precisely, in those scalar categories.

²⁴ Robert Park (1926) once suggested that spatial patterns reflect social relations in order to describe urban communities. His famous argument is quite relevant today for understanding how current expressions of residential segregation are affecting QoL in the urban space.

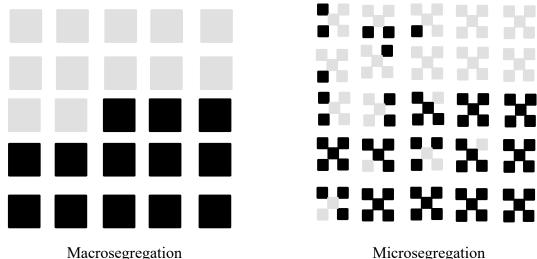
in the region, which displays the emergence of constellations of 'islands' for different urban purposes: industrial, residential, commercial and affordable uses (Balbo & Navez-Bouchanine, 1995; Dupont & Houssay-Holzschuch, 2005). The fragmentation of the urban space in Latin America represents a structural metropolitan transformation that has modified the scale of how socio-territorial segregation develops. A result of this process is the transition towards cities that no longer display the spatial dichotomy – 'rich city' and 'poor city' – typical of polarised cities. Instead, cities of 'enclaves' of poverty and wealth are more evident. Spatial segregation has evolved towards a greater mix in terms of urban landscape, where the combination of income polarisation, and its effect on the urban structure, has consolidated this process of fragmentation within the city – the emergence of 'small units of wealth and poverty that are spatially contiguous but socially isolated from one another' (Thibert & Osorio, 2014, p. 1325). The polarisation of yesteryear, where segregation took place at the macro level and was visually evident, is now taking place at the micro level (Figure 1.1), where local spaces are in competition with each other and the impact of segregation on QoL is more diffuse and difficult to measure.

These changes in the patterning of segregation might give the impression that processes of cohesion and integration among heterogeneous groups can be reached more spontaneously, as degrees of segregation tend to reduce with time. Indeed, a less polarised city contributes towards a greater social mix in overall terms. However, the current process of de-polarisation and the intensification of enclaves of social and class differentiation among communities has intensified residential segregation but now in smaller, and consequently, more intimate spaces where social integration is jeopardised.²⁵

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²⁵ For some authors, these enclaves of heterogeneous populations living together belong to Orwellian policies of control, as poor neighbourhoods are atomised in small units in order to facilitate their administration and supervision (Uitermark, 2003; Ruiz-Tagle, 2013).

Figure 1.1-1 Patterns of residential segregation according to scale



Microsegregation

Source: Adapted from Iceland and Weinberg (2002).

This particular urban tendency is a phenomenon which scholars have tended to conceptualise as a process of 'cellular segregation' (Thibert & Osorio, 2014) in the sense that Latin American metropolitan areas have become more mixed at the macro level (at the neighbourhood level) and more segregated at the micro level (at the block and street level) (Borsdorf & Hidalgo, 2010). One of the processes that may lead to more cellular segregation is the relatively new urban intervention of integrating affordable units into market-rate housing initiatives, which could trigger urban conflict, as is happening in global cities such as London or New York with the phenomenon of poor doors²⁶ (H. Osborne, 2014; Espino, 2015). This co-habitation without integration, referred to by Graham and Marvin (2001) as splintering urbanism, is said to intensify physical proximity while undermining social integration.

However, in the case of Latin American cities it seems that all possible triggers for the fragmentation of landscapes come into play in the intensification of patterns of segregation on a smaller scale. In addition to those mentioned above, violence and the production of 'invisible borders' to control specific territories; high levels of income inequality that isolate communities and institutionalise physical and social separations; and class struggle against the influence of the private sector on land use regulations or

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²⁶ The phenomenon of poor doors can be described as the development of luxury apartments together with affordable units, where separate entrances for different socioeconomic groups are provided within the same apartment building.

real estate development (Ruiz-Rivera & van Lindert, 2016) are key to explaining the rise of cellular segregation in metropolitan areas. These issues confirm the importance of scale in segregation not just in helping to improve our understanding of how residential segregation operates, but also in identifying cause and effect processes of segregation within broader urban processes, such as gentrification, provision and access to public goods, environmental changes, city planning and urban QoL, among others. Bearing this in mind, any approach to understanding the Latin American contemporary city and how QoL is affected by that change should consider the social division of space, which today seems to occur more intensely at the micro level.

In the investigation of micro-scalar forms of segregation, scale cannot be assumed to be as straightforward as the configuration of segregation which is manifested in local and spatially fixed places, as an opposition to more areal manifestations of segregation. Even though microsegregation refers to processes of social exclusion that occur on spatially singular scales, in terms of size and level, it is also a manifestation of politics of scale where social relations of exclusion and fragmentation are performed in different scales which, in the end, are 'the embodiment of social relations of empowerment and disempowerment and the arena through and in which they operate' (Swyngedouw, 1997, p. 169). To be more specific, segregation, as a socio-spatial dynamic, tends to reproduce effects in different scales, and particularly in its micro scale are processes that become constituted and transformed. As such, the employability of *micro* does not necessarily refer to its spatial connotation, but also to those scales that define the space and that are mediated by their demographic, economic, cultural and political conceptions. Therefore, what occurs in spatially singular places is not just a simple connection between micro and macro realities, but rather a multi-scaled process of identifying relations that have a concrete manifestation in specific locations (Carson & Koch, 2013).

The attributes of this micro-scalar pattern of segregation can be found in two different but interconnected domains. The first refers to the agglomeration of mixed communities in small spatial areas within the city. In this domain, segregation patterns develop through the mix of residential areas of high class and low-income settlements. The second domain encompasses the social division of the space through the physical manifestation of gated communities. As will be shown later, socially mixed and gated

communities find themselves in opposition as the former give rise to lower levels of segregation whereas the latter intensify segmentation in the cityscape.

1.3.2.1 Mixed Communities

By using a different spatial scale, it is possible to identify islands of poverty within areas where better-off populations are located. Enclaves of mixed communities, which have been configured either by land market dynamics or state intervention, are becoming more common in the urban landscape of some Latin American cities (Parnreiter, 2005; Coy, 2006b; Ruiz-Tagle & López M, 2014; Michelini & Pintos, 2016).

Mixed communities have been present in the urban landscape for quite some time and can be traced back to the ideas of Ebenezer Howard, who gave rise to the Garden City Movement, and town and country planning in the United Kingdom. The establishment of mixed communities in urban planning is not only an efficient mechanism for enabling neighbourhoods to be more socially 'balanced' but also allows residents to be closer to urban centres, and hence, to urban opportunities. More recently, mixed communities have been at the heart of the debate as policymakers of the 'new urbanism' have advocated for mixed neighbourhoods in the hope of improving QoL in disadvantaged communities through access to better urban amenities, social stability, security, and peer groups and role models.

The evidence relating to mixed-race and mixed-income neighbourhoods, mainly in North American metropolitan areas, suggests that integration and cohesion between individuals is rather meagre (J. E. Rosenbaum, Stroh, & Flynn, 1998; Joseph, Chaskin, & Webber, 2007; Tach, 2009; Chaskin, Khare, & Joseph, 2012). Although individuals share the same neighbourhood space with others, encounters and interactions are more often between people of the same race or socioeconomic background and are very limited between people of different social and cultural affiliations. Tach (2014) identifies, in the case of the mixed neighbourhood of South End in Boston, that

individuals interact with other residents when similarities of 'race, language, family composition, housing type and social standing' (p. 15) are present.²⁷

In the same vein, Cheshire (2009) claims that housing programmes which advocate for mixed communities are 'faith-based policies' (p. 344) as they are based on scant evidence and normally attack symptoms rather than causes of inequality and poverty. Indeed, claims that living in a non-mixed deprived neighbourhood will reduce a person's life expectancy, or what is often called the 'neighbourhood effect' do not take into account studies, which have shown null effects. Experimental and quasi-experimental studies (Jacob, 2003; Oreopoulos, 2003; Kling, Ludwig, & Katz, 2005; Kling, Liebman, & Katz, 2007), based on longitudinal data and cohort studies, conclude that neighbourhood characteristics do not have an impact on subjects in areas such as employability or QoL.

In contrast, other authors state that neighbourhood quality plays a major role in determining positive QoL outcomes. For instance, a more diverse neighbourhood challenges ideas of a 'culture of poverty' which claim that living in poverty will lead individuals to become accustomed to a situation of marginality, powerlessness and dependency. Marginality will lead people to develop a subculture adapted to those conditions (Lewis, 1975), condemning them as eternal 'prisoners of poverty'. From this perspective, poverty becomes an autonomous vicious circle as behaviours and attributes are passed on to successive generations by means of a socialisation process (Dike, 2014). Studies of mixed communities have shown that moving people to places where more opportunities are available would positively change the efficiency structure with which they have traditionally lived (J. E. Rosenbaum, 1995; J. E. Rosenbaum et al., 1998). The residential mobility programme of Gautreaux, a mid-1990s US housingdesegregation project which randomly relocated low-income families to better-off neighbourhoods, showed that relocation to those places had led to gains in job opportunities and an increase in income (J. E. Rosenbaum, Reynolds, & Deluca, 2002).²⁸ More recently, Chetty and Hendren (Chetty & Hendren, 2015; Chetty,

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²⁷ Tach (2014) also confirms what Suttles (1970) previously referred to as 'ordered segmentation' to denominate an overall pattern where age, sex, ethnicity and territorial space intertwine to organise social relationships between diverse communities.

²⁸ Long-term neighbourhood effects have been traced to the programme and, although the evidence has not been overwhelming, results have indicated changes in how inhabitants perform in 'neighbourhood

Hendren, & Katz, 2015), studying the Moving Opportunity Programme, found that moving families living in high poverty housing projects to lower-poverty neighbourhoods produced life changing outcomes.²⁹

These studies offer eclectic evidence regarding the effects of mixed communities, not to mention the lack of attention to non-American cities, suggesting more research should be done on the subject.

1.3.2.2 Gated Communities

Another expression of this process of micro-scalar segregation can be captured with the phenomenon of closed living, popularly known as 'gated communities'. The reproduction of gated communities and other 'fortified enclaves' has been at the centre of the evolution of segregation structures in Latin American cities. A closed urban landscape has changed the spatial composition in urban cities towards a more homogeneous social pattern, as poor and rich are moving from living apart (centre/periphery) to being closer (cohabitation in the centre or in the periphery).

Designed to enclose dwellers within extensive complexes of apartment buildings, gated communities are places in which social encounters are very limited, as privacy becomes the overarching goal within the community. The physical appearance of buildings is characterised by high walls that surround the property, electric fences to discourage trespassers, and a team of private security guards who make use of a comprehensive system of surveillance in order to provide reassurance to residents. These residents have voluntarily chosen a segregated way of life, which in many cases leads to isolation and fragmentation.

Gated communities have been identified as mechanisms to mitigate against violence and high levels of insecurity, factors which characterise contemporary cities in Latin America. The securitisation of public space is a reaction with which citizens have

placements', such as neighbourhood resources, schools, labour markets and social interaction (J. E. Rosenbaum & Zuberi, 2010).

²⁹ Using a dataset of more than 5 million families in the United States, the researchers contradict earlier findings regarding the low impact of residential mobility programmes. According to the researchers, neighbourhoods have a causal effect on outcomes for children, as for every year that a child spends in a better neighbourhood, school attendance levels and earnings in adulthood tend to increase (Chetty & Hendren, 2015, p. 1). Based on this evidence, policies on residential mobility should try to target families with young children in order to boost effects, as they can reduce the intergenerational transition of poverty (Chetty & Hendren, 2015).

responded to the increasing levels of insecurity – an endemic feature which seems to belong to all capital cities. Socio-spatial patterns have been carved out in relation to realities and perceptions that city dwellers have regarding levels of insecurity and violence within the city, creating closed off spaces or, at best, privatising communal areas, such as streets, footpaths, parks and rivers, to name but a few. Private security firms offer their services to secure middle and upper income residential buildings, making them no-entry areas to non-members or "undesirable" people, who in many cases can also be neighbours (Caldeira, 2001).

Alongside the high levels of insecurity in the region, a systematic stigmatisation of more deprived communities intensifies the phenomenon of enclosed living. This stigmatisation is a sort of 'penalization of the poor' (Wacquant, 2003), and leads to the argument that disadvantaged areas, or even disadvantaged people, are synonymous with insecurity and violence. Therefore, urban isolation through the establishment of *condominios cerrados* contributes to a systematic shutting out of the city that in addition to privatising public space and enlarging the surveillance state, contributes to social divisions between city dwellers.

The citadel formation which Marcuse (1997) conceptualises as the presence of high income groups living in fortified buildings or 'golden prisons' seems to be no longer accurate to describe this process of microsegregation where gated communities are reproduced not just for the sake of protection against insecurity, but also for excluding and segregating other communities. It is evident that citadel formation is also common in places which have been largely known as deprived areas. In many capital cities of the region, gated communities have emerged as places of residence for low-and middle-income families in areas close to the periphery of the city. This production of space, which is based not only on a process of segmentation and separation, but also on the paradoxical scenario of communities which are mixed but also gated, involves dynamics which occur at levels of analysis that are not usually explored. A micro scale observation of segregation makes it possible to delve deeper into those dynamics and suggests new frontiers of analysis. This does not imply the exclusion of other geographical scales, but supports the idea that scales are interconnected.

Bearing in mind the above, a more accurate approximation for improving our understanding about how residential segregation unfolds points out not just the

traditional axiom that 'space matters' but also the ongoing ontological discussions about multi-scalarity and how it affects urban processes.

1.4 Residential Segregation Processes and Institutional Drivers of Separation and Exclusion in Bogota.

One of the most obvious features of Latin American cities is the pattern of residential segregation. This segregation is evident in the unequal way in which city residents access and appropriate the urban territory. The characteristics of Bogota's city structure are similar to those that shape other major Latin American cities: a permanent withdrawal of the elites to certain parts of the city, a systematic decadence of the city centre and an associated increase in levels of insecurity, a secular socio-spatial segregation and the concentration of poverty and the urban poor in the peripheries of the city (S. Jaramillo, 1999; Salas Vanegas, 2008).

Bogota is the fourth largest city in Latin America and in recent years has become a paradigmatic case to understand cities in the global south, particularly due to its innovation in urban infrastructure and its 'model of progressive development' based on the concept of 'civic culture' (Dundjerovic & Bateman, 2006). Today Bogota has a population of 8,080,734 residents and is the most populous city in Colombia. Despite major innovations in terms of mobility such as the introduction of the Rapid Transit Bus (Transmilenio), and internationally recognised for best practices in public-private investment models, the city has performed poorly across a range of social indicators, notably those related to the quality of transport, air, security and social equity (*Report of quality of life in Bogota [Informe de Calidad de Vida en Bogotá]*, 2018). In terms of spatial inequality, the city remains almost unchangeable. Public policy has failed to address the north-south polarisation in an integrated way.

The following section will identify a set of institutional modalities that have served to instrumentalise residential segregation as a strategy to perpetuate spatial inequality in Bogota. Firstly, the section historically traces the process of formation of the city, detailing the processes of provision of urban public goods that have served to distance and segregate entire sectors of the population. The section draws on the concept of splintering urbanism (Graham & Marvin, 2001), showing that urban policy in Bogota has encouraged the fragmentation of the city following the establishment of

the transport network and public services to satisfy primarily affluent neighbourhoods rather than the entire population. The second part focuses on particular institutional agents that have played a significant role in the processes of residential segregation. The segregative process that the city has undergone can be understood from several points of view: not only from the spatial dimension but also in its economic and social manifestations, as well as in the fields of human action – such as at school or the workplace. In this regard, the second part will cover the distinct mechanisms and political structures that have contributed to cementing the physical separation between socioeconomic groups in Bogota.

1.4.1 Urban Growth and the Unfolding Residential Segregation Problems in Bogota

Residential segregation is a dynamic process that tends to change over time. For many authors, residential segregation as a social problem has been intensified over the years in contemporaneous cities. Several reasons explain this situation: i) market liberalisation has intensified the concentration of wealth, ii) The cost of land has increased the value of housing, ii) insecurity and high levels of crime have led to the development of gated communities and separation between neighbourhoods, iii) regressive policies with regards to public investment have led to the concentration of public investment in affluent neighbourhoods (Cutler & Glaeser, 1997; Cutler, Glaeser, & Vigdor, 2007) and iv) the surge in territorial stigmas and negative stereotypes that ultimately create a ghettoisation in the urban space (Wilson, 1987). All these variables seem to apply to some extent to the case of Bogota. The separation between affluent and non-affluent populations, besides the evident spatial inequality presented between these areas, is a result of how urban development of the city has been approached, particularly in how the state has implemented land management policies, and how urban rules have not been used effectively to promote social mixing in the city (Secretaria Distrital de Planeacion & Universidad Nacional de Colombia, 2007). In a nutshell, the residential dynamic of Bogota can be described as a process that tends toward the north-south polarisation of the city, and the lack of assertive public policy that could contribute to social convergence in the urban space. This pattern of segregation has been embedded in the local urban consciousness and has now been replicated in conurbated areas of the city, particularly in the sabana area of Bogota (savanna of Bogota).

The pattern of residential segregation in Bogota during the first part of the twentieth century was characterized by the concentration of the population around the central plaza, particularly la *Plaza de Bolivar* and what is known today as the historical centre of the city. The spatial structure of the city was based on a grid plan or *damero* shape where the central components were the central square and a set of ordered blocks. Economic and social activity was limited and although there were class differences, interaction was common between elite and working classes due to the size of the city, which kept residential segregation at a minimum.

Originally, the process of urbanisation of the city was characterised by urban densification. In 1894, Bogota had 257 city blocks, whose urbanisation was almost complete. Annexed urban centres, as was the case of Chapinero, where affluent families migrated to obtain better living conditions as they were closer to the *Haciendas*, were quickly densified. The rather slow urbanisation process in Bogota of the late nineteenth century contrasted with the rapid process in which the city started to expand in the early twentieth century. Real estate projects were rapidly developed in the areas between the city and the wider region. New neighbourhoods were created, filling areas between the historic centre and Chapinero and other conurbated areas. To the north, neighbourhoods such as Teusaquillo, La Merced, Sucre, Santa Teresa and Sagrado Corazon were developed mainly for affluent residents. In contrast, to the south, working class neighbourhoods such as San Cristobal, Restrepo and Primera de Mayo were further developed. The social heterogeneity of the orthogonal grid, where rich and poor live close to the central square, was replaced by a system of homogeneous neighbourhoods which classified people based on income. Thus, residents began to inhabit areas according to their social and economic status.

At that time, the notion of the working-class neighbourhood was one of the central objectives of the urban planning of the city, where the creation of urban settlements for this population could be easily integrated into the existing urban structure. The hygienist city promoted by the health movement influenced public policy in Bogota urging the local government to improve the conditions of urban habitability, through the expansion of sanitary drainage systems and urban accessibility. During the first half of the 21st century, the north central axis was consolidated as the main vector for the expansion of the city. The lack of clear urban policies for working class

neighbourhoods contrasted with the intervention of formal urban planners who were keen to develop real estate projects in this target area.

In 1954, Bogota became a Special District, made up of the municipalities of Usme, Bosa, Fontibon, Engativa, Suba and Usaquen. Previously, Le Corbusier had proposed the idea of a multipolar regional network for the city (Guzman, Oviedo, & Bocarejo, 2017), which consisted of creating the basis for a regional plan for the entire Bogota region. Unfortunately, the plan was not put in place and the idea of Bogota region was postponed until the creation of the Special District. Two main reasons were given as a reason for the annexation of these municipalities. The first had to do with the addition of large amounts of land available at low cost. Rural-urban migration had brought with it additional pressure for the tenure of land, so the addition of municipalities could lessen some of these burdens. A second main consequence of the annexation was that new municipalities lacked urban planning capacity to implement an organised and coherent plan of urbanisation (Secretaria Distrital de Planeacion & Universidad Nacional de Colombia, 2007). The integration of the new adjacent municipalities, mainly in terms of transport and urban services, with the existing economic and functional structure of the city did not progress as planned. The integration of these municipalities was carried out without the existence of a master plan that would have provided minimum general guidelines to establish connections with the new municipalities. As a result, the urbanisation process of the new municipalities was led by the emergence of various housing developers who found a profitable market to produce precarious low-cost housing for the growing municipalities. Over the years, housing in the new municipalities was provided by a set of emerging informal housing developers that with the complicity of local government, generated a landscape of low quality housing, without official connections to the water, electricity or sewage networks (Cortes, 2005).

New Road and Urbanisation Plans were developed in 1958 and 1959, respectively, promoting planning according to zones and bringing an end to the concept of neighbourhood as a key element for urban planning (Secretaria Distrital de Planeacion & Universidad Nacional de Colombia, 2007). As a substitute, the idea of planning based on the road network constituted the new mantra. As a consequence, the planning of the city followed the social division of classes, reinforcing barriers between groups and laying the foundations of a segregated system based on the location of

people's homes. The division in the structure of the city was dominated by the tendency of better off populations to move to more septentrional places inside the city as worse off populations started to consolidate their social and cultural activities in the south (Dureau, Barbary, & Lulle, 2007; Aliaga & Álvarez, 2010). Thus, a process of self-segregation between elites, strongly supported by the existence of urban developers' rentier spirit and relaxed state housing provision policies, contributed to widening the spatial distance between affluent and worse off populations in the city.

During the 1960s, several road plans were implemented to improve residents' mobility. The creation of avenues such as the Boyaca, the Medellin highway and Constitution Avenue generated a concentric ring model of distribution in the city that was subsequently filled with residential areas of different kinds (Alfonso, 2012). In this way the city made room for living spaces such as gated communities, open residential developments, large sets of official housing, and the creation of peripheral informal settlements – each with its own logic of exclusion and segregation. The distribution of public goods reflected previous periods which were characterised by encouraging real estate developers to carry out construction along the centre-north axis of the city.

The land zoning process as an urban directive also brought with it a set of consequences that stimulated the segmentation of the city. Firstly, zoning delimited residential areas, those of industrial use and those of commerce, defining and regulating the design and minimum size of lots. Originally, residential areas were classified into two types: "residential" areas and zones for working-class neighbourhoods. The latter included both residential areas as well land used for commercial and industrial purposes. For each zone, a minimum size of the front of each building was defined. Similarly, a maximum permissible ground coverage proportion per lot was established (Lozada and Gomez, 1976). The impossibility of complying with these norms for the lowest strata meant that regulation was rarely enforced, promoting the creation of pirate neighbourhoods or *invasions*. Zoning also affected the way public space was provided. In principle, the provision of public space should be in line with the socioeconomic status of residents. However, article 52 of agreement 30 of 1961 defined the opposite. According to this article, working class neighbourhoods were expected to assign a greater proportion of land to public space while exclusively residential areas were able to retain more land for private use. This urban transfer policy required that 38.8% to 42% of total land area be allocated to public use in working class neighbourhoods while for residential areas the proportion was set at 22.5% to 28.6%. This created additional pressures for the proliferation of clandestine lots and the intensification in the production of pirate neighbourhoods. Alfonso (2012) argues that by using this urban directive, worse-off families' access to affordable housing was limited, which to some extent exacerbated the process of segregation as informal settlements, land invasions and pirate neighbourhoods began to grow in the "poor south" of the city.

In early 1970s, the urban planning of the city entered into the logic of economic development. In 1972, Lauchlin Currie revisited ideas proposed by Le Corbusier, publishing a comprehensive study on transport, urban development and infrastructure in Bogota in two parts (Avellaneda, 2006) and proposing the creation of new urban centres or self-sufficient cities in strategic areas of the city. By then, the priority of local government was the provision of public services for the most vulnerable areas, while the provision of housing was almost exclusively seen as the remit of the private real estate sector. The Bogota administration also concentrated on complying with the extension of the road network, which privileged the city's polycentric model. The urban growth of the city was then at the hands of private developers who saw an opportunity to expand real estate projects in the north western area of the city. The negligible participation of the public administration in social housing issues, as well as the lack of action in looking at for alternatives to stimulate its development, resulted in the creation of areas with few urban amenities or services and disconnected from the areas of greater growth in the city.

From the 1980s the densification of the city was intensified through the action of real estate developments, mainly in the north and north-west of the city. The local government agenda was concerned with the compaction of the city, alongside the need to provide an integrated transport system. The verticalization of urban housing was introduced as an effective strategy to achieve greater density in the city, while also increasing investment profits for real estate developers. The provision of public goods progressed in relative terms during the second half of the last century. The discussion on the integrated transport system opened the way for the debate on improvements in urban mobility and the need to connect urban infrastructure more efficiently. Other issues of interest in urban governance were the need to operationalise the new regulation on drinking water and basic sanitation through a pricing system that reflected operating costs. The political constitution of 1991 modified the expectations of the real estate

developers introducing a capital gains tax, known as the plusvalia tax (Alfonso, 2012). This was used to limit the profit motivations of real estate developers when the value of land is increased due to state intervention or the verticalization of the city. The associated legal framework did not begin to operate until 1997 with the introduction of Act No. 388 (Regional and Urban Development Act). In the case of Bogota, the Act introduced the territorial zoning plans (POTs) which for the case of Bogota established the new road map in terms of how the territory should be ordered.

This dynamic of residential segregation in Bogota has been reinforced during the last 30 years. The remedial urban policy of the early 1990s, which established the arterial road network extension programs, as well as the expansion of the water pipeline and sewerage matrix in the south of the city, did not lead to the mobilisation of better off families to these areas. On the contrary, the most affluent families continued to occupy the traditional zones of the north and north-west and were not attracted by the city's urban improvements in alternative areas. In this regard, Rios (2010) notes that it is almost impossible to identify expensive residences in working class neighbourhoods, while it is more common to identify low-priced houses in exclusive neighbourhoods. The logic of residential segregation surpasses urban practice in the sense that the choices made by individuals is a major factor in perpetuating the separation and exclusion between strata.

Historical accounts indicate that state intervention in the configuration and administration of the land in and around Bogota has been notoriously low. The scarce intervention of local government in the provision of social housing is particularly alarming and the lack of regulation of land prices in areas surrounding Bogota has played a key role in pushing less well-off families to the outskirts of the city thereby intensifying segregation processes. Likewise, the most affluent families found a real estate market adjusted to their needs, which prioritized a low density suburban model in municipalities in the north of the city. In this way, urban management in Bogota has ended up promoting a process of residential segregation, not only in the way in which the management of the land was conducted, but also in the opportunistic role of real estate agents who have found ways to increase their incomes at the expense of the integration of the city and its inhabitants.

1.4.2 Institutional agents and dynamics of residential segregation

The dynamics of residential segregation in Bogota can also be interpreted from the perspective of the design and implementation of public policies. Within the design of urban policies in Bogota, a series of actors have exerted their influence in order to satisfy their economic, political and social interests. The current state of residential segregation is the result of policy decisions that have facilitated the appearance of rent-seekers who obtain economic gains in real estate markets without returning any kind of social benefit or investment. The institutional framework that operates behind the ongoing residential segregation process in Bogota is composed of agents, norms and collective actions that feed the inertia of spatial separation in the city. Four macroprocesses are detailed below where the structure of the institutional framework of segregation finds incentives for its reproduction: the rentier model of housing developers, the socio-economic stratification system, densification strategies and policies of urban land management.

1.4.2.1 Housing production and the polarisation of the city

The evolution of housing provision in Bogota has been marked by the parallel existence of a rentier system influencing land markets and formal real estate development. Since the beginning of the 20th century, the demand for housing by the working-class population has been high, mainly due to rural-urban migration and population growth. This demographic pressure led to the consolidation of a land market instead of a housing market, which increased the illegal division of peripheral land. This then led to the emergence of pirate neighbourhoods as well as the renting of rooms in large houses in the centre of the city which had been vacated by wealthy families in search of new neighbourhoods to the north of the city began to proliferate in the centre and the periphery of the city. Private real estate developers have played a progressively more active role in the provision of housing in Bogota, prioritising the construction rows of houses to be rented by working class families. These two systems have coexisted, ensuring rents for both legal and illegal real estate developers.

The precariousness in the provision of affordable housing in Bogota led to formal real estate developers demanding that the local government take action to exercise control over informal rentier actors. As a consequence, the formality of the housing market privileged the strengthening of the provision of affordable housing

through the action of construction companies supported financially by the industrial sector (Rios, 2010). Although control over the illegal division of lots increased considerably, both practices continued. Even worse, each model intensified residential segregation in its own way. The two models provided housing for specific societal groups, with housing following a segregative pattern, as the type, size and quality of residences are influenced by location. As such, low-cost housing has been and continues to be built where the price of land is low, which corresponds to those places where the poorest people are located. In this respect, social affordable housing programmes have reproduced the segregative patterns that Bogota displays, perpetuating the north-south division of the city.

In this way, the logic of the spatial separation of Bogota is a product of a housing market almost entirely controlled by real estate developers. Blanco (2012) refers to this kind of urban planning as a model of *land entrepreneurialism* as land markets are privatised and the costs of urban infrastructure are socialised. Illegal and legal developers are encouraged to make the maximum private profit with disregard for technical innovation or considerations of social equity. The production of housing generates a huge burden in terms of space and public services, where densification increases the demand not only for urban amenities, as is the case of parks, schools, bus stations, etc; but also for sewage, water pipes, electrical networks and waste disposal (Yunda, 2019). Thus, the densification brought about by the liberalisation of the land market defines a model of appropriation where the benefits in the provision of housing are privatised and the costs have to be socially internalised.

The introduction of long-term residential financing is an important emergent aspect to consider in relation to the provision of housing. Within the real estate market, the introduction of the UPAC (an inflation linked savings account) system, as a financing mechanism for the construction and acquisition of long-term housing, had important consequences for the development of housing policy. The UPAC was a unit of constant purchasing power that was used to make long term mortgage loans. Originally, long-term residential financing was aimed at high- and middle-income families that demanded new neighbourhoods or gated communities proposed by the real estate developers. Real estate capital had unprecedented financial leverage to develop and take advantage of urban land. To a certain extent, the mortgage market defined the

segregated structure of the city by financing the verticalization of the city on the Central-North and Central-West axes of the city.

1.4.2.2 The stratification system: production of stigmas and low social mobility

As previously noted, the evolution of the process of residential segregation in Colombia is relatively similar to that seen in other Latin American countries. However, the process of urban planning undertaken in Bogota, in particular the introduction of the stratification system to allocate subsidies, is an element that stands out as relevant in identifying differences in how residential segregation has operated in the city. The 'stratification system' is a socioeconomic mechanism that ranks residences from one to six strata,³⁰ aiming to focalise subsidies to calculate utility bill tariffs (Uribe & Pardo, 2006). The stratification system works not just as a mechanism to classify the urban population but also as an income based spatial division that contributes to the polarisation of the city between poor and rich inhabitants (Figure 1.2). Today, the stratification system is assimilated by residents as a household indicator of income and social status. Originally created as a focalisation mechanism, the ongoing stratification system has ended up not only as a public policy that differentiates housing conditions but also as a criterion to reproduce social representations of discrimination and inequality (Bonilla, Lopez, & Sepulveda, 2014). Research on the effects of the socioeconomic stratification public policy on social mobility and segregation (Uribe et al., 2006; Uribe, 2008) in Bogota suggests that the strata system has created social hierarchies that have gone beyond the original purpose of the public policy, meaning that city dwellers are constantly reminded of their own level of stratification. The research reveals that, although Bogotanos have not replaced the notion of social class with socioeconomic strata, they consider strata as a natural division that is part of the identity of individuals. Uribe et al. found that city dwellers introduced themselves not only by mentioning personal characteristics such as name, surname, age, personal interest, etc., but also by referring to which socioeconomic stratum they belonged to. Recent evidence has shed some light on the relationship between the stratification system and levels of discrimination. By using the dictator game and the trust game from

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³⁰ The system uses a scale from 1 to 6 strata with 1 as the lowest income and 6 as the highest level which translates into the highest costs for utilities for residents of areas classified as stratum 6. The public policy considers that the physical condition (façade, type of floor, roof materials, etc.), location and built environment surrounding dwellings can work as a proxy to identify urban poor (Uribe & Pardo, 2006).

experimental economics (Bogliacino, Jiménez, & Reyes, 2015), researchers found that the stratification system produces stereotypes that put people with low incomes at a disadvantage.

17,7

Figure 1.1-2 Socioeconomic Stratification in Bogota 2017

Note: The city is divided into 20 urban districts, 1. Usaquen, 2. Chapinero, 3. Santa Fe, 4. San Cristobal, 5. Usme, 6. Tunjuelito, 7. Bosa, 8. Kennedy, 9. Fontibon, 10. Engativa, 11. Suba. 12. Barrios Unidos, 13. Teusaquillo, 14. Los Martires, 15. Antonio Narino 16. Puente Aranda 17. Candelaria, 18. Rafael Uribe Uribe, 19 Ciudad Bolivar. Source: Decree 394 July 2017.

The stratification system is also connected with how families are encouraged or incentivised to move to different areas of the city. The system has incentivised the concentration of households with better economic conditions in areas designated as high stratum. As a consequence, the densification of residential alternatives for those households has tended to occur in the north and north-west zones. For those families

located at the other end of the income distribution scale, stratification has limited housing mobility within the city, as families living in lower strata find incentives (cheaper public services) to stay in working-class neighbourhoods. The stratification system is undergoing a process of revision and consultation precisely because of these effects. Regrettably, the public agenda of Bogota in recent years has been concentrated on other issues (e.g. mobility), making the reform of the system a second-order topic in urban planning.

1.4.2.3 Effects of the Densification of the City

Bogota has a large housing deficit, both qualitative and quantitative, which is concentrated in the areas where people with low incomes are located. The overall housing deficit is particularly evident in the urban districts of Ciudad Bolivar, Kennedy and Bosa (Alcaldia de Bogota, 2017). The reactive housing policies of the public administration have led to the formation of informal settlements of low quality. As a consequence, the population density of the city intensifies in these areas, particularly in the periphery, where access to employment opportunities and better living conditions are scarce. The analysis of the housing deficit and population density in Bogota confirms the spatial mismatch hypothesis suggested by Kain (Kain, 1968; Kain & Quigley, 1975) who shows how low-skilled minorities inhabiting poor neighbourhoods have fewer opportunities to access labour markets. For the case of Bogota, Guzman and Bocarejo (2017) show how low income populations and job opportunities are located in different places (Figure 1.3). Indeed, available jobs tend to be located near major road corridors and in the centre-north corridor of the city, far away from the places of residence of low-income city dwellers.

Recent district administrations have opted for a process of densification as a strategy to promote growth in the city. The territorial zoning plan (POT) establishes a compact city through urban renewal strategies. Despite the existence of clear master plans that indicate that the expansion of the city should avoid unplanned conurbation with neighbouring municipalities, as well as strengthening the main urban centres as places of location of trade, services and housing activities with high densities; the reality is that the process generated by the stratification system has created an inertia in the way households choose their location.

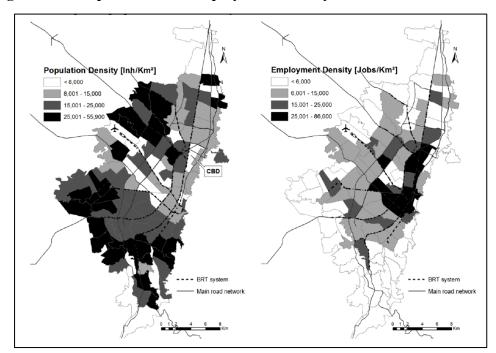


Figure 1.1-3 Population and Employment Density

Source: (Guzman & Bocarejo, 2017)

The verticalization of properties has intensified the densification of the city in all different socioeconomic strata as well as deepening the segregation patterns of macrosegregation in Bogota. Decree 562 of 2014, which regulated the construction of high-rise buildings in the city only served to perpetuate the prevailing residential segregation structure, as high-rise and low-value real estate projects were developed in working class neighbourhoods, while high-rise and high-cost real estate projects were again developed in areas where households with better purchasing capacity have traditionally been located.

1.4.2.4 Strategies for Social Mix in Bogota

In more recent years, urban policy in Bogota has made attempts to achieve a greater social mix, however the effects have been counterproductive precisely because of the ability of real estate developers to take advantage of the existing legal framework. Social mixing policies are based on the rationale that contact between deprived households and better-off segments of the population can enhance the long-term sustainability of neighbourhoods through a process of upward mobility. In mixed neighbourhoods, it is expected that worse-off individuals will benefit from established economic activities that are present in local contexts as they will have access to information flows that indicate where job and educational opportunities are available

(Joseph et al., 2007; Barwick, 2017). Social mixing policies also serve as a direct solution to overcoming housing shortages while insecurity issues are tackled by enhancing social cohesion and reducing social stigma (Briggs, 1997), products of entrenched social and economic distance between city dwellers.

Urban policies aimed at social mixing and the reduction of inequalities through spatial integration have been traditionally implemented by using housing policy mechanisms. In the case of Bogota, urban land management has been used as a mechanism to regulate the production of social housing as local governments have constantly been challenged to overcome the housing shortage in cities. Since the enactment of Act No. 388 of 1997 (Regional and Urban Development Act), the process of decentralisation introduced a series of urban planning mechanisms to allow municipalities and districts to regulate and intervene in the land market, particularly in the generation of land suitable for social housing. Originally, the Act transferred responsibility to local authorities to define the percentages required to produce affordable housing. Based on urban priorities and needs in terms of affordable housing, local authorities are able to select those mechanisms that would be more appropriate to them to tackle challenges associated with the social housing shortage.

The Act stipulates that territorial zoning plans (POTs) can implement a set of mechanisms of land-use management where minimal percentages of urban development projects should be assigned to produce affordable land for the most vulnerable households. In the case of Bogota, the POT of 2000 included Article 350 which indicates minimum percentages for the production of social housing.³¹ In addition to minimum percentages, the POT defined areas where social housing should be located. The POT defined three main areas: (a) land for urban sprawl in the northern part of the city; (b) land for urban sprawl in the southern and western parts of the city; and (c) urban land. The POT indicated that minimum percentages can be fulfilled within the development project or be moved to other areas of urban expansion, or to projects of the district land bank, managed by Metrovivienda (Table 1.1).

³¹ The housing policy in Colombia differentiates social housing into two types. On the one hand, there is a social interest housing (VIS) which has a maximum value of 135 minimum wages. On the other hand, there is priority housing (VIP) with a value that cannot exceed 70 legal minimum wages.

Table 1-1 Minimum percentages for provision of social housing in urban development projects

Location	Alternatives	
	VIS (%)	VIP (%)
Northern land for urban sprawl	20	15
Southern and western land for urban sprawl	50	30
Urban land	20	15

Note: VIS: social interest housing; VIP: priority housing. Source: Decree 190 of 1994 (POT of Bogota).

The decree of 327 of 2004 regulated the conditions by which developments of social housing can be transferred to other areas. In this decree, government authorities will not authorise the relocation of projects when the receiving areas are located in special zones of occupation, construction and restricted density; when the development project area is equal or less than four hectares or when the project is totally surrounded by consolidated areas of affluent residential neighbourhoods, among other exceptional circumstances. In terms of the different mechanisms of land-use management to produce social housing, the partial territorial plans (PTP)³² have been by far the main mechanism selected by policymakers. Since the creation of the first PTP in 2002, 46 PTPs for urban development projects and six PTPs for urban renewal have been implemented. Of the total number of PTPs implemented, 42 PTPs have generated residential land of 501.5 hectares, where 66.9% has been assigned for social housing. Of the total land generated for social housing, 92% has been located inside the urban development and just 8% has been transferred to other areas, which evidently has meant an important achievement for the district urban policy in Bogota (Cleves, 2016).

Nevertheless, an inspection of the socioeconomic structure of the city would shed light on whether the generation of affordable land has been in tune with reducing levels of spatial segregation and seeking greater social integration. Indeed, the positive effect of having defined minimum percentages for the generation of social housing is reduced with the priority of locating those areas in traditionally deprived areas of the city. PTPs have been implemented mainly in urban districts where there is a concentration of vulnerable households, meaning that private and public developments have preferred to make use of the minimal 50% to locate social housing in the south and

46

³² Other mechanisms introduced by Act No. 288 of 1997 to produce land for social housing are: priority construction; capital gain tax (plusvalia); land banks; and acquisition of real estate by voluntary alienation and expropriation.

western areas rather than other available options. In other words, the allocation of a greater percentage to southern areas for the construction of social housing could be interpreted as reinforcing the socio-spatial segregation in the city and limiting approaches towards social mixing. Moreover, for those PTPs that are located in affluent areas, the rate of transfer of social housing to other areas has been higher. From the total number of PTPs implemented, 14 PTPs have opted to transfer social housing to other urban projects, of which 13 are located in affluent areas. This means that the option to transfer social housing from urban projects tends to be higher if a PTP is located in an affluent area.

Thus, mechanisms of regional planning have reinforced levels of segregation and the spatial distance between city dwellers. A more recent attempt to tackle this situation can be traced back to the administration of Gustavo Petro (2012–2016). The 'Development Plan of Bogota Humana' (2012) adopted as its general framework the 'reduction of all sorts of social, economic, spatial and cultural segregation by increasing the capabilities of the population' (p. 19). In the particular case of spatial inequalities, the development plan advocated for increased affordable housing for poor households, in particular for internally displaced people arriving in Bogota due to the internal conflict, in urban renewal projects in the central business district (CBD) of the city. Anti-segregation policies reached a major debate, when in November 2014, the mayor's office announced the plan to build social housing in affluent neighbourhoods in Bogota, in a clear strategy to progress towards the creation of mixed communities in the city ('Poor households in affluent neighbourhoods', 2014). The announcement generated a fierce debate between policymakers and affluent residents, who understood the strategy more as a populist decision than an incentive to increase the social mix in the city. Following the public debate, the initiative was abandoned, and public intervention was focused on identifying areas close to the CBD to be urbanised with social housing.

To date, there is no deliberate urban policy in Bogota that looks at the creation of neighbourhoods in which populations are mixed. Unlike neighbourhood effects studies that base their analyses on specific place-based policies of mixed community strategies, particularly in the United States and Europe (Ostendorf, Musterd, & Vos, 2001; Andersson, Musterd, Galster, & Kauppinen, 2007; Galster, 2007; Lupton & Tunstall, 2008; Cheshire, 2009; Arthurson, 2013; Musterd, Murie, & Kesteloot, 2014), the case of Bogota tends to be more atypical, as mixed communities are created more

under the influence of market-driven processes than state intervention. The institutional framework that has been introduced has left a significant gap in how to move towards mixed communities. Although the objective of the legal framework promised better integration in the city, the implementation of the norm was being captured by the segregationist logic of the city where affordable housing is pushed out to the south and periphery of the city.

1.5 Discussion

This chapter has presented the ways in which social inequality has a spatial narrative in the context of capitalist globalisation in contemporary cities. It states that residential segregation is fed by economic inequality that finds a way to develop in space-related mechanisms, such as housing allocation and class divisions. Moreover, and based on the case of contemporary Latin American cities, the chapter shows that new urban marginality has tended to deconcentrate and delocalise over time.

Instead of showing the explanatory causes that have generated diverse forms of residential segregation in contemporary cities - and which it is worth noting have occupied debates on the subject - the chapter sheds light on the evolution of the concept. First, the chapter shows how the 'city project' has been unstoppable in creating urban life in the epitome of social, political and economic transformations. The almost imperceptible division of the rural and urban has resulted in the city having a leading role in instrumentalising the neoliberal thought of *laissez faire* where social gains are overshadowed by strategies of competition and urban entrepreneurship.

Second, an uneven development is the inherent result of this neoliberal urbanisation whose ramifications extend into the production of inequalities. Here, inequalities manifest spatially as poverty and social distance become a distinct feature of contemporary urbanisation. Territorial polarisation and residential segregation are examples of how urban marginality has disempowered and disenfranchised the urban poor who have been unable to achieve the same benefits that other urban dwellers have obtained. Spatial disjuncture of opportunities and connections between dwellers in the local space are based on the degree to which city dwellers are included/excluded from the mainstream economic, social and political life of the city. It is as if the city will reward those who belong to what is referred to by Scholz (2005) as 'acting global

cities', with a wide range of choices and alternatives, while punishing those who dwell in 'the oceans of poverty' (Coy, 2006a; Obermayr, 2017).³³ This conclusion is also framed in parallel to the ongoing context blindness that means alternative city examples go unnoticed in the current debates.

Lastly, it shows that territorial separation is 'rescaling' into forms of cellular segregation. 'The divided city' is one that not only contains the polarised morphological structure of two different cities but also gives rise to the progressive emergence of urban development of enclaves of poverty and wealth in the urban scale. This fragmented patchwork of impoverished areas and affluent enclaves is appreciated better by rescaling the patterns of residential segregation into fine-grained geographical levels. The result is a fragmented city that contributes to reinforcing social inequalities and promotes the formation of a more partitioned urban space, while also providing clues about new forms of urban change and social ties which require further research. Indeed, the observation of the city requires a detailed analysis in order to detect micro patterns of segregation, and it is also essential to contextualise them within a larger scale. People from different socioeconomic backgrounds tend to experience the city in quite different ways. Their experiences are related not just in the way in which they use the space but also in the way others perceive it. Processes of microsegregation unfold because place has a meaning both for those who live there and for those who do not, suggesting that what happens in the local space is a result of processes that occur in the metropolitan sphere. In this sense, segregation at smaller scales should not be categorised in isolation, as it becomes more evident that its development is also determined by transformations within the overall city order (Giglia, 2014).

Following the above discussion, which describes the dual process of urban growth and inequality, a simple question emerges: What happens to the well-being and human advantage of residents when these two processes are set in the urban space? The next section will explore precisely this question by investigating the links between place and people's quality of life.

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³³ Scholz argues that the interconnection of local and metropolitan processes is mediated by globalisation, which transforms the space into fragments of wealth and oceans of poverty (Borsdorf, Hildalgo, & Vidal-Koppmann, 2016).

Chapter 2 Placing Capabilities in Urban Spaces: The Capability Approach to Urban Segregation

2.1 Introduction

The fragmentation of the urban space is a distinct aspect of contemporary cities where individuals from different economic and social backgrounds tend to live together in relatively close urban areas spaces. Although households and individuals share urban amenities and have the potential to increase social integration, the differences in their levels of quality of life (QoL) are vast. The association between spatial inequalities, specifically residential segregation, and their effects on the level of QoL need to be investigated further in order to enhance our understanding of how urban fragmentation operates. This chapter introduces the capability approach (CA) as an emergent evaluative framework to assess the phenomenon of urban fragmentation in contemporary cities. The association between urban spatial inequalities and the assessment of QoL is interrogated from a people-centred perspective with the aim of broadening the informational space in which urban well-being is conceptualised and evaluated.

Despite the extensive research done separately in the research fields of urban segregation, QoL studies and the CA, where the scholarly community has been consolidated around the development of theories, analytical frameworks, concepts and policy formulation, the state of research on the analytical intersection between these fields has been rather limited or at least elusive. For instance, in the case of urban segregation, research has been mainly oriented towards the measurement of spatial differentiation from a perspective of vertical inequalities, leaving aside aspects such as how urban fragmentation prevents people from living the life that they value – urban design often does not consider, for example, the 'freedom associated with the capability to function in the city' (Sen, 2009, p. 227).³⁴ The same applies for QoL and well-being studies, where the key feature of flourishing within the city, for urban policies, is based

³⁴ This point needs to be complemented with ideas that connect urban design with the reproduction of urban fragmentation through its visual representation. Sennett argues that urban design can be understood as a "collaborative tool in his particular and nuanced reading of the modern city". This idea reorients our understanding about cities not only through narratives of residents but also through their visual description of the city.

on the quantity of urban inputs and outputs provided ('countability approach'), rather than what people are actually able to do and be, in and with the city (Blečić, Cecchini, & Talu, 2013). In the case of the CA, its operationalisation has rarely been applied to contexts of local development and territory, particularly in understanding local governance and how spatial inequality happens, with the exception of a few studies (Samuels & Khosla, 2005; Guerini, 2012; Biggeri & Ferrannini, 2014). Thus, research interaction between these fields suggests a fertile ground for investigation, pointing out interesting avenues for analysis.

Bearing this in mind, this chapter attempts to make compatible the assessment of urban QoL in the context of spatial inequality by using the Capability Approach (CA) as a normative and, therefore, an evaluative tool. To make this possible, first, Section 2.2 'Does Place Matter for Well-being?' reviews the main approaches to researching wellbeing and investigates how urban QoL has been conceptualised from a perspective of spatial cognition. This section makes some preliminary observations on how the conceptualisation of well-being has progressed from the traditional economic stance, portraying the need for alternative normative frameworks that make concessions for economic growth in favour of human well-being and inclusion. It also discusses how residential segregation has detrimental effects on urban well-being and how measurements of QoL have frequently overlooked spatial contexts of inequality. Section 2.3 'From Space to Place: A Capability Approach to Quality of Life in Cities' discusses current approaches to QoL and examines the CA itself. It integrates place-based and people-based approaches to urban development by identifying potential aspects where the CA can be operationalised to interpret socio-spatial differentiation in territorial analysis. The last part of this section presents a place-based framework for the development of capabilities, which contains the specifications for how the CA can serve as a normative resource to integrate place and space as potential determinants in the configuration of QoL and well-being in cities. Finally, Section 2.4 'Aims, Research Questions and Rationale' articulates the relationship between urban fragmentation and people's QoL by introducing the research questions that will be investigated in the empirical part of this thesis.

2.2 Does Place Matter for Well-being?

2.2.1 Space, Place and Well-being

Theoretical discussions about the domains of space and place and how they affect the socioeconomic aspects of people's lives have been central to broader epistemological debates around the spatiality of the human condition. The frontiers between space and place, as well as interpretations made by different traditions in geography and across the social sciences have left a trail of debates associated with how to think spatially. A tandem relation of space and place has welcomed disciplines beyond the geography field to contribute towards the emancipation from positive and objective postures of spatial relations which catalogue space as a secluded, empirical and 'mappable' domain of analysis (Hubbard & Kitchin, 2010, p. 4). Massey (1999) notices the predominance of notions of space that consider it a rigid framework where internal relations are absolute, geometric and independent of human phenomena. For many physical geographers, social phenomena are thought to be independent of location, suggesting space and place as neutral containers of human realities and outcomes.³⁵

The introduction of other disciplines to the debate has contributed to unfolding theoretical debates about ideas around the *relative space*. The spatial 'turn' in urban planning has been central to the ways in which this perspective has been developed. Based on critical theory and urban sociology, previous objective axiomatic relations between space and place with surrounding realities were replaced by notions of subjective, relational and contingent proprieties that occur in the space. In this vision, space is not an independent and external value of human activities but rather the result of the processes and substances that make them up (Harvey, 1997).³⁶ Under this stream of analysis, space is a reflection of social action and embodied routine which does not necessarily have a physical expression in how the objects are ordered, classified or interpreted. More specifically, Lefebvre's work contributed directly to the critical

³⁵ The scientific paradigm and positivistic spatial science are common approaches to thinking about space and place in this way. Their theoretical foundations are rooted in Euclidean geometry, which contributed to consolidating the quantitative preponderance of empirical approaches to understanding space and place in social science.

³⁶ Contributions to this side of the argument have come from disciplines such as psychology, urban sociology and particularly from critical urban theory and human geography, which have used postcolonial and post-structural debates to deconstruct and re-elaborate meanings of space and place.

debate about meanings of space by progressing towards the notion of space as a socially produced category, proposing that, for example, as abstract space is no longer operational since 'at the moment [the space] is colonised through social activity, it becomes relativized and historicised' (Hubbard & Kitchin, 2010, p. 6).³⁷

For humanistic geographers, place is then the transformation of space. Space becomes place once we know it and attach a value to it (Tuan, 2001), when individuals are able to differentiate between different spaces, particularly those that have been assigned a name via language. Tuan argues that the transit between space and place occurs thanks to *topophilia*, the effective bond generated between people and place. Through topophilia, a sense of place emerges as metaphysical, ethical and aesthetical considerations, which are brought about by cognitive experience, emotions, and cultural beliefs, allocate a symbolic relation to spaces. Using this logic, abstract space becomes familiar place, and neutral space become meaningful place. And although both concepts are clearly independent, they 'require each other for definition' (p. 6).

In the making of place, the romantic and nostalgic prose of Tuan also alerts us that places are often produced by oppressed forces that obliterate equal relations in the space. As Massey (1994) elaborates, social and spatial relations need to be conceptualised together if we are interested in understanding how power relations unfold in people's everyday lives. Indeed, place is made of 'porous networks of social relations' (p. 121) which are concatenated with other places, producing a vast amalgamation of identities and relations among places. This network of social relations is the locus of power geometries, a progressive sense of place that is attached to flexible boundaries that 'operate across many spatial scales from the bodily to the global' (Hubbard & Kitchin, 2010). In this ecosystem, place is not a simple explanatory variable of analysis that has impacts on people's lives, but rather a 'spatial form of particular and specified social process and social relationships' (Massey & Allen, 1984)

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³⁷ Equally important here is that in both absolute and relative space, the conceptualisation of place changes radically. From a positive and quantitative perspective, denotation and connotation of space and place are similar, meaning that there is no clear differentiation between the two categories. Here, space and place are twin concepts. Conversely, from a qualitative and relational perspective, space and place are internally related categories (Davoudi & Strange, 2008), where place is a particular form of space – one that emerges from the experience and is linked to personal or collective meanings. As such, place is seen as a definite object that provides a feeling of belonging, where value is attached, and identity emerges as an inherent property of the context.

By refusing to consider space as a "neutral backdrop" where social relations are manifested (Gotham, 2003, p. 723), place becomes a structuring framework to operate and assess people's advantage. But more importantly, the qualities of space and place are fundamentally the reasons why well-being is intrinsically normative. As place is the locus where people's aspirations, desires and ideas of good are produced and manifested, any attempt to understand how people perform in life should enquire as to what extent space and place are intertwined with their everyday lives.

2.2.2 Two Currencies of Well-being: Hedonic and Eudaimonic Views

The question of why some individuals and societies demonstrate better levels of human and collective flourishing than others has been central to the discussion of development and inequality. Although there has not been a direct interrogation into the role of space on the determinants of well-being, it is important to point out the tangential interest in interpersonal differences in poverty, which in one way or another suggest the inclusion of geographical scales of analysis of neighbourhood, region or country type.

During this debate, the assumption that material prosperity is intrinsic in attaining a good life has become highly contested, giving rise to well-being being seen as a central component for human flourishing. Since the late 1990s, the concept of well-being has become popular among policymakers and academics, who have seen the aim of human flourishing as a new type of aspiration for the elaboration of public policy and political debate (S. Atkinson & Joyce, 2011). The emergence of well-being as a new standard to measure welfare is supported through a cogent argument, which states that economic growth should be considered as a means to a better QoL rather than the end in itself. This discussion has been approached by different disciplines that have agreed to progress from the purely economic measures used to evaluate social performance to a broader and more diverse conceptualisation of well-being.³⁸

³⁸ In a foundational study on this matter, Easterlin (1974) traced the relationship between GDP per capita and life satisfaction in 19 developed and less-developed countries during the post-war period, and found a very weak correlation between increases in income and levels of self-reported well-being. Although Easterlin's thesis has been corroborated by different studies, recent studies based on new econometrical techniques and richer data suggest a correlation between higher levels of income and happiness. For a complete critique of Easterlin's paradox see Stevenson and Wolfers (2008).

Although the epistemological diversity in approaches to well-being has contributed to unifying positions and interests around its usage and operationalisation, it has also revealed the complexity of advancing towards a clear conceptual basis for well-being. The term has been used unreflectively by different academic disciplines which has led to the creation of a misleading picture about what the concept of well-being consists of and how it can be identified and achieved (Chavez, Backett-Milburn, Parry, & Platt, 2005). In conceptual terms, well-being encompasses a broad spectrum, from individuals' reports of happiness and pleasure to fulfilment of functionings and capabilities (Gasper, 2010). Western scholars often draw on early philosophers as a frame of reference for conceptual debates of well-being. On the one hand, well-being is a subjective construction as it is underpinned by the idea that the experience of wellness can be assessed directly by people's perceptions—Subjective Well-being (SWB).

Commonly known as the hedonistic tradition of well-being, it focuses on the concept of happiness, which can be interpreted as the pursuit of positive states and the avoidance of negatives states – the Aristippus solution (Deci & Ryan, 2006).

A second conceptualisation of well-being takes into consideration matters related to self-actualisation and a process of self-fulfilment. A central argument of this tradition is that while happiness and pleasure can be more direct expressions of well-functioning human beings, these two concepts are not necessarily intrinsic to the existence of positive human experiences. The eudaimonic conception of well-being considered that happiness and pleasure are just two of the components of well-being as 'people's reports of being happy do not necessarily mean that they are psychologically well' (Deci & Ryan, 2006, p. 2). Based on Aristotelian ethics, this approach suggests *eudaimonia* as the final aim for a good life. According to this tradition of well-being, people's lives are aligned to the *daimon* or 'true-self', which focuses on actualising human potentialities through a process of self-realisation (Waterman, 1993).

For policymakers, this approach to well-being expands the scope of social interventions as it considers that people can report high levels of SWB even if they are

³⁹ Under the hedonic alternative of well-being other philosophers, such as Bentham or Mill, have argued that in order to maximise happiness and collective utility for all, selection of individual and collective decisions are critical (S. Atkinson, Fuller, & Painter, 2012). More recently, this tradition has been related to the work of psychologists (Diener, 1984; Kahneman, Diener, & Schwarz, 1999; Seligman, 2003, 2012), who are interested in the evaluation of life satisfaction and the exploration of subjective well-being (SWB).

in suboptimal situations. Alongside psychological studies (Ryff, Singer, & Dienberg Love, 2004), economics has contributed significantly to the identification of conceptual components of well-being in this tradition. In particular, there is a political engagement to monitor and assess development interventions, paying attention to issues of social justice and inequality through a lens of well-being.

2.2.3 Urban Quality of Life: A Spatial Dimension of Well-being

Beyond the theoretical and ontological considerations suggested by each of these two traditions in the analysis of human flourishing, well-being is an expression mainly anchored to the particularities of each place – a place-making and place-shaping process that makes the notion of development normative. Individual and collective situations characterised either by positive or negative outcomes, as well as personal experiences of fulfilment, where autonomy and agency enable people to acquire social, material and nonmaterial results, are embedded and inherent to the nature of place (S. Atkinson, Fuller, & Painter, 2012). The seminal studies of Smith (1973), who linked welfare geography to problems such as poverty, health care delivery, environmental quality and QoL, and Knox (1974a, 1974b, 1975), who focused on the design of multivariate indicators to measure regional disparities in social welfare, were critical for building upon the research on how place affects well-being.

2.2.3.1 Territorial Social Indicators

Traditionally, the subject of socio-spatial inequalities was a subject neglected by the academic community. Smith's research (1973) was a direct response to this lack of interest, to the extent that it signified the beginning of how to conceptualise and measure QoL in terms of place and territory from a welfare perspective. Based on objective data, Smith contended that individuals' place-based well-being is a function that came about due to the relationship between an individual's actual living conditions and their expected QoL (Smith, 1973, as cited in Conradson, 2012, p. 18.). This novel idea considered that in a particular context, with a given population located in a specific place, social well-being would be the result of average current and expected values of QoL. 40 Using objective variables for measuring health (e.g. proportion of household

57

⁴⁰ Drawing on objective data, Smith mapped income, wealth and employment; the living environment; health; education; social order; social belonging; and recreation and leisure as seven possible dimensions

with poor diets or hospital expenditure per patient day) Smith attempted to identify how, for a given spatial unit, well-being could vary. Taking US states as a unit of analysis, Smith established that there was clearly a poor distribution of social well-being equality across the country, concluding for instance that southern US states displayed lower social well-being whereas west, mid-west and north-east states registered a better distribution. His work on geographical inequalities greatly influenced forthcoming research as well as how critical geographers engaged with dimensions of well-being. In this regard, alongside Smith, Marxist and radical geographers such as Peet (1975) and Harvey (1972, 1973) set the scene for a better understanding of the links between sociospatial inequalities and well-being. The influence of territorial social indicators can also be seen in the design of multi-dimensional well-being indicators. This is the case of MacCraken (1983), and the subsequent works of Kane and Wards (1989), who designed an indicator composed of six domains (economic, health, social order, education, social belonging, and recreation and leisure) in order to reveal socio-spatial inequalities in New Zealand's urban areas. From this departure, other researchers started to build up a bodily of critical knowledge about 'spatial patterning of poverty, deprivation and inequality' (Conradson, 2012, p. 20).41

2.2.3.2 Place and Quality of Life

The methodological development of territorial social indicators, which began in the late 1960s, mainly in the United States and the United Kingdom, had a peak of production of literature, conferences and international papers during the 1970s. Sociologists, psychologists, economists and political scientists (Wilcox, 1972; Allardt, 1973; Drewnowski, 1974; Dusen, A., & Ed, 1974; Fox, 1974; Innes & Neufville, 1975; Campbell, Converse, & Rodgers, 1976; F. M. Andrews & Withey, 1976) alongside geographers (Rawstron & Coates, 1971; Albaum, 1973; D. M. Smith, 1972, 1973b, 1974, 1977; Knox, 1975, 1976) aligned their research with the design of indicators which could explain the reasons behind Easterlin's 'paradox of affluence' more precisely. During this period, the concept of QoL emerged as a new feature for explaining the dimension in which well-being occurs. Backed again by 'hard

in which social well-being can be affected. In doing so, Smith operationalised some of these dimensions through specific variables, which account objectively for their possible changes.

⁴¹ This is the case of Dorling (1995), Philo (1995) and Glasmier (2006), who visualised socioeconomic well-being in the United Kingdom and the United States through the lens of maps and atlases.

indicators', a critical insight by geographers stated that aggregated social indicators hide 'the local situation where the real human-scale problems are to be found' (Wilson, 1968, as cited in Pacione, 1982, p. 496.). In line with this, Gross (1969) suggested that it is important to find meaningful indicators rather than investing time in the 'aggregatics' of economic and social indicators. Gross goes on to argue that aggregated indicators are 'form[s] of mental acrobatics in which non-spatial, macro-guesstimates are juggled in the air without reaching the ground in any territorial entity smaller than the nation itself' (p. 125).⁴²

Similar conclusions were reached in the field of human geography, however with the dialectic interpretation that positive QoL should be understood as the absence of negative social indicators. The notion of well-being and QoL during this period was mainly conceptualised by the idea of measurement of attributes of the 'objective' world. Thus, objective variables such as educational achievement, neighbourhood externalities, environmental quality and access to public services were part of the analysis of different researchers (Kain & Quigley, 1975; Kuz, 1978; Kearsley, 1982; Pacione, 1980, 1986; Sorensen & Weinand, 1991; Walmsley & Weinand, 1997). The hedonic approach to well-being is complementary to human geography, in the sense that it addresses the lack of 'place' in the study of QoL, introducing methods to evaluate urban goods. 43

Up until the mid-1970s, most of the work on QoL was relegated to objective measures of well-being, principally obtained through secondary data. Based on the idea of Andrews and Withey (1976) that 'it is people's perceptions of their own well-being or lack of well-being that ultimately define the quality of their lives' (Andrews and Withey, 1976, as cited by Pacione, 1982, p. 503.), subjective measurements of life satisfaction began to occupy a more prominent role in the study of well-being. QoL methodologies use implicit prices for nonmarket goods as possible weights for accounting for the ways in which different urban amenities can affect individuals' well-

⁴² This type of criticism is a clear response towards the almost entirely non-spatial analysis in the design of social indicators (Pacione, 1982).

⁴³ Here, analysis of urban amenities and environmental conditions to calculate housing prices and wage differentials were pivotal for introducing place as an element of analysis for the study of well-being (Ridker, 1967; Rosen, 1974; Li & Brown, 1980; Roback, 1982; Blomquist, Berger, & Hoehn, 1988). In this regard, the pioneering works of Liu (1976), who ranked US cities according to their environmental situation, and Rosen (1978), who calculated the price of pollution, crime, population density, among others, using hedonic pricing methods, are good examples of how well-being is determined by location and place.

being. Using hedonic and life satisfaction approaches to value urban goods, researchers have been able to design subjective QoL surveys and indices, which have allowed them to identify how well-being differs between different urban locations (Roback, 1982; Blomquist, Berger, & Hoehn, 1988; Berger, Blomquist, & Sabirianova Peter, 2008).⁴⁴ Places where families decide to buy or rent a house are not just related to the physical conditions of the property but are also linked to implicit preferences regarding neighbourhood conditions and location, local amenities offered, affiliation with local community, and so on.

Alternatively, researchers have opted to ask people directly how satisfied and happy they are with their lives in relation to a particular location (countries, cities, neighbourhoods). This is the case, for example, in economics research when studies incorporate self-reported happiness scores as a proxy for QoL (Frey & Stutzer, 2002; Di Tella & MacCulloch, 2006; A. E. Clark, Frijters, & Shields, 2008). This approach usually takes the name of LS methodology (stated preference method) and uses subjective satisfaction or happiness indicators to measure public goods and consequently how they affect people's well-being levels. 45

Moro, Brereton, Ferreira, and Clinch (2008) identified how different approaches have been extended to track trade-offs between QoL and more particular context-specific place problems. This is the case of research in assessing QoL through stated preference methods on subjects such as air pollution (Chay & Greenstone, 2005; Welsch, 2006, 2014), improvement of housing quality (Cattaneo, Galiani, Gertler, Martinez, & Titiunik, 2009), climate change (Rehdanz & Maddison, 2005), commuting time (Stutzer & Frey, 2008), aircraft noise (Van Praag & Baarsma, 2005), urban amenities (Brereton, Clinch, & Ferreira, 2008) and individual environmental attitudes (Ferrer-i-Carbonell & Gowdy, 2007). Most of these studies conclude that well-being and life satisfaction levels are weakly correlated with income.

Progressing from the most general approaches to applying SWB measures, Morrison (2010) used biennial QoL surveys in New Zealand to explain positive changes

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⁴⁴ The hedonic approach (revealed preferences method) has been used to identify how compensating differentials for location-specific amenities have an effect on QoL.

⁴⁵ With this method, the implicit price of a given public good is calculated through the marginal utility of the price and the good in question (Powell & Sanguinetti, 2010).

in life satisfaction, rather than inferring them from the presence of negative factors (Conradson, 2012).⁴⁶ The 'place effect' was determined by controlling characteristics which appeared to be influential in individuals' appreciation of SWB, such as health and marital status. Morrison found that Auckland scored lowest in happiness and satisfaction with life, while self-reported QoL obtained a better result among the respondents. This difference in perceptions suggests that there is a strong link between place and the distribution of well-being.⁴⁷ In doing this, Morrison states his argument about *localisation* in Easterlin's paradox of affluence, claiming that the growth in urban agglomeration has detrimental effects on levels of SWB, in other words, national distribution of wealth does not mirror the geographic distribution of happiness at the sub-national level (Morrison, 2010, p. 1055).

Following this idea, new approaches have been developed to determine how the geographical dimension is associated with multilevel aspects of happiness and wellbeing. From a regional science perspective, Ballas and Tranmer (2012) studied how happiness can be 'subject to the influence of grouping' (p. 71).⁴⁸ The study revealed that place was not statistically significant in explaining whether inhabitants in a particular area were happier than others. Instead, a compositional effect was in fact the primary reason for self-reported happiness among the respondents.

Although most of the work reported above has been analysed using quantitative frameworks, there has been an increase in studies that have employed qualitative approaches to the 'placement' of well-being in the last decade. Panelli and Tipa (2007) studied how 'sensitivity to cultural and place-specific contexts affect the health and well-being of contrasting populations in different environments' (p. 445).⁴⁹ Their argument is based on the idea that location influences how people experience their lives,

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⁴⁶ Morrison's work is oriented towards what is referred to as 'geographies of subjective well-being', as he was able to show how city-specific particularities have an impact on people's subjective perceptions about their QoL. His research surveyed 500 respondents in New Zealand's 12 cities regarding three SWB dimensions: happiness (affective dimension), satisfaction with life (cognitive dimension) and QoL.

⁴⁷ Morrison (2010) argues that Auckland's better scores in self-reported QoL is in part due to the idea that individuals continue to perceive better work and income conditions in larger cities.

⁴⁸ By using a multilevel model and data from the British Household Panel Survey and the UK census of population, the authors assessed the levels of variation in well-being to determine whether happier people are located in similar places (a compositional effect) or whether certain particularities of the place make people happier (a contextual effect).

⁴⁹ The authors model the case of the Maori indigenous population in New Zealand to outline that wellbeing is a culturally specific notion.

particularly their health and well-being. This idea challenges visions of well-being as something that can be applied universally (Ryff, 1989), ignoring that 'well-being is in fact always experienced in relation to particular places and environments' (Conradson, 2012, p. 23).⁵⁰

2.2.4 Discussion

As the literature review has indicated, measurements of QoL have been approached by different epistemological disciplines, meaning that the concept of well-being is a contested one. Psychology, anthropology, sociology, health sciences, economics, neuroscience, geography and philosophy, among others, have worked, at times together or separately, to identify the principal components comprised by urban liveability. By and large, these disciplines have agreed that the reductionist vision of development, based on economic and material measurements, does not capture the intrinsic nature of what well-being is all about. Although the starting point has been positive, as there is an ontological agreement between disciplines, the evolution in the empirical work has led to a diversity of nominations and interpretations – a kind of semantic divergency – of what might be considered a flourishing life. In many cases this has hindered the unification of the concept of well-being.

Within the field of urban studies, this diversity of approaches to conceptualising urban QoL has brought with it a difficulty in reaching a consensus in terms of theoretical and methodological frameworks around the concept. French geographer Antoine Bailly (1981) stated that 'well-being indicators only reflect certain components and in reality only express quality of life' (Bailly, 1981, as cited in Fleuret & Atkinson, 2007, p. 107) making it clear that today we are still lacking an integrated conceptualisation of well-being and place. Indeed, urban QoL is a slippery concept, which moves between objective and subjective assumptions. In the former, well-being is conceptualised as an end where individual interest is based on levels of utility and the

⁵⁰ Similar conclusions have been reached in studies which account for well-being within indigenous populations (Adelson, 2000; Holmes, Stewart, Garrow, Anderson, & Thorpe, 2002; Ingersoll-Dayton, Saengtienchai, Kespichayawattana, & Aungsuroch, 2004; Izquierdo, 2005) or cultural interpretation of well-being (Crivello, Camfield, & Woodhead, 2008; K. Scott, 2012).

satisfaction of preferences.⁵¹ In the latter, well-being is a rather relative dimension as individuals have different standards of comparison. Therefore, although it is possible to see objective changes of QoL, that does not mean that there will be a change in the levels of well-being (Schyns, 1998; Fleuret & Atkinson, 2007). This second stream of research has become very influential in issues related to urban studies, where references towards SWB, happiness and QoL are the most common urban expressions.⁵² In the former, urban QoL is calculated through the identification of compensating differentials for location-specific amenities. In the latter, people's urban well-being is calculated by subjective satisfaction/happiness indicators to measure public goods.

Although the methods differ in their methodological components, they coincide under the premise that urban QoL is a quantifiable variable to the extent that an improvement of well-being is directly proportional to the number of urban amenities available in the urban space (extension of green spaces, number of public amenities). Here, urban well-being is analysed and understood principally by the normative paradigm of utilitarianism, where well-being is essentially considered as a subjective category where people assess their levels of happiness independently from what they are actually experiencing. Economic notions of urban well-being are framed within this idea, considering that the fulfilment of preferences is a good indicator to evaluate how public policies contribute to a better QoL. For instance, QoL indicators, which are based on theories of needs, assume that satisfying individual preferences is the prerequisite to achieving well-being (Maslow, Frager, & Fadiman, 1997). An evaluation of well-being from this perspective glosses over the fact that people adapt their assumptions of being comfortable, healthy and happy in order to cope with difficult situations.⁵³

Thus, the utilitarian vision of well-being has given rise to the tendency of urban planners to advocate for the presence of particular urban amenities, to make the 'urban experience' friendlier. In this type of approach, urban QoL is more connected to a

⁵¹ Here, well-being is a homogeneous variable and, hence, objective indicators should be put in place to capture all the complexity of QoL. In recent literature, researchers have employed the concept of objective well-being and living conditions to encapsulate this approach.

⁵² Revealed preferences methods (the hedonic approach to well-being) and stated preferences methods (LS methodology) are the main approaches in this line of reasoning.

⁵³ Sen (1985a, 1987) argues that people internalise the harshness of their circumstances by desiring what they effectively can achieve and rejecting what they cannot. Sen claims that expressed preferences can be adapted to long-term hardship, meaning that people who in objective terms may be experiencing extreme deprivation, can register states of pleasure and happiness.

particular characteristic of the city, rather than the effective mechanisms of its inhabitants to use it – to attract business and tourists has become the 'mantra' of urban development. Here, space and place are mere neutral backdrops where well-being and people's lives occur, and considerations associated with the ability and agency of people to achieve wider goals are satisfied exclusively with the provision of urban commodities. From this perspective, urban problems tend to be solved using a commodity framework of increased supply when there is a low demand – the problem of 'lack of something'.

As a consequence, a city model emerges: cities where urban policies are simply aligned with what the dominant economic model dictates. The improving access to urban amenities fails to expand the provision of opportunities, then choices are limited or restricted to a combination of functionings that are circumspect to achieve broader goals of well-being, in cities where policies are biased towards the creation of a favourable investment climate where a trickle down process is expected to benefit all members of society (Fainstein, 2011).

2.3 From Space to Place: A Capability Approach to Quality of Life in Cities

2.3.1 A Normative Thinking for the Promotion of Spatial Justice

As shown above in Chapter 1 'Cities and Inequality: The Urban Segregation Problem' and in the literature review of this section, urban segregation is becoming an issue for social cohesion in cities as physical fragmentation has an impact on the quality and understanding of urban life. City-dwellers are increasingly aware of the effect of their spatial location on their well-being and their opportunities in terms of health, transport, education, employment, and so on.

Alongside this context, public policy and measurements of QoL have frequently overlooked spatial contexts of inequalities as a utility-based definition of well-being is often taken for granted. For those local governments that have put policies in place, anti-segregation interventions have been limited to the establishment of cross-subsidies and the provision and access of public goods, rather than political and redistributive policies, which are generally under the control of national governments (e.g. VAT or

income tax). However, both anti-segregation approaches frame urban segregation as a matter of a lack of a particular characteristic that the city does not provide (urban amenities, services and infrastructure available in the city).⁵⁴

In a similar vein, within economic theory the identification of economic and social disparities has also been largely influenced by the tendency to pay more attention to the individual dimension of critical variables (income, health outcomes, education achievement) and less attention to how place affects people (housing conditions, distribution of urban amenities, security and crime, green spaces). A direct consequence of this has been that the set of policies generated to tackle urban poverty has been strongly biased towards prioritising the achievement of individual outcomes rather than considering, at the same level of importance, the improvement of places or looking at the consequences of neighbourhood effects (Pinoncely, 2016).

But not only are patterns of urban segregation inappropriately captured by measurements of QoL, there are also factors that emerge from it that give rise to contexts of urban injustice. Building on Lefebvre's ideas of the 'Right to the City', Soja (2009) emphasises how space can be used to exploit, oppress and dominate, to create forms of social control and discipline. Urban segregation, expressed by gated communities, informal settlements, and slums in peri-urban areas, tent cities, unregulated gentrification processes, and so on, are elements of an unjust geography that have been socially constructed. In this regard, residential segregation emphasises local discrimination as areas of inequality are institutionalised within the city through urban planning which reinforces the production of exclusionary zones. The issue that spatial inequalities lack an evaluative framework that gives an account of the level of (in)justices of social and economic processes, ends up reproducing unequal outcomes for most disadvantaged people, as well as legitimising practices and policies that either deliberately conduce a context of inequality or that naively seek to correct its causes.

The recognition of urban poverty as a spatial dimension of (in)justice is anchored on the neo-Marxist thought that conceptualises the mode of production within

65

⁵⁴ The triumph of neoliberal ideologies has reinforced this type of logic and has led to the progression of urban development as merely a set of policies to promote private investment and foster competitiveness, where the provision of local amenities is rationalised by their potential to attract new businesses and increase the value of property (Fainstein, 2011).

the capitalist system as a structural factor of the uneven distribution of resources in the space (Harvey, 1973a). Critical urban theory enlarges the discussion and incorporates the idea that spatial injustices are not substitutes for traditional forms of justice but rather a way to think about how uneven geographies unfold, particularly when institutions, policies and discourses are scrutinised (Soja, 2010). More importantly, they outline that spatial justice can be conceptualised as both an outcome and a process, in the sense that it can be analysed either by how resources are distributed in the space or by the dynamics that these outcomes produce (Soja, 2009).

In the case of spatial justice, analytically and methodologically it is easier to identify and describe phenomena of spatial inequity than to identify and understand underlying processes that induce such inequities (p. 3). In terms of evaluation, the use of spatial inequalities as outcomes might compensate for the current lack of metrics in quantifying and qualifying levels of spatial justice in contemporary cities. This discussion summarises in part the central argument of this chapter. Social processes with spatial manifestations (globalisation, migration, colonialism, gentrification, house market segmentation, etc.) tend to undermine central pillars of social justice (equality, integration, non-discrimination). The lack of normative homogeneity to conceptualise urban well-being, besides elevating the consequences that adversely affect equity, hinders progress towards establishing evaluation and measurement exercises.

The lack of spatiality in monitoring and assessing urban inequality is also evident in debates regarding the conception and interpretation of how justice should be conceived and interpreted. Modern theories of justices tend to be aspatial in the way that informational spaces of human advantage, or metrics of justice, do not fully consider the effects of space on how human relationships are produced. For instance, Mill's utilitarianism or Rawls's justice as fairness theories can be considered aspatial as they conceptualise the spatiality of inequality as a mere 'distribution' problem rather than one that conceives space as a producer of inequality. Merrifield & Swyngedouw (1997) suggest that non-spatial theories of justice can be seen as invariably "devoid of time and space" (p. 3), meaning that central arguments to explain justice normally depart from the qualities of space as explicative factors of inequality.

Non-spatial theories of justice have been challenged by sociologists and human geographers (Merrifield, 1999; Soja, 1999; Unwin, 2000) who have identified specific

qualities of space which explain why societies are unequal. Within the field of geography, the spatiality of inequality becomes organic when relations of domination and oppression take shape in urban processes such as gentrification, urban fragmentation and segregation. Here, space and place become evaluative aspects to identify factors that contribute to explaining not just territorial injustices and uneven geographies that are reproduced under globalisation (Giddens, 1990; Castells, 2004; Sassen, 2013) and capitalist societies (Harvey 1973b, 2006), but also to understand specific features of contemporary cities where urban institutions, policies and discourses contribute to reproducing spatial inequality (Soja, 2009, 2010). The evaluative aspect of inequality clearly moves beyond a distributional interrogation for social justice towards one that looks first at systematic relations of oppression and dominance (I. M. Young, 2011).⁵⁵

Despite these developments, where the concept of spatial inequality is introduced to critically engage in the understanding of how unjust geographies are conceived and produced (Marcuse et al., 2011), the lack of normative thinking is still a distinct feature of theories of justice that do not embrace a set of spatial outcomes that can be used for evaluative proposes. Without applying a normative framework to assess spatial inequality, social processes of human well-being and agency may be subject to oversimplification. For Olson and Sayer (2009), the lack of normativity to define what well-being and quality of life mean in the context of contemporary cities has become symptomatic of the conversations between space and justice. From the perspective of public policy, the plurality of normative frameworks without a spatial aspect has limited the scope that policymakers have to provide integrated solutions to urban social problems.

The fact that urban well-being is notoriously uncontested - as its conceptualisation is regularly taken as a given, where concepts are rigid and monolithic - opens an avenue to consider alternative normative approaches to describe and distinguish practical differences between what well-being and ill-being are about in the context of spatial inequality. Despite the significant normative orientation towards a

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⁵⁵ The spatiality of social justice is also examined from the perspective of programme implementation. Fainstein (2011) questions the ability that social justice has to evaluate existing institutions and programmes and emphasises the need to make "justice the first evaluation criterion" to design urban policy.

human perspective in development studies, the use of alternative normative thinking in urban research has come to be labelled as partisan or ideological, as arguments and decisions are based on emotions rather than on evidence or objective criteria.⁵⁶

Having a metric for spatial justice requires normative thinking. The next section proposes the CA as a suitable metric as it can contribute to determining what constitutes urban well-being (a normative tool) but also allows the comparability and assessment of states of well-being (an evaluative tool). It also explores a much-needed conception of human good into spatial inequalities by reflecting the role that the CA can achieve through a wider informational space about how urban poverty and deprivation unfold.

2.3.2 From Utility to Capabilities: Assessing Quality of Life in Cities

Many scholars from the discipline of development studies support the idea that social arrangements and development itself should strive to enhance human flourishing through enlarging real freedoms, rather than focusing on the maximisation of income and commodities. This approach is mainly encapsulated in the capability approach (CA), pioneered by Amartya Sen (1979, 1985, 1992)⁵⁷, which has revitalised much of the discipline of development studies to the point that it is now central in the foundation of the human development paradigm (Haq, 1995; Alkire & Deneulin, 2009; Fukuda-Parr, 2011). The CA serves as a fruitful framework to motivate a multidimensional and normative evaluation of spatial relations.

This section suggests the application of the CA as a normative framework to conceptualise and understand how unequal spaces, generated by residential segregation, affect urban QoL. As a people-centred approach, the CA progresses from traditional approaches that consider the evaluation of individual well-being exclusively from the perspective of resource-based indicators, by suggesting that QoL should be

⁵⁶ Without concluding that this is the reason why the metric of urban well-being has been captured by utilitarian perspectives, it draws attention to the fact that research and practice on urban development tends to be too narrow to imagine and think about well-being in cities differently. A possible reason for this may be the limited examination of what constitutes well-being when the relationship between space and justice is studied.

⁵⁷ Sen outlined the CA for the first time in the Tanner Lecture given at Stanford University (1979). Subsequent works such as Commodities and Capabilities (1985) and Standard of Living (1988) draw on this basic conceptualisation.

conceptualised and assessed in terms of effective opportunities that people have -a 'focal variable' to compare how equality is achieved.

Definitions around the concept of urban poverty and the spatial context have been partial and notoriously ambiguous (Parnell, 2015). Even in Urban Critical Theory, when definitions of urban poverty are influenced by social demands and the search for emancipatory alternatives (Brenner, 2009), the relationship has only partially been attended to. Frediani (2015) argues that Urban Critical Theory has explored substantially the relational (set of structures that govern the provision opportunities) and material (set of assets and resources available to individuals) domains that induce urban deprivation and inequality, but has left aside subjective domains related to the multiple values and aspirations people have, and which are critical to explain the relationship between space and poverty. Conceptually, this tells us that definitions of urban poverty fail to articulate the categories of analysis that mediate poverty and spatial context. In operational terms, the lack of articulation proposes a revision of the criteria that evaluate those urban practices and outcomes that are supposed to improve the wellbeing of city residents. Fainstein (2011) recognises this failure in Urban Critical Theory by proposing a framework of urban justice that embraces democracy, equity, and diversity as axes that do not capitulate to the ongoing capitalist forms of economic competitiveness and growth, and where public decision-making is forced to privilege justice as the absolute principle of evaluation.

Following Fainstein in this matter, the research on evaluation of quality of urban life concentrates not only on the relationship between space and poverty but also questions the criteria of justice that are commonly used. A human perspective to urban justice is advocated in this debate, where the focus on equity and material well-being, earlier applied in urban theory, is expanded with criteria of justice of diversity, participation and democracy. The capability approach aligns well with this purpose. First of all, the capability approach reverses the interest in assessing social justice by achieving a better distribution of both material and non-material benefits. Second, pluralistic societies are those that allow diversity of opinions and life choices, so ascriptive inequalities are less likely to emerge. Evaluations based on capability

⁵⁸ By doing this, the assessment of an equal distribution should be based not just in terms of economic benefits but also in spatial, and social terms.

encourages looking at the extent to which people exercise their agency and, thus, identify the level of diversity that operates in distinct spatial contexts. And third, based on the theory of communicative rationality, equal participation in urban decision-making is a prerequisite to justice, so inclusion can rise when people are consulted or when their interests are fairly represented (p. 175).⁵⁹

Capability scholars (Sen & Williams, 1982; Stewart & Deneulin, 2002; Gasper, 2007; Qizilbash, 2011) agree that the evaluation of poverty has been notoriously influenced by the normative framework of utility where human progress is analysed exclusively from a perspective of economic growth, or 'primary goods' (Deneulin & Shahani, 2009). In the context of urban segregation, where households are deprived in terms of opportunities, the assessment of well-being using a utilitarian perspective can be misleading, as city-dwellers may report a different level of happiness in relation to their real, objective situation (reality principle) as they adapt their preferences regarding what they consider achievable from their own perspectives. More importantly, within this approach, the evaluation exercise is focused mainly on capturing differences at the level of achievement only, downplaying aspects such as freedom and agency (Sen, 1992b). 60 This aspect is crucial because spatial characteristics may generate substantial interpersonal variations on how people convert urban resources into achievements, making resources non-optimal indicators to make comparisons of well-being.

Additionally, measurements of urban QoL based on the utility metric are more interested in capturing the *exchange* value of goods rather than their *use* in the urban space. As a budget set, commodities and resources have an intrinsic value in utilitarian terms that reinforces the inability to appreciate interpersonal differences. Thus, an evaluation of spatial inequalities based exclusively on the provision of resources tends to overshadow alternative spaces of evaluation, particularly one that looks at what kind of life a person can lead.

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⁵⁹ For the CA, justice is more prone to happen when it is understood as a combination of outcomes and processes (Alkire & Deneulin, 2009). Here, democratic evaluation entails identifying actors that are not well-represented and for who opportunities have been restricted.

⁶⁰ Ranks of well-being under this metric can be overestimated, since levels of satisfaction vary according to individual experiences and different levels of achievements. Thus, as urban amenities and resources are central aspects of individual evaluation, well-being is quantified by the extent of command individuals have over these aspects, rather than looking at the degree of freedom or the level of choice they have.

As an alternative approach, the CA advocates that social progress should be assessed in the space of capabilities or substantive freedoms that people have and have reason to value. The assessment of spatial inequality from the perspective of the normative metric of Sen's approach can focus alternatively on other evaluative spaces to account for advances in human flourishing such as functionings, capabilities and agency. This link between social justice and spatial inequality is recently addressed by Israel and Frenkel's paper (2017) which presents a conceptual framework to operationalise the CA as a normative argument to understand spatial inequality in different contexts. The reason to use the CA to link both conceptual aspects is based on the idea that capabilities as a metric of spatial justice are more appropriate as evaluations of well-being and agency would not be carried out hypothetically, as Rawls suggests under the idea of the 'original position', but by one's ability to choose and realise a range of opportunities (Abel & Frohlich, 2012).

The CA emphasises the importance of the plurality of ends in the development process, considering essential the analysis of freedom, agency and rational scrutiny to understand people's quality of life. As an emancipating framework, the CA criticises rationality under the utilitarian vision of development, as well as other welfarist approaches, as they are considered to be blind in relation to social freedom and inefficient in capturing all dimensions of poverty, especially from the perspective of people themselves (Sen, 1992b). For the CA, the assessment of people's advantage is wrongly approached when the focal point of evaluation is exclusively related to the available commodities that people command. Alternatively, the CA proposes that, in addition to focusing on the commodities (means) that allow people to achieve what they have reason to value (functionings), it is crucial to focus on the vector of choices, freedom and agency (capabilities) that allow people to achieve. Ultimately, the rationale of the CA is underpinned by the idea that the focal variable of people's advantage lies not in what people end up doing and being but what people are actually able to do and be.

Having said this, the CA has been studied widely and operationalised in several different contexts and settings (Burchardt, 2005; Lorgelly, Lorimer, Fenwick, & Briggs, 2008; Erica Chiappero Martinetti & Roche, 2009; Roche, 2009; Kinghorn, 2010; Burchardt & Vizard, 2011; Norwich, 2014). Nevertheless, its application in local development, and particularly, in relation to the phenomenon of urban dynamics has

been very limited. The self-evident intersection between spatial inequalities and human development in developing countries has been largely unattended by scholars. Biggeri and Ferrannini (2014) emphasise that 'scholars have not yet fully captured the evolutionary and institutional processes behind human development at the local level' (p. 15) and Frediani and Hansen (2015) have stated that although a marginal intellectual debate on the subject has arisen, the relation between socio-spatial dynamics and the CA is still 'fairly inchoate' (p. 5).

Currently, studies for bringing the CA into processes of socio-spatial dimensions have been mainly centred around questioning the instrumental value of the built environment in terms of access and distribution. In terms of access, studies concentrate on reviewing not just the provision of urban amenities but also how people access and use them. In the case of distribution, attention has focused on mapping how well-being moves from place to place as urban resources are distributed in the city. Within these approaches, Dong (2008) makes contributions towards the relevance of design in enhancing capabilities and Frediani and Boano (2012) conceptualise urban design by deconstructing the processes of producing space.

Despite this recent increasing interest of scholars to amalgamate the CA towards the production of space, studies on the specific relationship between segregation patterns and the expansion of capabilities are almost non-existent. A possible reason for this lack of integration may be that the people-centred and opportunity-oriented perspectives proposed by the CA place an excessive focus on the individual dimension, paying less attention to the realisation of collective outcomes, which are characteristic in socio-spatial relations. Therefore, the following section will advance towards the development of a conceptual framework to understand spatial dynamics within the architecture of the CA.

2.3.3 Framework for Conceptualising Spatial Context under the CA

As has been seen, the CA, and complementary approaches of multidimensional development, may shed light on the understanding of differentiation and segregation within the city. However, it becomes indispensable that the approach incorporates a place-based orientation in order to understand spatial phenomena such as residential segregation. The concept of place-based development is used here in the sense that

place matters for human advantage, recognising that spatial particularities and scalar sensitivity might trigger distinct levels of well-being and agency for individuals. (Barca et al., 2012; Pugalis & Bentley, 2014). By doing this, CA can resolve the lack of spatiality and become a more coherent and operational evaluative tool at the moment of measuring spatial processes.

A specific interest is to operate core concepts from the CA to understand how a place-based problem (segregation) undermines the expansion of the capability space and the achievement of freedom in the city. The proposed framework is based on five areas where spatial context might intercept and engage with the CA.⁶¹

Quality of life is implicitly a place-based process: The CA categorises development as an 'integrated process of expansion of substantive freedoms' (Sen, 2001, p. 8) through the achievement of 'instrumental' freedoms. The former are capabilities that enable individuals to achieve 'primary ends of enriching human life' (Biggeri & Ferrannini, 2014, p. 16), whereas the latter consist of those principal means such as 'rights, opportunities and entitlements' (Sen, 2001, p. 37) that contribute to the expansion of human freedom – also known as the five instrumental freedoms.⁶²

In both substantive and instrumental freedom, territory and place dynamics – understood beyond political–administrative categories – play a predominate role in how people conceptualise development (Flint & Taylor, 2006). Biggeri and Ferrannini (2014) suggest that territory and place affect freedoms in at least two different directions. First, people's reasons for ascribing value to different things are place-dependent as they are influenced by the territorial context, which in turn is shaped by the combination of social norms, local traditions, cultural references and ecological characteristics of a particular place.

Territorial context varies from place to place, making human flourishing targets dependent on what a particular place offers. Biggeri and Ferrannini quote Canzanelli's work (2001) to validate their argument: 'the well-being target is not the same for people living in New York or in Maputo; only those who is [sic] living in New York or Maputo

security (Sen, 2001, p. 38).

⁶¹ Drawing on the work of Biggeri and Ferrannini (2014) and space and place literature, these areas conceptualise QoL as a place-based phenomenon by adapting the CA into an operational framework. ⁶² Political freedom, economic facilities, social opportunities, transparency guarantees, and protective

could fix what they want to achieve in the medium- and long-term' (p. 24). This serves to use the same analogy to understand urban places, since degrees of segregation can modify well-being targets and instrumental freedoms.⁶³ The concept of sense of place becomes relevant in this discussion. The symbolic projection that people assign to places goes in the same line with the practical representation of what is meant by QoL. Tuan (2001) argues that by habit and practice space becomes personal places, ones that are full of meanings, knowledge and memory. Therefore, in that process, QoL as an action, one that allows individuals to flourish, is not just located in the space but in meaningful places where a sense of location and social position is incorporated.

Participation and agency freedom is mostly locally experienced: A deeply democratic approach to participatory development suggests that group decision-making should transition from nominal participation towards more deliberative mechanisms of participation (Crocker, 2007).⁶⁴ According to Sen (2002), democratic freedom is a fundamental ingredient of individual capabilities.⁶⁵ Thus, the value placed of well-being is directly connected with how people can exercise public scrutiny and criticism in order to develop preferences, identify needs and formulate petitions and proposals during public policy design – therefore identifying spatial inequalities involves an active process of public reasoning.

Within urban contexts, local participation in segregated areas is often shaped by elite priorities, which can be expressed at least by two different mechanisms. Elites can define priorities through mechanisms such as 'voting with their feet' or moving towards those areas where they can find greater possibilities – undermining 'voice' mechanisms to achieve collective goals. Likewise, in the presence of strong spatial segregation, which occurs mainly when poor communities are segregated involuntarily, discriminated groups are excluded from certain urban areas and forced to inhabit deprived areas.

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⁶³ Configuration of social capital, interaction between informal and formal institutions, people's affiliation to local identity, structure of power and collective action are some examples of how place dynamics modify the development of instrumental freedoms (Biggeri & Ferrannini, 2014).

⁶⁴ For a summary of modes of group decision-making mechanisms see Crocker (2007).

⁶⁵ Sen (2002) contends that people 'cannot fully flourish without participating in political and social affairs, and without being effectively involved in joint decision making' (p. 79)

Individuals and their capabilities and agency expansion processes are territorially embedded: Human development is anchored to where people live. Individuals create personal and societal relationships in relation to particular spaces. A way to understand this is through the concept of conversion factors. The CA points out the importance of focusing on ends rather than means, as people differ from each other in terms of their ability to transform means into valuable opportunities and outcomes. Those inter-individual differences are amplified or reduced by the degree to which a person can transform resources into achievements, referred to by the CA as conversion factors.

The CA distinguishes between three different types of conversion factors: individual (internal), social and environmental (external) factors. The relationship between goods and services in the city and the achievement of certain beings and doings may be place-dependent as it can be observed that similar individuals can differ in the achievement of outcomes depending on where they are located – conversion factors may vary across regions, cities and neighbourhoods. Therefore, what an individual is able to achieve by using a particular service or good may be determined by the urban setting that a city can provide. However, this analysis is based on the consideration that space and relations within places are a sort of environmental conversion factor, whose central role is the provision of public goods, underrating the intrinsic value of place for shaping capabilities.⁶⁶ It would be relevant to identify how urban segregation triggers or switches off the production of conversion factors in urban settings, paying attention not only to the existence or access of local amenities or urban resources but also to the context and circumstances in which place affects people's lives (Robeyns, 2005b). Here thinking spatially will help to overcome the limited scope of the CA in seeing the effect of places as simply a geographic conversion factor for human advantage, and instead it will help to embrace constructivist and critical notions of place (D. Massey, 1994) that advocate for seeing places as entities that go "beyond their notional boundaries" (Hubbard & Kitchin, 2010, p.7).⁶⁷

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⁶⁶ Indeed, Biggeri and Ferrannini (2014) point out that the environment within which conversion factors are embedded is determined by different aspects such as culture, local history, identity, and so on; and its context-specific nature will ultimately affect the production of capabilities.

⁶⁷ From an evaluation perspective, by integrating a place-based approach into the CA it is possible to go beyond approaches that distinguish between contextual and compositional effects and instead embrace a

Additionally, well-being is in itself just one of many possible ends for an individual. This means that there are other objectives that are not related to well-being. The CA refers to these alternative objectives to well-being as 'agency achievements', which account for social commitment or situations that are beyond personal well-being. This assumption generates tension for evaluators of well-being, as the functioning space can be very narrow for assessing human flourishing since concepts such as agency achievement are difficult to take into account. In the context of segregated areas, this argument is overriding as evaluations of urban well-being either consider objective measurements of living conditions (e.g. access to public services, housing conditions, etc.), which do not capture all the complexity of well-being; or apply subjective surveys, which hamper the comparability of human states between who is inquiring and who is being inquired of.

Individual opportunities are linked to the way in which space is ordered: Based on the model of the 'geography of metropolitan opportunities' (Galster & Killen, 1995), when mixed communities live in the same urban territory, it is possible that worse-off people can enhance their individual opportunities. The model suggests that the place where people live affects crucial life choices, as normative and social networks are sensitive to how the space is arranged.

Opportunities and positive life outcomes will develop from the interaction of a *process* dimension and a *prospect* dimension. The *process* dimension refers to how institutions, market and delivery systems (e.g. health services, judiciary systems, urban transport systems, etc.) are able to modify both intrinsic and acquired characteristics of individuals. This dimension works as an 'opportunity structure' because it persuades individuals to change attitudes and attributes (p. 9). The *prospect* dimension alludes to those future scenarios of socioeconomic output that will be likely to occur when people make decisions regarding health, education or work.

The 'opportunity set' is complemented with the role that geography has in shaping decision-making processes, particularly through a) variations in the opportunity structure, and b) variations in the way values and aspirations are established (for instance, the role of social networks within neighbourhoods to establish norms, rules

more integrated approach where distinct processes that occur between people and places are examined (Macintyre, Ellaway, & Cummins, 2002; S. Cummins, Curtis, Diez-Roux, & Macintyre, 2007).

and codes in order to leverage processes of socialisation). An equal distribution of urban amenities works in that direction. Indeed, the moral value to have equal spaces lies in the idea that unequal outcomes are due to decisions and choices made by people based on their preferences, aspirations and desires rather than in the place of residence (Dawkins, 2016).

Urban capabilities are determined by the quality of a place, which is produced by the spatial form of the city and the joint effect of the place and the society which lives in it: The quality of places should be assessed in relation to how people are connected to the spatial form. An appropriate way to see this is through the lens of Lynch's normative framework (1960) to evaluate urban spaces. Lynch considered five dimensions of performance which should be used to assess the quality of places from the perspective of efficacy and justice. His theory of a 'good city' suggests that the space and the urban form should be:

vital (sustenant, safe and consonant), ... sensible (identifiable, structured, congruent, transparent, legible, unfolding and significant), ... well fitted (manipulable, and resilient), ... accessible (diverse, equitable and locally manageable), and ... well controlled (congruent, certain, responsible and intermittently loose). (p. 235)

The morphological design of a city is connected to the urban experience through these domains, which must also meet the meta-criteria of internal efficiency and justice. Here, urban space is a complex system in which emergent properties enable (or restrict) human flourishing. The metaphor of urban spaces as an ecosystem, in which diversity and interdependence are core characteristics of place, is enlarged with the notion of 'learning ecology', a conceptualisation of place where adaptation, progression and invention are features of the urban system. By considering that the urban space is a complex system, the intricate networks that occur within it suggest that capabilities are also adaptable and flexible to the values and culture allocated from place to place.

The above argument suggests that an interpretation of urban QoL based on the CA can enable the identification of people-centred arguments where the expansion of capabilities, opportunities and freedoms can help us to see the city as a space where people are free to make real choices and public investment and regulation is oriented

towards more equal outcomes. These areas can be pictured using a spatial adaptation for the CA, in which core concepts of the CA are adapted by using a spatial interpretation of well-being. Figure 2.1 is based on Robeyns' (2005) representation of the CA, which makes a distinction between means (good and services), freedom to achieve (capabilities) and achievements (functionings). The figure integrates the domain of spatial context in the production of capabilities and functionings, developing a framework of three main moments where space is transformed into places of change for developing true capabilities.

The Capability approach Social **Spatial** Spatial declination of context and psychology Capability Approach factors Non-market Capability set (What you CAN do and be) Achieved Choices Functionings (What you do and are) . Market production Net income Achievable functionings Individual Transfers-in-kind Commodities Existing space **Changing space** adapted by Freedom to achieve Means to achieve Place

Figure 2-1 Spatially informed CA: Place-based framework for the development of capabilities

Source: Adaptation based on Robeyns' (2005) schematisation of the CA and Landman's (2016) idea of transformed spaces.

In the first stage of the framework, commodities and services are inserted as objects in a given space, one that is aspatial to place as it does not take into consideration the qualities of space in shaping social relations. The argument is based on the conception that 'place matters' (D. Massey & Allen, 1984) as people's behaviour and opportunities are strongly influenced by local environments. Here, the social precedes the spatial (Tuan, 2001) in the sense that social drivers influence the spatial form. The 'means to achieve' are based not only in the availability of goods and services that people are able to access, but also in considering that they are produced in

the space, which indicates that they are directly affected by spatial modes of relations that exist in places.⁶⁸

The existent space is confronted by the need of individuals to shape their own space to achieve different doings and beings. Here, the 'focal variable' to assess social arrangement is based on the notion of functionings and capabilities, which are *constitutive* elements of well-being and not simple *instruments* of achieving well-being or *means* to freedom (Sen, 1992b) as are variables such as primary goods or resources. The first statement here is that place is subject to change. Space transformations are based on the social drivers that are immersed in the 'interplay of the spatial form, functions and meanings that people attach to place' (Hansen, 2015, p. 82), leading to different options, possibilities, and therefore, freedoms available to people to achieve. With this logic, as space is transformed into place by meaning, the production of capabilities in that space are also subject to change. A second element here is that the assumption of considering space and place as a mere conversion factor is replaced by a more active role of the spatial form.

For the CA, place has been considered as an extension of an environmental factor to convert commodities into functionings, where the quality of place is in some respect the freedom to access resources (built environment) – an instrumental value. In contrast, the proposed framework suggests that the production of space has intrinsic effects in how capabilities are shaped and developed. More important, the availability of opportunities in a given place will allow alternative combinations to be achieved. The result is a 'changing space', one that allows people to overcome constraints of freedoms that occur in the space – for instance, spatial inequalities of segregation. Core concepts from the CA can be adapted to take into account the spatial effect of place in producing well-being (Table 2.1). The 'changing space' will be directly affected by availability of opportunities.

⁶⁸ Within urban critical theory, the availability of material resources is core to tackling urban poverty and improving equity in the city. Thus, the ability to access urban furniture and assets will be a first set of conditions to fulfil if a more equitable city is the political aspiration.

Table 2-1 CA concepts adapted to spatial thinking

CA categories	CA definition	Adaptation for spatial thinking
		(Place-based capabilities)
Functioning	Person's realisation and outcomes	An achieved option specific to a place
Capability	Person's real opportunity to achieve valued functionings	Place-based real opportunities to achieve valuable combinations of human functionings
Agency	Ability to act on behalf of what matters	Contextual person's abilities and commitments to pursue what matters in a given place
Freedom	Valuable opportunities to lead the kind of life people want to lead	Place-driven opportunities to act to exercise agency and operate real opportunities
Opportunity	Substantive freedom to pursue different functionings	Context-specific circumstances that make it possible to achieve
Choice	Action to select what a person wants to achieve	Place-based decision to achieve valued functionings
Conversion factors	Physical, social and environmental mechanisms to transform goods into functionings	Physical, social and environmental factors influenced by place.

Source: Based on Guerini's (2012) previous work of adaptation of the CA to urban studies.

The opportunities released by the transformation of space into place will enable people to choose those functionings that are central to achieving their goals, realisations and personal outcomes. Yet, a changed place is also the locus of the habitat selection, the one that people have reasons to choose based on the assessment of meaningful future alternatives and the active agency to pursue what matters in a given place. Therefore, in addition to functionings, agency becomes a central aspect to assess whether a place enables people to achieve. One's freedom to bring out the achievements one values, what Sen calls freedom agency, can be instrumental if people have the ability to produce the achievement through their own efforts and not through mere contextual circumstances. The capability to control the urban space has then the

additional characteristic to enhance one's ability to act as an active agent to promote those central values (Sen, 1992b). More important, a 'changed space' is a compilation of choices where not just individual but also collective achievements are developed. In the same way Rapoport (2005) talks about systematic and consistent choices to make inferences about how the built environment is developed, the transformation of space in relation to capabilities supposes that social interactions that happen in places generate not just individual but also collective spatial transformations. Additionally, the making of 'new spaces, meaningful places with connecting capabilities' (Manuel Castells, cited by Cuthbert, 1996) are closely related to the expansion of external capabilities (Foster & Handy, 2008), those abilities that a person is able to achieve though the direct interaction with another person or group. Living in spaces and sharing places, on any possible scale, makes it possible for proximity and spatial exposure to amplify directly the transfer of opportunities and capabilities between individuals. Taking into consideration these two elements, the framework incorporates the notion of enhancing capabilities, those capabilities that are not just spatially created but are collectively transferred between individuals.

2.4 Urban Poverty and Young Adults' Quality of Life in Bogota

2.4.1 Applying the CA to Young Adults' Life Trajectories

The capability approach (CA) focuses on objective measurements⁶⁹ of well-being, going beyond the utilitarian perspective of measuring well-being in relation to individual happiness (preference satisfaction) to consider other variables of human flourishing such as freedom, agency and choices. As an analytical and evaluative framework, the CA aims to assess human advantage in terms of what a particular person is actually able to do and be (capabilities). Sen refers to these doings and beings as 'functionings' and conceptualises them as constituent elements of well-being, a subnet of people's advantage. The achievement of these functionings is directly connected with their availability to convert commodities into human functionings, which can be understood as the different combination of functionings that a person can achieve – the

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⁶⁹ The CA objectively captures functionings as a measurement of individual achievement. Domains of freedom and choices remain counterfactuals of well-being achievement and agency achievement, respectively (Comim, 2001).

capability set. In relation to these core concepts, functionings can also be interpreted as outcomes as they indicate the actual realisation of a possible set of options. Equally, capabilities can be considered as opportunities, taking into account that there are different combinations of functionings – reflecting people's freedom to choose between different kinds of lives. In this sense, the CA operates on two different, but complementary, levels. On one side, functionings register a realised state of well-being (outcomes), and on the other side, capabilities suggest a potential state of well-being (advantage).

This differentiation is not marginal and deserves attention, particularly when evaluations of individuals' well-being focus on either functionings or capabilities but not both. For instance, some individuals can achieve poor functionings even if they are located in a context where there is a large range of available means (freedoms). In this case, it is possible that individuals' decisions are oriented towards prioritising different types of functionings (i.e. functionings which are far less intensive in terms of means), that even though they score low in well-being, were decided in a context of real freedom of choice (capability). Indeed, Sen (1991) argues strongly that any type of well-being evaluation should encourage assessing individuals' preferences and freedom of choice (capabilities) since they will ultimately determine the functioning achieved.⁷⁰ In more empirical terms, the use of those concepts highlights the fact that in the context of concentrated poverty, young adults will experience a deprivation of capabilities and, therefore a reduction in the set of achieved functionings. For instance, young adults, located on the periphery or in isolated locations within cities, are unable to access job opportunities because of high transport costs or the inability to access childcare alternatives. These two aspects will directly affect their freedom formation and, consequently, will limit the type of functionings available to them.

The use of the CA to analyse and assess the effects of deprivation on young adults allows us to understand poverty beyond the provision of commodities but rather in relation to a person's capabilities to function. From the CA perspective, development consists of tackling all of the of unfreedoms that radically reduce opportunities and leave no room for people to fully exert agency (Sen, 2001). For instance, in terms of

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⁷⁰ Within the conceptual framework of the CA, peoples' achievement are not just defined in terms of the ability to convert conversion factors into well-being (functionings) but also in the availability of choices to achieve.

equal opportunities and open options, disadvantaged young adults are often deprived in their access to quality social services, such as health, education and employment, which ultimately restricts their independence and self-determination. According to The United Nations Economic Commission for Latin America and the Caribbean (ECLAC), within Latin American urban areas, one in three young people is poor, where deficient access to secondary education, poor mechanisms for social mobility and high levels of violence and discrimination contribute to worsening their expectations as individuals (Trucco & Ullmann, 2015).

A capability approach to well-being in young adults encourages the discussion about considering a broader space of evaluation of QoL. By doing this, well-being in young adults would require that the emphasis of evaluation is placed not on the means but rather on the end outcome that people have a reason to pursue (Sen, 2001). The CA argues against a resource-based approach to QoL, where income as a proxy of well-being is under scrutiny for its low inadequacy to assess freedom and agency, as it does not take into account that individuals differ in how they are able to convert commodities into well-being: two different persons do not necessarily obtain the same level of well-being even if they have received equal endowments of goods. The existence of unequal opportunities open to young adults, due to the vast human heterogeneity, talks about groups of young people that differentiate with others in the way they are able to achieve basic capabilities. This is the case of young adults who are immersed in poverty and, therefore a context of scarce opportunities shapes their future trajectories.⁷¹

Young adults are characterised by groups of individuals that make choices, which define certain valued lifestyles and which are mediated by those with aspirations they consider valuable to follow. In the analysis of well-being, some of those valued lifestyles of young adults can be determined by how factors related to income, race, gender and location, among others, are integrated with each other, creating different types of individuals, and hence, citizens. The existence of different lifestyles among young adults are reflections of social systems where inequalities are not just grouped by the differences in the endowment of resources (e.g. income), but by horizontal

⁷¹ There is also the case of young adults that access to household income in unequal terms. Here the intrahousehold allocation is to the detriment of health and education young adults' interests (Biggeri & Mehrotra, 2011). For them, practices and social policies should be used a differential approach in order to level current social and economic gaps.

inequalities which contribute to the existence of today's unstratified – classless – societies (Pakulski, 2005) -societies where social division is 'blurred and social relations are cross-cutting and/or fickle' (p. 186) so that traditional class categories or social formations are no longer applicable. In this sense, young adults' life trajectories in deprived neighbourhoods are commonly related to specific lifestyles that not only describe the reduced amount of choices available but also reveal that the choices available do not favour the ability of people to flourish as individuals – as many of the lifestyles available are driven by the context of inequality, poverty and social injustice. An example of availability of choices for young adults can also be understood through the analysis of subcultures. In youth studies, a subculture refers to the existence of 'a group within a group' (Kehily, 2007, p. 21). Subcultures can be described as particular lifestyles that young adults have decided to lead. In the case of Bogota, for instance, some young people have grouped themselves into a particular urban tribes, which encompass the values that are definitional for pursuing their own flourishing as human beings. Using the capability approach as a framework to assess well-being in young adults, we can consider the reproduction of urban tribes not just as representations of how young people select valued lifestyles but also as a vector of options to assess quality of life. Urban tribes, as a set of cultural patterns of behaviour, integrate the notion of how people exercise free choices regarding how to be and act. They are social representations of agency that help us to understand what young people do and are, and more importantly, to understand to what extent individuals interact with one another in order to achieve the life they want to live.

Worth noting is the fact that although disadvantaged young adults are in a better position than children to decide by themselves what life they would like to live, they are often limited in carrying out their own choices and decisions – not only because others make the decisions for them, but because many of the decisions that they must make are conditioned or presented in a restricted way. Pockets of poverty or concentrated poverty are spaces that will ultimately shape the type and quantity of options and choices available for young adults. For instance, in popular culture, it is common to talk about concepts such as 'lost youth' or 'lost generations' (M. Dolan, 1993) to characterise those young people who have made the wrong decision and have missed out on the opportunities presented to them by the simple fact of being young. This type of argument glosses over the fact that for many young adults, failing to flourish is not a

question of making wrong *decisions* but rather of living under certain *conditions*; in addition to the choices available to them not being under their control, those that are available are based on processes of inequality and separation.

The fact that the opportunities for many young adults growing up and living in disadvantaged areas to flourish are distributed unequally, due to the interaction of social and political structures, points to the greater barriers they face in achieving economic independence and success. Economic and social barriers affect young adults differently. In contrast to other age periods, young adults show different rules of conduct in how to achieve their personal goals and achieve their aspirations. In this regard, and particularly in terms of decisions and options, young people are involved in complex situations as their aspirations are in some way a product of their desires but are also in the interest of third parties who, simultaneously, influence them.⁷²

Agency, understood as the expression of an individual's capacity to make her own decisions based on creativity, action and purposiveness (Rudd & Evans, 1998; Kotan, 2010), becomes a critical aspect in understanding well-being in young adults. The fact that today young adults' decisions are restricted by uncertain political and economic outlooks, which are less predictable and more complex than earlier generations experienced, highlights the need for exercising a more positive role to achieve their independence and autonomy.

Within the CA, the concept of agency includes analytical attributions that can enhance the informational space to understand young adults' well-being. For the CA, agency is one of the key aspects to assess human freedom. Unlike other philosophical approaches to social justice, the CA considers agency as an instinct and of substantial value rather than operational and instrumental. In doing this, the emphasis of evaluation is applied to the feasible alternatives people have to achieve (capabilities) as well as to

⁷² Unlike childhood, adolescence and adulthood, where autonomy is clearly defined in absolute/not absolute or present/not present categories, for young adults, their autonomy is a characteristic quasi-present or conditional on legal and social context.

⁷³ Within the capability approach, the concept of agency has different interpretations regarding its role for the assessment of human life. In the case of Nussbaum's interpretation, the agency dimension is considered as fully integrated in the binomial relation between functionings and capabilities. In Sen's vision, agency transcends well-being as it has a different purpose in the sense that people can set goals that they regard as worth pursuing but that are not in line with enhancing their well-being. For further explanation regarding the difference in Sen and Nussbaum's visions of the capability approach see Peter, 2009.

achieved well-being (functionings). More specifically, the CA makes two cross-cutting distinctions between how human life should be evaluated: differences between agency goals and well-being goals, and differences between freedom and achievement.

By combining these terms, the CA considers that 'agency achievement' (Table 3.1) encompasses the types of achieved goals and values people have reason to value but that do not necessarily have the potential to affect their wellness, personal advantage and achieved well-being (functionings). Here, the combination of functionings that a person actually achieves is in fact determined by the exercise of freedom (agency) to pursue independent well-being goals that are 'not tied to any one type of aim' (Sen, 1985b, p. 203) and that look to satisfy the goals each person considers important. For instance, in the case of young adults, this distinction encapsulates the risky attitudes and behaviours they experiment with during adolescence and that are still present during the transition to adulthood, which might lower their achieved well-being but that in contrast, can expand their freedom to experience. In this respect, Sen advocates for a careful assessment of how agency is performed as it requires the existence of responsible agents – a sort of *open conditionality* – to exercise it (p. 204).

Table 2-2 Basic distinctions between freedom and achievement and well-being and agency

	Agency	Well-being
Achievement	Agency achievement	Well-being achievement
	Realisation of goals and values	(Functionings)
		Specific objective
Freedom	Agency freedom	Well-being freedom
	Freedom to bring about achievements one	Freedom to achieve
	values	(capability set)
	Relevance for deliberative democracy	Substantial freedoms

Source: (Sen, 1992a)

Sen also suggests that when one's agency cannot be assessed carefully because one's own judgement is restricted, as happens in the case of young children or mentally ill people, the assessment of human life might be reduced to consider exclusively their well-being, rather than the agency aspect. The assessment of this aspect becomes critical to define whether the CA can be a suitable evaluative framework to analyse young adults' well-being.

On a second level, the CA states that any evaluation of a person's well-being should be concerned with the dual accounting of actual achievements and the degree of exercising freedom. 'Well-being freedom' entails the capacity to 'have various functionings vectors and to enjoy the corresponding well-being achievements' (Sen, 1985b, p. 203). This last aspect encompasses the centrality of the idea of capabilities as a measurement of development. Consequently, when freedom is detached from the production of personal achievements (both functionings and capabilities), and instead is exercised as a vector to pursue *any* goals or values people regard as important (p. 203), freedom becomes a larger goal that goes beyond the achievement of one's well-being – 'agency freedom' (Table 3.1).⁷⁴

A horizontal reading of Table 3.1 reveals additional states of being. As mentioned earlier, agency achievement works in the dimension of realisation of the goals and values one has reason to pursue, whereas agency freedom can be conceptualised as 'one's freedom to bring about achievements one values and attempts to produce' (Sen, 1992, p. 56). By doing this, agency freedom incorporates the view of achieving goals connected to well-being but also extends to actions that influence others. This distinction of agency freedom and agency achievement is also relevant to the context of young adults' well-being. Young adults' decisions have larger effects as they not only have implications for them, but also have implications for others. Unlike adolescents, young people have the particularity that, as they approach adulthood, their decisions impact not only their well-being as individuals but also the quality of life of their families, communities and countries. In this context, young adults are not only recipients of freedoms for the sake of their own well-being, but also in the interest of 'advanc[ing] any goals the person thinks important, whether for themselves, their communities, or some other entry or group altogether' (Alkire, 2009, p. 458). More often analysed is the relationship between well-being achievement and well-being freedom. Here, the social evaluation encompasses exclusively the idea of well-being, ignoring the person's agency. Development as the expansion of freedoms entails not only the current states achieved by the person but also the 'capability set' which is

⁷⁴ This category of evaluation of people's lives is shaped by the values and moral considerations they consider valuable to advance. As Sen points out, agency focuses on 'assessing what a person can do in line with his or her conception of the good' (Sen, 1985b, p. 206).

reflected by 'the various alternative functioning bundles he or she can achieve through choice' (Sen, 1985a).

In both achievement and freedom circumstances, agency becomes a novel measurement of development as it transcends the aspect of well-being in its dimension of capabilities and functionings. This distinction justifies any attempt at enriching the evaluation of a young adult's well-being through the assessment of not only establishing to what extent the space of capabilities is contracted/expanded but also in determining the role of agency in enhancing their life trajectories. From an evaluative perspective, the use of the CA will not only uncover additional states of affairs to assess how young adults are performing in their pursuit of a better life, but it also stimulates a process of disconnecting their well-being conception from other developmental age stages, particularly from childhood and adolescence. A distinct conception of young adults' well-being will help to recognise the importance of advancing towards other normative frameworks that give space to broader interpretations of human life for young adults, making them entitled to a right to development. In this regard, the normative framework of the CA approach provides methodological tools to measure to what extent the existence of opportunities can contribute to the development of internal capabilities for them. Indeed, the focus on capabilities entails that the assessment of young adults' wellbeing should advance the mere testing of rights and rather will concentrate on the evaluation of opportunities.⁷⁵

If young adults' advantage (well-being and capabilities) and conception of the good (agency) take into account an assessment of their progress towards adulthood, the identification and prioritisation of affirmative action would be connected to the differentiated availability of opportunities. The application of this normative framework can help policy analysis and policy implementation to assess young adults' specific needs with respect to the type of rights that should be protected and promoted in each sector and field of interest for them. A tentative hypothesis for testing here for instance

⁷⁵ In this aspect, Hart (2014) warns that rights are not suitable proxies to measure capabilities as 'having a right does not mean having the capability to do/be and may not represent a valued way of being/doing for the individual' (p. 29). More importantly, the fact that a person is subject to rights does not mean that functionings will follow (p. 29). These aspects suggest that the evaluation of a young adult's well-being should emphasise the degree to which opportunities are open to them and that agency is exercised freely, which implicitly considers to what extent discrimination and inequality are present among young adults – aspects that a rights approach of fails to identify.

would be whether the greater the exercise of agency to experience achievement, the more successful the arrival to adulthood. If young adults' decisions are set in a framework of deliberation and independence, and consequently, well-being is in line with the expansion of freedoms and agency is exercised by effective power as direct control (Alkire, 2009), the CA would argue here that young adults' right to development, based on these conditions, will boost opportunities to develop their internal capabilities.

This expansion of the informational space for analysis of well-being that the CA provides, fits conceptually and methodologically with the challenges that young adults face during the transition towards adulthood. The use of the CA as a framework to analyse young adults' lives thus becomes a mechanism to assess proactively the ongoing social and political context which, as the transition to adulthood is becoming longer, requires a set of different policies to balance the provision of opportunities to reestablish their aspirations and the sense of control over their lives. Cross-country evidence from the Young Lives Project at Oxford University is an international study which employs the capability approach as an evaluation framework to shed light on the drivers that explain childhood, adolescence and early adulthood poverty. This initiative recognises the importance to understand children well-being from a broader and multidimensional perspective recognising that monetary driven indicators have fail to understand the true reason behind deprivations.

From the perspective of the operationalisation of the CA, the assessment of quality of life on young adults requires two different but interconnected stages. On one hand there is the question of what relevant dimensions should be included in the assessment, and on the other the decision about the process by which these dimensions should be defined (Hick, 2012). Social assessment of youth well-being has incorporated a multidimensional approach to quality of life where the idea of maximising total economic output is not, anymore, the overarching goal. As the analysis of poverty and equality has moved towards a multidimensional evaluation of development, the consensus of selecting domains that are relevant for assessing human well-being has become one of the most critical aspects to take into account.

In line with this, the CA has been notoriously influenced by theoretical differences that suggest diverse approaches to the identification and weight of valuable

functionings and capabilities. This debate has been to some extent restricted to the universalist list of central capabilities introduced by Martha Nussbaum and the liberal explanation of poverty from Amartya Sen. Based on a more deliberative approach, Sen advocates for a different approach to the identification of capabilities. In his view, a democratic debate is required to decide what should be qualified as a relevant dimension of quality of life, rather than a pre-determined canonical or fixed list of capabilities. In essence, Sen's view of the identification of relevant capabilities suggests that in any attempt to elucidate people's dimensions of quality of life, the operation of the CA should pay explicit attention to understanding the specific social, cultural and economic contexts that surround the life of those people who are subjects of research (Graf, 2012). By exploring the agency/well-being and achievement/freedom concepts, Sen's position is in line with the idea that an individual must have freedom to choose how her personal advantage should be developed (well-being freedom), as well as the capacity to judge to what extent her own well-being should be expanded/sacrificed for the sake of others' well-being (Crocker, 2007).

The open identification of relevant dimensions in Sen's view, gives us a sense that a young adult's well-being should be advocated as a process where the space of conceptualisation is enabled for them rather than the assumption that a passive acquisition of a given set of capabilities will be enough to conceptualise their well-being — which in addition will contribute to shortening their principle of self-determination and encourage models and practices of paternalism. More importantly, employing a deliberative process for the identification of relevant domains for young adults will encourage the understanding of this age category as independent from others, particularly breaking the nexus with patterns of well-being associated with both adolescence and adulthood, and the appearance of the true scale of their opportunity situation (Freeny & Boyden, 2003).⁷⁸

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policymakers in the design of policies in sectors such as education, health and labour markets. The needs

⁷⁶ Nussbaum elaborates arguments toward a partial theory of justice, based on the definition of 10 'central human capabilities' that in her view should shape any legal constitution (Robeyns, 2005b) and where citizens should base their reclaim for social action to their governments. Nussbaum argues that a list of central capabilities gives 'the basis for determining a decent social minimum in a variety of areas' (Nussbaum, 2001, p. 75) and therefore should 'be of central importance in any human life, whatever else the person pursues or chooses' (p. 74).

⁷⁷ The exercise of a consultative process will ensure that dimensions of quality of life would be extracted through a process of public reasoning, as they [dimensions] are likely to be highly context-dependent.
⁷⁸ This aspect is relatively important as young adults have been traditionally poorly consulted by

2.4.2 Spatial Opportunities and Poverty Deprivation in Bogota

As has been discussed, young adulthood is a crucial life stage for understanding not just how individuals will capitalise on the cumulative human experience gained during previous stages, but also in determining the life path that will follow. Unlike childhood or adolescence, the question of responsibility and freely autonomous choices create notable implications for young adults. From a perspective of social gains, young adults are powerful agents for inducing change into societies. Their skills, motivation, resilience and interdependence behaviours are essential for societies to thrive and grow.

Young adults in Bogota face transitions in different behavioural domains, such as those related to the labour market⁷⁹, educational aspirations⁸⁰ and family and relational life. These domains are often subject to rapid changes, whose effects bring out contexts of uncertainty and instability for young adults. In the case of occupational and labour domains, young adults face the challenge of assessing the extent to which the low psychosocial moratorium, in Erikson's (1988) terms, should end in order to access the labour market⁸¹. On the side of education, access to opportunities is stratified by the level of education received, not only in terms of the type and quality of the education but also in the amount of schooling received. This tends to be aggravated by the fact that at an older age the probability of studying tends to reduce.⁸² Opportunities in education will provide specific choices that shape further development stages. And on the side of family and relational life, young adults question themselves about how to

of young adults often remain excluded or unexposed which is conducive to the operation of evaluative frameworks and policy implementation that incorrectly assess their level of well-being.

⁷⁹ It has been widely argued that for young people accessing labour opportunities is by far more difficult than for older workers: they have less experience, they lack personal contacts as older workers do, they have less knowledge about how working opportunities work, among others (Morsy, 2012).

⁸⁰ Using longitudinal data, Garcia et al (2015) show that access to higher education for young adults in situation of economic vulnerability tend to increase over the years in Colombia. Researchers found that for every 100 children who enter basic education whose parents have low academic achievement, 78 manage to graduate from primary school, 39 achieve a bachelor's degree and only 11 access to higher education (p. 81).

⁸¹ Using data from the National Statistical System (DANE), national unemployment rate in Colombia is 7% lower (8.5%) that the youth unemployment rate (15.5%) during 2016. This displays harder conditions to young adults comparing other age groups at the moment to find job opportunities. This situation becomes worse if a gender perspective is put in place. In Colombia, youth male unemployment is lower (11.9%) compared with youth female unemployment (20.5%), putting young adult women at an even greater disadvantage.

⁸² In the case of Colombia, the proportion of young people who only study decreases from 65.4%, in the 14-17 age group, to 19.3% in the 18-21 age group, and 4.3% in the 22-28 age group (Consejo Nacional Política Económica y Social, 2014).

advance towards independence, to live as a couple and to start parenthood. All these domains entail transitions of both beings and doings for young adults; from being a student to being a worker, from carrying out household chores to making payments towards utility bills and rent, from being a non-parent to being a parent. During emerging adulthood, young adults respond to these transitions, creating immediate consequences that will define their life trajectory.

From a perspective of well-being assessment, the effects of spatial inequalities suggest that the analysis of young adults' trajectories based only in the application of people-based approaches are not sufficient to understand how social and economic restrictions operate. Although the CA includes (within the concept of conversion factors) features related to the environmental context of places, such as the provision of public goods, climate conditions and other sort of facilities; the approach does not fully engage with considerations related to the social production of space and how sociospatial relations and conflict can affect the production of functionings and capabilities. A place-based perspective in the CA is needed in order to go beyond the relationship between environmental conversion factors and achievement to one that provides more information about the role of space in shaping social action and behaviour. (Gotham, 2003).

The proposal here is to advance towards a wider definition on young adults' deprivation, where the provision of basic capabilities and achieved functionings are determined not just by the individual dimensions – who they are – but also by the environment in which the individual is immersed – where they live. This means that the criterion of justice used to evaluate spatial quality of life changes from essentially economic to one that presupposes human capabilities as the central axis of urban well-being, where urban inclusion lies on the valuation of differences and the mechanism of participation and representation. In terms of the operationalisation of the CA, this supposes that an investigation into young adults' quality of life will not just entail looking at specifically environmental conversion factors, or provision of them, but exploring how place has an intrinsic value in shaping freedom, agency and functionings for young adults.

Availability of choices are mediated by individual characteristics as well as the context that arises around each of them. Individual characteristics are understood as

those features that a young adult is endowed with and which affect how she will benefit from available opportunities. Individual characteristics can be listed under a range of socioeconomic and demographic domains, such as gender, cultural affiliation (urban tribe), race, social class; but also under personal characteristics which affect bodily operation and psychological make-up, such as metabolism, a person's intelligence, among many others (Sen, 2001; Robeyns, 2003; Nambiar, 2013). At the level of context, young adults' decisions are influenced by social and economic arrangements that will shape the provision of opportunities and resources. Social and economic arrangements are place-based norms that define not just public policies, social norms and discriminating practices for young adults but also power relations as well as social hierarchies in a given territory. Alongside social and economic arrangements, young adults' decisions are also influenced by the set of opportunities which emerge in a specific built environment and spatial context. Here, the geographical location and the provision of public goods are critical to assess to what extent young adults' decisions can be converted into achievable dimensions of well-being to transit towards a more positive and unfaltering adulthood.

In the case of Bogota, young adults' decisions are strongly affected by the spatial context of where they live, suggesting that inequalities and injustice take on different meanings based on the social, historical and geographical context. The idea above used to refer to youth experience being different in terms of time and space, it could be replicated here to understand that within cities young adults have different life routes depending on where they live and where they place their social relations. ⁸³ In the context of urban segregation, one of the fields of research deals with the effects of neighbourhoods and how living in them has consequences in young people's life-course trajectories. Unlike previous generations of young adults that migrated with their families to the city with the aim of increasing their limited living conditions in rural areas, today most of the young adults in segregated places do not meet those aspirations and expectations that the city is supposed to provide. The set of options, abilities and opportunities that are open for them are limited, suggesting that there are structural

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⁸³ Although the distribution of young population in Bogota is in line with the total population of the city, the majority of young adult population (50.9%) is located in 4 out of 20 urban districts: Kennedy, Suba, Engativa and Ciudad Bolivar. 90.1% of the young adult population in Bogota is concentrated in the lower socioeconomic strata.

factors of inequality and social and spatial imbalances that must be interrogated to enable contexts more conducive to the pursuit of well-being.

For the case of young adults in Bogota, spatial inequality, and its representation in residential segregation, can be seen as forces that amplify contexts of poverty and inequality for them. Deprived neighbourhoods have been described as 'ghettos' with a negative effect on upward social mobility (D. S. Massey & Denton, 1988; Ostendorf et al., 2001). For young adults, these contexts often signify the lack of opportunities to climb established social and economic ladders and the forgoing of aspirations. Inequality has been considered as having a negative correlation with levels of intergenerational earnings mobility. ⁸⁴ Studies in social mobility in Colombia have shown similar results as upward mobility is relatively less likely to occur for the least advantaged than for the rest of the population. Measurements of social mobility, using transition matrix, ⁸⁵ have shown that upward mobility has been low both in terms of years of schooling and socioeconomic indicators (Tenjo & Bernal, 2004; Angulo, Gaviria, Páez, & Azevedo, 2012).

Young adults living in informal settlements and in working class neighbourhoods in Bogota also have to deal with the 'stratification system' that by law has been in place since the early 1980's in Colombia. The 'stratification system' is a socioeconomic mechanism that ranks dwellings on one of six strata, ⁸⁶ aiming to focalise subsidies for utility bills tariffs for individual households (Uribe & Pardo, 2006). The stratification system works not just as a mechanism to classify the urban population but also as an income based spatial division that contributes to the polarisation of the city between poor and rich inhabitants. Originally created as a focalisation mechanism, the ongoing stratification system has given rise to public policy that differentiates housing conditions but is also used as a criterion to reproduce social representations of

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⁸⁴ In the context of neighbourhood deprivation, studies have shown that upward social mobility is positively correlated in those areas where there is less residential segregation, less income inequality, better primary schools, greater social capital, and greater family stability. (Chetty, Hendren, Kline, & Saez, 2014).

⁸⁵ A transition matrix summarises the mobility of an individual across different levels, for instance income classes of occupational categories. Categories and classes can be classified within and between generations. (Formby, Smith, & Zheng, 2004)

⁸⁶ The system uses a scale from 1 to 6 strata with 1 as the lowest stratum and 6 as the highest stratum. The public policy considers that the physical condition (façade, type of floor, roof materials, etc.), location and built environment surrounding dwellings can work as a proxy to identify the urban poor (Uribe & Pardo, 2006).

discrimination and inequality (Bonilla et al., 2014). The strata system has created social hierarchies that have gone beyond the original purpose of the public policy, ensuring that city-dwellers are constantly reminded (both formally and informally) that they have been stratified (Uribe et al., 2006; Uribe, 2008), to the point where *Bogotanos* refer to others not just by mentioning personal characteristics, but also by referring to which socioeconomic strata the person belongs to.⁸⁷

The production of stigmas and stereotypes, due to the entrenched process of stratification that the city has undergone, repels people and economic resources from urban spaces where poverty is ubiquitous. Residential segregation makes use of stereotypes to discriminate against and exclude disadvantaged young adults from opportunities, and to disfranchise and disengage them (Bradshaw, Jay, McNamara, Stevenson, & Muldoon, 2016). High rates of unemployment, high levels of insecurity and crime, the presence of micro-trafficking networks, degradation of environmental resources, among other problems, reinforce not just the stigma associated with the place but also contribute to reproducing new problems that condition young adults' futures. For instance, in the case of labour opportunities, the gradual process of urban isolation means that spatial inequalities continue over time as young adults are victims of statistical discrimination as employers are prejudiced by the place where young adults live. 88 Young adults come into conflict with their urban identity when they find that their place of residence, and by extension their human condition as urban residents, is subject to stigmatization and social prejudice. In their transition to adulthood, young adults realise that the place they have inhabited, suddenly, is a place rejected and socially discriminated. Arnot and Swartz (2012) explore the concept of 'politics of belonging' from the perspective of young people by looking how youth experiences end up shaping concepts such as nation building, social cohesion and democratic citizenship. The idea behind how citizenship is constructed under logics of exclusion

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⁸⁷ In recent years, the stratification policy in Colombia has been strongly criticized. The greatest concern has to do with the fact that the system has lost its ability to discriminate, in the way that improvements in housing conditions are not always reflected in an update of the stratum. In addition to this, the stratification system has inclusion and focalization errors, highlighting the case of well-off households living in properties classified as stratum one or cases of hidden poverty, where there are poor households living in high strata (Sepulveda, Lopez, & Juan, 2014).

⁸⁸ Recent evidence has shed some light on the relationship between the stratification system and levels of discrimination. By using the dictator game and the trust game in experimental economics (Bogliacino, Jiménez, & Reyes, 2015), researchers found that the stratification system produces stereotypes that put people with low incomes at a disadvantage.

and disenfranchisement, particularly on young adult population, make us evaluate today's urban conditions of residential segregation and spatial polarisation in cities. Young adults in segregated places build their citizenship as residents living in frustrating "spaces of exclusion, of non-belonging" (Weller, 2007, p. 163) and where they are subject of null consultation about their needs and aspirations. Thus, the effects of urban poverty on young adults resonates in the production of identities of citizenship that put the construction of democratized and egalitarian societies at risk.

The lack of exposure to successful role models is also an aspect that reinforces the lack of progress or personal achievement for young adults. Here, young adults living in impoverished neighbourhoods, share a specific process of socialisation which ultimately leads them to hold similar frames of reference for their actions and thoughts. The segregation process, reinforced by the stratification system, works as a habitus, in Bourdieusian terms, where power relations codify rules and norms that they follow indistinctively in their fields of action. Residential segregation in Bogota has produced homogeneous places where marginality and social stigma generate negative externalities that affect young adults, curbing their personal, economic and social development. As a result, for the whole of society, different places in the city are associated with specific behaviours, with deprived neighbourhoods commonly associated as danger zones and places to avoid (Uribe, 2008). Thus, neighbourhoods and urban areas are collectively defined by cultural and symbolic representations aiming at establishing a process of domination between groups with the idea that social differences in the space can legitimise different positions of dominance.

The existence of spatial inequalities in urban settings is related to dynamics of social isolation which in the case of young adults has important implications, especially those related to the structure of the labour market and the formation of social capital. For instance, within Bogota's deprived neighbourhoods, residents are inefficient in sharing information regarding access to jobs or education opportunities for young adults as they are disconnected from institutional networks and other formal circuits of provision of information (I. Jaramillo, 2016). This suggest the existence of a double mismatch hypothesis, as they do not fit the criteria that the educational market requires but also, they live too far away to access to formal jobs. In the case of those who are employed, there is a high likelihood of working in substandard conditions which reduces the leverage function of employment to improve their quality of life and

increases the likelihood of reproducing the intergenerational transmission of poverty in the context of spatial inequality. For those who have access to education, their transition from school or university to the labour market has been marked by long periods of inactivity, increasing the 'scarring effects' of unemployment, which are associated with reduced life changes, higher unemployment and greater mental health problems in later life (Arulampalam, 2001; Bell & Blanchflower, 2011; Strandh, Winefield, Nilsson, & Hammarström, 2014). The lack of labour opportunities in segregated places may change a young adult's expectations in relation to future employment. Greater expectancy towards the context of anticipated unemployment in segregated areas can be considered as conducive to the reproduction of low quality jobs and the pressure of poor young adults to get involved in informal jobs, which takes them into a low pay/no-pay cycle that negatively affects their future trajectories.

Young adults in segregated areas live surrounded by communities of low hopes to attain significant achievements that, ultimately, work as attractors for more poverty and inequality. Evidence has shown that impoverished neighbourhood play a strong role in determining social network, as the peer effect ends up shaping social codes and influencing the behaviour of individuals. Uribe (2008) found that in context of residential segregation in Bogota the lower the stratum, the lower the level of aspirations among individuals. Young adults living in poverty condition reinforce the precariousness of the group as whole as their integration with other groups is moderated by relationships that are not considered successful for the society (Katzman, 2001). Or, to put the point differently, young adults in impoverished areas are immersed in neighbourhood relations with similar peers where habits and social codes do not belong to those that the society has considered as successful –for instance making them fail in their aspiration for an upward social mobility.

Concentrated poverty tends to be highly correlated with insecurity. For instance, young people are the principal victims of homicide violence in Bogota (National Institute for Legal Service, 2015). The increase in organised crime, particularly activities related to drug trafficking and micro-trafficking, as well as extortion activities, armed confrontation between gangs, arms selling and human trafficking are among the more frequent causes of intentional homicide in Bogota. In this respect, data from the survey "Bogota como vamos" (2016) reveals that the major reason for homicide in Bogota is brawls and gang fights (30%), where young people between 17 and 29 years

of age represent the majority of victims. According to the National Institute for Legal Services, intentional homicide cases are much more frequent for young adults than in other population groups. For instance, data from 2014 and 2015 show intentional homicide cases are prominent among young adults aged between 20 to 29 years, where the sex of the victim is male in 91% of all reported cases (CEACSC, 2015, 2016). As an urban phenomenon, homicide rates are concentrated in particular neighbourhoods. Breaking down homicide rates by urban district, there are some areas in the city where the number of cases increase twofold compared to other districts, and in some cases tenfold.⁸⁹

Spatial poverty traps are negatively affecting young adults' quality of life and their future trajectories. As it has been seen, the visual representation of spatial inequality in the case of residential segregation shows that this complex process of separation between affluent and not affluent dwellers have become persistent and self-perpetuating in the city of Bogota.

2.5 Aims, Research Questions and Rationale

2.5.1 General Research Question

Based on the gaps identified during the literature review and building on the five areas that emerge when the CA is used as a normative framework to interpret spatial well-being, this thesis is interested in empirically researching whether the CA can be operationalised as an evaluative tool to describe, explain and understand spatial processes that can lead to inequality in contemporary cities. More specifically, this thesis is interested in understanding how and to what extent socio-spatial segregation in urban spaces affects people's QoL. Arguments in this thesis consider that the use of a spatial metric, which employs the normative framework of the CA, can contribute to a clearer appreciation of how urban segregation is conceptualised and operated.

Therefore, the aim of this thesis is to understand how and to what extent new patterns of urban segregation affect inhabitants' ability to use the city towards the

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⁸⁹ Breaking down homicide rates by urban district, there are some areas in the city where the number of cases increase twofold compared to other districts, and in some cases tenfold. The 30% of all cases of intentional homicide occur in just 50 neighborhoods

achievement of their own goals. This is in contrast to approaches of urban well-being that often-put the QoL or happiness of city-dwellers on a level with the goals of economic-centred development. In order to achieve this, the conceptualisation and operationalisation of QoL will be framed using the CA proposed by Amartya Sen and complemented by other scholars (Nussbaum, 2001; Anand et al., 2009; Enrica Chiappero Martinetti, 2009; Comim, Qizilbash, & Alkire, 2010; Alkire & Foster, 2011) as a watershed in the field of welfare economics. In particular, this thesis approaches urban QoL as a place-based process where spatial inequalities, such as urban segregation, have an impact on its configuration and evolution. A perspective of QoL underpinned by the CA will enhance not only the theoretical framework used to understand how spatial injustices reproduce inequalities, but also how to evaluate which valuable capabilities people are deprived of. The study draws on the case of young adults, people aged 18 to 28 years old in Bogota, where processes of socio-spatial inequality have affected their QoL in the city.

2.5.2 Specific Research Questions

The general research question will be answered using four levels of analysis.

1. The first level of analysis looks at identifying why it is relevant to investigate the 'youth question' when spatial inequality becomes ubiquitous in the urban landscape. Built on premises of postcolonial thinking, spatial inequality in cities demands not only to be addressed by alternative frameworks of analysis but also to refocus on disadvantaged groups that have been systematically excluded and neglected from integrative urban policies. Social policy targeting disadvantaged young adults has failed to enhance their access to urban services and identify conversion difficulties that in the end have jeopardised their transition towards a more stable adulthood. Within this context, research becomes well placed to investigate ways to better understand the QoL of young adults in cities. Two aspects emerge here. First, there is an interest to provide a normative definition of well-being for young adults that explores aspects related to human development and that enlarges informational spaces regarding how urban deprivation affects individuals' trajectories. Second, the operationalisation of a normative definition of well-being based on the CA becomes an empirical

exercise where a specific individualistic position needs to be assumed. Taking into consideration these elements, the first specific research question is:

Why do young adults lack a framework to assess their well-being?/What role do urban spatial inequalities play in young adults' QoL?

Sub-research questions addressed in this section are:

- How can we conceptualise the young adults category from a perspective of development studies?
- Is it feasible to operationalise a normative framework of human development well-being for young adults?
- How does urban poverty become a vector of spatial inequality for young adults in Bogota?
- 2. The second level of analysis has the aim of conceptualising urban QoL from a context of spatial segregation using the CA as a normative framework. The proposal is to identify what constitutes a meaningful life for young adults from a perspective of functionings and capabilities. The general purpose is to identify what kind of life young adults value and to advance towards the identification of capabilities that are important for young adults where they are living in the context of residential segregation. For evaluative proposes, this level of analysis investigates social theory visions that argue that space does not have causal properties (Saunders, 1989) as the social form that it takes are "contentless abstraction" (Sayer, 1984, p. 282) that can explain little in general terms. A specific research question will lead this second empirical stage:

What does urban advantage mean to young adults in spatially segregated areas of Bogota?

Sub-research questions addressed in this section are:

• How can we methodologically include a deliberative process on the identification of young adults' functionings and capabilities?

- What are the basic functionings and capabilities of young adults in the context of residential segregation in Bogota?
- Which functionings and capabilities are more relevant when processes of fragmentation and polarisation are taken into account to assess human advantage?
- 3. In this stage, the thesis adopts a qualitative approach to compare how valuable domains of QoL are achieved in urban settings where residential segregation operates differently. Research looks at how identified domains of QoL are constrained by the effect of location. Based on reflection of the nature of the urban form, the place-based framework for capabilities outlined in this chapter is applied to compare domains of QoL on worse-off young adults in the context of homogeneous (Perdomo Alto) and heterogeneous (Juan XXIII) urban settings. The qualitative assessment uses Lynch's performance criteria of what constitutes a good city form and assesses them by looking at how agency, opportunities and social inclusion are performed in each urban setting. The aim here is two-fold. First, methodologically, the thesis operationalises the CA as an evaluative framework to assess QoL in cities where a context of segregation is in operation. This is an attempt to complement the 'Right to the City' as a conceptual framework for urban policy. The second goal is to conceptualise for the firsttime QoL for young adults. In this regard, this section will endeavour to answer the following specific research question:

How does socio-spatial differentiation between fragmentation and polarisation patterns of the urban form condition young adults' QoL?

Sub-research questions addressed in this section are:

- By comparing homogeneous and heterogenous neighbourhoods in Bogota, to what extent does spatial inequality tend to manifest itself differently?
- How does the spatial distribution of urban assets in homogeneous and heterogeneous urban settings influence urban performance criteria?

- What types of opportunities for young adults are inherent to homogeneous and heterogeneous urban settings?
- How do young adults' agency and autonomy manifest in homogeneous and heterogeneous urban settings?
- 4. From an evidence-based perspective, effects of urban segregation on people's QoL need to be assessed by making use of alternative case studies, looking at which different urban stories are told and whether they openly embrace postcolonial urban theories. By using primary and secondary data, this section interrogates to what extent young adults find their level of QoL conditioned to the urban context in which they live. Specifically, this section adopts a quantitative approach to determine the effects of segregation on QoL by looking at three main aspects. First, it develops an indicator of capabilities and functionings to quantify the level of capability achievement that young adults experience in Bogota. Second, the capability indicator is spatialised to describe the degree of spatial differentiation that exists in Bogota. Third, based on causal research design, the capability indicator is compared in different urban settings to look at the effects of residential segregation. These three aspects are addressed to give answers to the question:

Is there an effect of socio-spatial segregation on young adults' QoL?

Sub-research questions addressed in this section, by specific chapter, are:

Chapter 5:

- How are different functionings to be aggregated?
- What is the degree of capability achievement among young adults in Bogota?
- Is there a gender inequality in terms of capability formation across different domains of QoL?
- What are the main trends of capabilities and functionings among young adults in Bogota?

Chapter 6:

- Is there spatial autocorrelation between young adults' functioning and capability scores?
- Which urban areas are capability-deprived for young adults in Bogota?
- Does location affect the production of functionings and capabilities?
- Is there a segregation pattern based on capability achievements?
- What is the functioning vector that segregates young adults the most in Bogota?
 Chapter 7:
- Does location affect equally subjective outcomes of well-being as well as capability-led indicators?
- Do heterogeneous neighbourhoods improve capability-based indicators on worse-off young adults in Bogota?
- Can we advance towards finding causality relationships between mixed neighbourhoods and QoL in cities?
- Are mixed communities an appropriate strategy to address the negative effects that exist in deprived urban areas?

PART II: EMPIRICAL SECTION

Chapter 3 Extended Transitions: Exploring the Human Development Perspective on Spatially Disadvantaged Young Adults

3.1 Introduction

Residential segregation seen as a manifestation of socio-spatial differentiation in contemporary cities "works across different dimensions and multiple processes" which makes its conceptualisation and measurement challenging (Fernández de Córdova, Fernández-Maldonado, & del Pozo, 2016, p. 29). Although urban scholars have agreed that urban segregation should be understood as a phenomenon and process, rather than a problem or a static situation (Sabatini, 2006); in practical terms, urban poverty has produced a tendency to transform the spatial concentration of groups into a mechanism to homogenise and isolate people of different social classes and ethnicities. One aspect to consider here is the hypothesis that social separation tends to negatively affect people's quality of life in the way that disadvantaged residents have fewer opportunities to choose their place of residence within the city. This situation constrains disadvantaged groups in accessing the whole range of opportunities that urban agglomerations are supposed to offer, such as access to health services, education, labour markets, water and sanitation, among other aspects.

Drawing on the case of young adults in Bogota, this chapter investigates how spatial inequality, through the process of residential segregation, manifests itself in diverse socioeconomic ways that ultimately will have an impact on how they develop their life and achieve quality of life goals. The chapter positions young adults as the subject of analysis to understand how spatial inequality operates. The justification to use the category of young adults is based on the argument that urban poverty and spatial inequality tend to have long-lasting consequences for their quality of life - particularly in their transition to a secure adulthood - which need to be investigated from an evaluative perspective that ensures broader informational spaces in assessing human advantage. Considering the young adult category as a subject of analysis will not only allow for the compartmentalisation of the effects of residential segregation on a specific population group, but also facilitate the operationalisation of the human development

perspective based on the Capability Approach (CA). 90 The chapter starts by presenting arguments for the use of a 'right to development framework' using the CA that can account for the peculiarities and specificities of the young adult category. Section 3.3 'Urban Poverty and Young Adults' Quality of Life' engages directly with the consequences that spatial stratification and socio-spatial differentiation have brought to young adults in Bogota. It presents an overview of the CA by then identifying some place-driven actions that are present in residential segregation that might have an effect on young adults' well-being and agency. Section 3.3 'Discussion' concludes the chapter.

3.2 Why is the Capability Approach Important for Young Adults' Quality of Life?

From the perspective of youth studies and quality of life (QoL) studies, the notion of young people's well-being has been traditionally observed as a medical issue, whose aim has been to promote individualistic models of health. In this conception of young people's well-being, the debate about assessing and improving their quality of life has been limited to improving different aspects of their physical and mental health. More recently, social well-being and contextual factors have been considered in the analysis, confirming that health problems are not just found in the individual domain but also in social relations and the social context (Chen et al., 2004). Examples of this can be seen when causes of health problems in young people are associated not just with the illness itself but also with how they negotiate identities and desires in a social context (J. Evans, Rich, & Holroyd, 2004). Evans et al. report how causes of eating disorders in young people are associated with formal education and schooling behaviours and not just individual and physical factors.

Although it is worth noting that there is an implicit recognition that the dualistic relationship between health and well-being is not sufficient to understand young

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⁹⁰ The CA relies on the idea that the assessment of well-being should be based on the state of affairs of individuals as they "are the units of moral concern". (Robeyns, 2005d, p. 107) This point is relevant as it has been claimed that the CA is too individualistic an approach (Gore, 1997; Stewart & Deneulin, 2002) as it does not consider the social environment where individuals are embedded. Part of the criticism has been overcome after differentiating how the CA *embraces* ethical individualism and does no *rely on* ontological individualism (Sen, 2002b; Robeyns, 2005c). In practical terms, the application of the CA with the category of young adults seeks the identification of individual capabilities, but with the understanding that these capabilities are the result of the social environment in which they are involved.

people's quality of life; the notion of well-being should include other domains and allow a more holistic and comprehensive view of well-being, where the physical and social dimensions are linked. Indeed, during emergent adulthood, young adults exercise their identity to its fullest extent, where social, economic and cultural dynamics will play a fundamental role in the way they will capitalise the endowment of capabilities previously acquired in early developmental stages. Their status as unique individuals, which emerges when their needs and outlook on life are not easily classified by either adolescence or adulthood, as well as the social and economic challenges that surround their future, suggest the importance of understanding with greater depth which determinates are shaping young adults' well-being. The study of young adults' well-being belongs to the call that youth research has made to bring to the field more interdisciplinary investigation as well as methodological diversity for 'grappling with the complexities of contemporary youth' (Gudmundsson, 2000, as cited in K. Evans, 2002, p. 246).

One way to reconcile these two views surrounding young adults' well-being has to do with the concept of QoL and its application to assess individual progress and development. The concept of QoL, as a discipline of study, suggests the integration of the material dimension – or social welfare – with the psychosocial dimension – psychological welfare or subjective well-being (Casas, 1999). The concept integrates objective and subjective measurements of well-being, the combination of material with socio-affective needs as well as integrating psychological and social measurements of perception and assessment from subjects' own experiences (Tonón, 2008). By doing this, QoL becomes an enabling framework to depart from views of development that rest exclusively on domains of economic poverty to consider others that put people's needs at the centre of the discussion.

Despite this, the application of QoL to young people as an age category has come with some shortcomings. From a perspective of youth studies, domains of QoL have understood young adults as a contradictory subject, where the notion of youth is based between danger and risk, between citizenship and development. In this regard, a conceptual endeavour would be to conceptualise young adults' well-being into a normative and methodological framework that helps us to define, explore and assess young adults' life trajectories, based on the proposition that a right to development for them requires a people-focused perspective, due to the need to identify all dimensions

that determine their human flourishing. This proposition suggests employing the human development and capability approach as an integrative normative, positive and predictive approach (Alkire & Deneulin, 2009) that helps to conceptualise young adults' well-being and agency. Young adults belong to an age period where issues regarding equality of outcomes and opportunities become fundamental to ensuring that the developmental process is sustainable over the long run. For instance, young people have been associated with the practice of dangerous activities, threatening the 'stability and maintenance of the status quo' (France, 2007, p. 23). As a response, the state has often intervened in the issue of youth in a reactive "carrot and stick" fashion, where policies have tended to either protect young people from their own risk or implement draconian and interventionist actions to achieve order and control. In both actions, the youth question is approached with a rather partial solution and does not consider the relevance of understanding young adults as a fundamental life stage to transition to adulthood. From the human development perspective, young adults can be understood as a pivotal age period that can boost the effects of childhood and adolescence into lasting capabilities for adulthood.

The use of the human development paradigm can be particularly relevant in encountering this conceptual endeavour. However, there are also shortcomings in how the approach has been applied to different age categories. On the use of the human development approach, researchers have devoted extensive work to linking concepts of opportunities, agency and freedom to the field of child and adolescent development (Biggeri, Libanora, Mariani, & Menchini, 2006; Tommaso, 2006; Crivello, Camfield, & Woodhead, 2008; Biggeri & Anich, 2009; Biggeri, Ballet, & Comim, 2011; Wright, 2012; Peleg, 2013; Stoecklin & Bonvin, 2014; Underwood, Chan, Koller, & Valeo, 2015). On a smaller scale, the human development paradigm has been used to understand dynamics of certain age groups. These types of analyses have tended to extrapolate findings from younger age groups, particularly from the childhood and adolescent periods, onto the young adults' group to elaborate on conclusions regarding behaviours, social lifestyle and even well-being categories – a sort of conceptualisation of the human development paradigm in later categories of young adults. ⁹¹

⁹¹ On other occasions, studies based on the CA notably claim the importance of respecting children's right to choose and develop, leading to a greater freedom in adulthood, without paying attention to the

Despite this work, the use of the CA as a theoretical framework to understand young adults' well-being has not been fully used, meaning that further research in this field is much needed in the context of the human development paradigm. The undertheorisation of the young adult category in the CA can be seen as an extension of the recurrent omission of considering children as self-determinant agents to make rational and autonomous decisions. Work with children is often jeopardised by the tendency of adults to view and assess children's attitudes, behaviours and emotions from a purely adult perspective (Petr, 1992). By doing this, the conceptualisation of children's capabilities are made not under the assumption that they are important for their own exercise of freedom and agency but for the justification to understand the production of 'mature adult capabilities' (Nussbaum, 2001, p. 89).

A paternalist view of what children should do and be has similar epistemological implications for the identification and definition of relevant capabilities for young adults. The existence of this *adultcentric* bias (Goode, 1986, p. 83) during the young adult period omits the idea that they are able to make rational and autonomous decisions, in addition to assuming that their behaviours are often influenced by those who dominate the ongoing decisional structures of cultural, social and political areas. 92 For many of them, decisions are exercised in a vague way within an unreflective environment, since many of them are exercised or influenced by adults. The autonomy gained through independence is strongly determined by the context and capacity with which the young adult reaches or arrives at adulthood. 93 Just with children's well-being, young adults are not seen and treated as young adults *qua* young adults by normative theories of well-being but as the most common age category position for researchers: adults (Mackay, 1974). Indeed, current frameworks of analysis on evaluation and assessment of individual well-being of young adults seem to be permeated by youth

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significance of the process in itself: the relevance that it is in the transition process to adulthood that the freedom to choose will be exercised in full and that in most cases is put at risk.

⁹² In exploring this last point, young adults can be described as a subset of individuals who are encapsulated under the appearance of adults but restricted in terms of how their everyday features and characteristics are defined.

⁹³ In temporal terms, the idea that young adults are in the process of becoming someone has implications regarding how rights and freedoms are conceived and operated. The common platitudes such as 'young people are the future of our societies' or 'their future is our future' help us to put the emphasis of the realisation of rights once they arrive at adulthood rather than in their present reality. Indeed, Saito (2003) suggests that in giving temporal freedom to children, the granting of rights in the future is not necessarily guaranteed in full in the present. So, the deferral of seeing young adults as adults and the tendency to protect their rights for the sake of a better future for them, talks about the omission in providing them with freedoms and rights in the present.

studies that consider young adults as a subset of either the adolescent or adulthood periods, or at worst, as a non-existent age category, and hence, failing to offer a fitting and comprehensive framework to conceptualise young adults' well-being.

At this level, using the human development framework to understand well-being in young adults is not just timely but also relevant to more suitable policies and solutions to the current socioeconomic and political situations that shape young adults' lives. Nevertheless, it is imperative that the approach be used without restrictions or overlaps in the conceptualisation of what constitutes a full life for them. In addition to this proposition, multidimensional definitions of well-being for young adults should not just advocate the people-focused perspective, a common mantra in development theory, but also apply a place-based approach. By doing this, it is recognised that the production of the space, and particularly how space is conceived, perceived and lived by individuals ends up affecting people's QoL.

As can be inferred from the discussion above, in the case of young adults, the conceptualisation of QoL for them is notoriously more accessible than it is for children. Unlike children and adolescents, young adults are in a position (in legal terms) to decide what constitutes a better life for themselves. They have accumulated some experience that gives them information to identify which aspects in life have more value than others, which allows them to identify what sort of things they can aspire to and what not, and, therefore, to conjecture what well-being means and implies for them. So, if they are active agents, where their experience allows them to grasp a sense of rational choices, why are they still excluded from the decision-making process and thus unable to express their preferences leading to those goals they have reason to value? Accepting the difficulty of having the young adult category in the frontier between development ages, is it not a simple solution to attach and relate to those features, behaviours and institutional restrictions of other age categories, for instance, understanding their quality of life? Is there not a risk of oversimplification in putting young adults' social and economic restrictions together with those of other age categories? In this line of reasoning, the CA is applicable to young adults, firstly, to construct the conceptual framework where their needs for achieving a good life can be analysed – what they want to achieve – and secondly, to understand how they are performing – what they are really achieving.

As a final remark in this section, the partial use of the CA in assessing young adults' well-being has primarily happened because of the tendency of researchers to extend the lack of competence and self-determination of young children to the assessment of young adults' life trajectories. This situation, aside from explaining the lack of theorisation of the young adults' category denotes the extrapolation of categories and the dimension of quality of life from children and adolescence to the reality of young adults. By doing this, ongoing social and economic factors that restrict young adults' well-being remain unseen and unnoticed.

3.3 Discussion

This chapter has examined the ways in which the category of young adults has been approached from the perspective of youth studies, identifying a conceptual gap in how the right to development is conceived and operated. It finds that current conceptual frameworks fail to understand the 'young adult question' and lack an understanding of young adults' real interests and aspirations in life due to the emphasis on the young adults category as merely a transitional stage to adulthood, and a lack of exploration of how rights and freedom are prioritised and enhanced. It also identifies a spatial blindness on the part of the CA in considering place-oriented drivers in the production of capabilities. In contexts of entrenched deprivation, the young adult condition reinforces the level of existing inequality in the sense that the age category is intrinsically subject to particular and additional inequalities. Unequal access to quality education and job opportunities; discrimination and context of violence and insecurity are some of the aspects that tend to deepen in this life stage, shrinking their options and choices during adulthood. However, these are not the only unequal aspects that they face. Spatial inequalities are also factors that disenfranchise worse off young adults, depriving them of the opportunity to choose alternatives that are in line what they want to achieve in life. Putting all this together, young adults' transitions, which are built on their ability to negotiate and accommodate their agency to align their aspirations towards upper level outcomes, are largely conditioned to what Raffo and Reeves call (2000) a social, cultural, spatial and economic system of social capital, which ultimately will determine the real opportunities open to them. Borrowing from these authors the idea of an "individualised system of social capital", arguments in this chapter suggest

that young adults' trajectories are spatially dependent and need to be investigated further.

Evaluating spatial justice as the provision of equitable urban furniture (geography of opportunities), but also as a frame of reference for understanding space as a container of human activities and power relations that bring dynamics of inclusion and exclusion, this chapter has shown that spatial inequality, seen as residential segregation and urban marginality, is a factor that helps to explain differences in the way young adults manage to translate their options into real opportunities to advance towards a more positive and unfaltering adulthood. Thus, the young adults' category serves as an interesting age category to understand and test approaches that can help to unpack the relationship between inequality and place.

This chapter has proposed the normative framework of the CA to interpret and evaluate young adults' trajectories and achievement of quality of life in the context of urban marginality. In order to understand how spatial inequalities affects young adults' options, it is necessary to have additional tools and concepts to make sense of realities that otherwise may go unnoticed. The investigation of young adults' quality of life based on the CA has such potential to the extent that not only brings a much needed normative and development framework to structure the discussion around the young adult category but also helps to identify and interpret less obvious inequalities, such as those that are embedded in spatiality. At the same time, observing spatial inequalities is crucial to understand contemporary cities since they are where it is possible to identify mechanism to bring out social change. All these aspects together will be subject of analysis in the following empirical chapters, which seek to conceptualize the quality of life in young adults in Bogota and quantify the effect that urban marginality has on them.

Chapter 4 Quality of Life in Segregated Places: What Does It Mean for Young Adults in Bogota?

4.1 Introduction

In light of the theoretical considerations from previous sections it is clear that the use of the capability approach (CA) in the field of youth studies, in particular in the young adults category, and its links with the context of spatial inequality, needs a careful empirical adaptation. Using the CA as a framework, rather than a theory, this chapter discusses a process of identification of relevant capabilities for young adults based on the preposition that any type of list of capabilities should follow a process of public deliberation and participation. In contrast to more legal and moral normative approaches (such as Nussbaum's capability list), the identification of capabilities for young adults in the context of spatial inequality requires a context-specific approach where place-based perspectives are taken into account.

As such, the chapter presents a road map to conceptualise, identify, choose and evaluate relevant dimensions of quality of life in contexts of spatial inequality. The chapter develops an evaluative framework to assess quality of life for young adults when residential segregation presents patterns of polarisation and fragmentation. To achieve this, the analysis compares patterns of segregation based on the differentials of quality of life between income mixed neighbours and homogeneous ones, in order to test the hypothesis that mixing neighbourhoods helps to reduce capability poverty. The result of the chapter is the development of a list of relevant capabilities of quality of life for young adults in a specific context, which is used to assess the effects that residential segregation has on young adults' well-being.

As a list of domains of quality of life, the exercise attempts to achieve a two-fold aim. First, the identification of domains of quality of proposes the creation of multidimensional definitions of well-being for specific stakeholders, in this case the category of young adults. And second, the list contributes to highlighting the importance of context-specific capabilities (normative development) which are highly contingent on local attitudes and cultural codes and distanced from those visions which

claim that capabilities can be denoted by an universal lists of central human values (Nussbaum, 2001, 2007).

The evaluative framework presented here is supported by a procedure that conceptualises domains based on an exercise of ordering and synthesising data from a qualitative perspective. This evaluative framework has several stages, progressing from a scenario of non-existent capabilities to one in which domains of quality of life allow us to assess how residential segregation affects their life trajectories. The chapter begins by outlining the stages which the evaluative framework operates in order to arrive at a list of relevant capabilities among young adults in Bogota. Section 4.3 'Study Area and Methods' presents the criteria used to select urban districts and neighbourhoods, and whether they follow either a residential segregation pattern of polarisation or fragmentation. Section 4.4 'Identifying and Choosing Domains of Urban Quality of Life' provides a detailed explanation of how methods were employed and presents the list of domains of quality of life for young adults. Section 4.5 'Effects of Residential Segregation on Domain of Quality of Life' shows the assessment results of how residential segregation impacts young adults' capabilities. This is presented through a process of adaptation of domains of quality of life from an urban perspective, involving the assessment of Lynch's performance criteria (1960) and evaluating how each urban setting performs in terms of the CA criteria of equality, opportunities and agency. Section 4.6 'Ranking Domains of Quality of Life' focuses on scaling domains of quality of life by using Borda's (1784) ranking rule, giving final inputs for refining a final list of domains of quality of life for young adults in Bogota. Section 4.7 'Discussion' concludes the chapter, summarising the main results.

4.2 Conceptualising Relevant Capabilities

As has been stated previously, spatial inequalities have far reaching consequences on the well-being of young adults; nevertheless, the evidence that shows how different dynamics of urban segregation can affect the set of opportunities that they enjoy and that they are able to create is scant. This section argues that representations of spatial inequality can be captured by looking at how residential segregation operates in Bogota. This assumption enquires about which dimensions of quality of life are important when residential segregation is defined as the deprivation of capabilities.

To do that, this section states the main steps in the methodology to conceptualise and choose relevant dimensions of quality of life among young adults in the context of residential segregation. The proposal here is to use existing methodological frameworks for identifying relevant capabilities with the purpose of dealing with two main endeavours: (i) to develop a list of dimensions of well-being for young adults; and (ii) to integrate within identified dimensions of well-being a place-based approach that allows an understanding of how the production of urban spaces affects the generation of capabilities and functionings.

Regarding the first challenge, ongoing unequal and poverty contexts for young adults make the conceptualisation of inequality as a systematic deprivation of capabilities and achieved functionings relevant. In the case of the second challenge, the spatial dimension of inequality - which is a dimension of overall inequality (Kanbur & Venables, 2005a) - has been largely unattended by scholars and policymakers (Shorrocks & Wan, 2005; Grant, 2010). Recent trends in urban contexts, particularly the process of urbanisation and rising levels of urban poverty, have drawn attention to the need to understand its causes and manifestations in a more detailed way.

The methodology proposed for identifying the relevant capabilities for young adults has four main stages (Figure 4.1) and is based on Robeyns' (2003, 2005a) five criteria to identify basic capabilities⁹⁴. Robeyns' criteria were used as a starting point for identifying relevant capabilities. Nevertheless, the framework evolved towards a unique methodology that ensured that capabilities were properly identified.

The first stage consisted of creating an open list of relevant capabilities based on young adults' inputs using focus group discussions (FGDs). Bearing in mind the significance of context, particularly one that is formed under residential segregation circumstances, for conceptualising and compartmentalising dimensions of well-being, the exercise of identification began with a participatory exercise instead of generating

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⁹⁴ The five criteria are: (i) *explicit formulation*: have an explicit, discussed and defended list of relevant capabilities; (ii) *methodological justification*: justify the methodology that has been used to generate the list of relevant capabilities; (iii) *sensitive to context*: the identified list should seek to be both abstract and practical in order to satisfy different audiences; (iv) *different levels of generality*: identify relevant capabilities that are not only comprehensive of ideal domains of quality of life but that are also feasibly achievable; and (v) *exhaustion and non-reduction*: the list of relevant capabilities should include all dimensions that are important to well-being. Equally important under this criterion is that no dimensions identified should be reducible to other elements. By using Robeyns' criteria, the selection of domains of quality life attempts to reduce possible bias.

an open list of capabilities based on specialised literature or expert comments. Methodological exercises, which identify domains of quality of life based on an open-ended list of capabilities, tend to be biased by the researcher's role if a serious process of reflection is not taking place. Additionally, no list of capabilities has been identified with young adults, making it likely that experts might extrapolate young adults' priorities from categories previously identified for other age ranges. This last aspect is also in line with the aim to identify a universal list of capabilities directly with the group of stakeholders affected. Biggeri and Mehrotra (2011) stress the great difficulty in attempting to identify a universal list of capabilities using procedures elaborated with other groups. As such, it was considered more appropriate to start from a list of domains directly identified by young adults where interests, motivations and prioritisation could be put in place, thus achieving the criteria of explicit formulation.

Stage 1 Stage 2 Stage 3 Stage 4 Explicit Generalisation formulation Methodological Exhaustion and justification non-reduction Sensitivity to Sensitivity to context context Open list Open-ended list Capability identified validated by dimensions adapted Ranking of directly by experts and to enable urban dimensions young adults young adults space

Figure 4-1 Methodology sequence to identify relevant functionings and capabilities

Source: Developed by the author.

In parallel, this stage also aimed to consider unequal socio-spatial relations in the identification of domains in young adults' well-being. The criterion of sensitivity to context was adapted here for fulfilling the objective of identifying how urban dynamics affect young adults' well-being. Thinking spatially - through the incorporation of identified domains of quality of life that are sensitive to the urban context - was one of the main tasks during this stage.

The second stage consisted of validating the list using a set of methods that can contribute to a further justification of the process used. As the first selection of dimensions was undertaken in the previous stage, during this section the aim was to validate them (expand or merge identified dimensions) using different methods that researchers have used to identify capabilities and dimensions of well-being. 95 The validation process is an attempt to fulfil the criterion of methodological justification and to provide a solution to the problem of identification of dimensions that are connected to personal circumstances, (which can lead to distortions such as the problem of adaptive preferences). In operational terms, this stage involved a comprehensive validation process involved a two-way verification sequence through a participatory and deliberative approach. On the one hand, the identified list of domains was confronted with existing data, expert analysis and previous lists based on consensus. As such, the list was complemented without being reduced, as it was decided to keep all domains that had been prioritised directly by young adults earlier. On the other hand, results from comparing domains to existing data were presented to young adults in FGDs in order to validate new variables or domains suggested by experts in the field and listed based on consensus by specialised institutions. Once the domains had been identified and validated by young adults, the exercise progressed towards the identification of specific capabilities in each domain prioritised.⁹⁶

The third stage deals with the criteria of *different levels of generality*, so more specific dimensions were targeted to link them with the context of residential segregation. Participants were asked to select those capabilities from the identified dimensions that might be affected, positively or negatively, by living in their

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⁹⁵ In this regard, Alkire (2007) summarises these methods as follows: (i) Use existing data or conventions of capabilities; (ii) Make assumptions based on a theory or experience; (iii) Draw on an existing list that was generated by consensus; (iv) Use an ongoing deliberative participatory process; and (v) Propose dimensions based on empirical data and/or behaviours on values and preferences.

⁹⁶ During both stages, a participatory approach was put in place to ensure that stakeholders and expert opinions were heard and integrated into the final list. By doing this, the open list was made explicit, discussed and defended, and the open-ended list was defined by a method that was clarified, scrutinised and defended – in accordance with Robeyns' criterion of *explicit formulation and methodological justification*.

neighbourhood.⁹⁷ The selection of those capabilities that have a link with the urban context was done by directly asking young adults to relate them with Lynch's five clusters of qualities of a good city: vitality, sense, fit, access, and control.⁹⁸ The result of this process was an adaptation of dimensions of quality of life sensitive to the urban context of Bogota. In this section, young adults for each study location (Ciudad Bolivar and Chapinero) were asked to score the level of achievement for each performance criteria and to assess how living in each location affected aspects such as equality, opportunities and agency.

The fourth and final stage consisted of critically assessing identified domains and leaving only those that are considered relevant and important. To do this, the application of the *criterion of exhaustion and non-reduction* was used. In the first and second stage, an ex-ante reduction was put in place as domains were merged due to some overlap being present between them. In this stage, the process of exhaustion and non-reduction was applied through a process of assigning weights to each domain. During the FGDs, each young adult respondent was asked to prioritise the dimension of quality of life from the most important to the least important domain. Differential rankings between urban settings allowed the identification of those domains that are more sensitive to each context and, therefore point to the effects of residential segregation on young adults' quality of life.⁹⁹

4.3 Study Area and Methods

4.3.1 Selection of Urban Districts and Participants

In order to understand how patterns of residential segregation affect people's quality of life, it was necessary to identify areas where processes of macro and microsegregation were evident. To do this, the selection of urban districts was based on two main criteria to detect mixed income and homogeneous neighbourhoods. The first

⁹⁹ Additionally, weights helped not just to rank all dimensions but also to identify potential mergers between domains.

⁹⁷ This stage was conducted with the intention of locating capabilities that were affected by living in segregated spaces in Bogota. If the focus in the first stage was to identify a general list of capabilities, here the focus was to identify those that have a more specific application in understanding urban well-being and that do not have issues with data availability.

⁹⁸ Lynch's framework for the inspection of capabilities was also used with experts and by analysing available data.

criterion consisted of identifying urban places where residential segregation occurs under a dynamic of intensity/non-intensity segregation. Bogota is divided into 20 urban districts. An urban district could be considered not segregated if there is a full expression of diversity among the variables that are being measured. For instance, the presence of families belonging to different economic brackets, in particular areas of the city, can be considered as a proxy of diversity. ¹⁰⁰

Studies have been carried out by the Planning Secretariat of Bogota to measure the level of diversity in the urban locality of Bogota. In this regard, they have reported the index of socioeconomic residential segregation (SRS), ¹⁰¹ which measures the variance in terms of different economic variables. In the most recent report, in 2011, Chapinero and Ciudad Bolivar obtained an index of SRS of 0.071 and 0.833 respectively. The result shows that levels of diversity are high in Chapinero compared to results obtained by the urban locality of Ciudad Bolivar. Results also reveal the prominent gap in terms of diversity between both urban districts. In the case of Chapinero, on average, just 7% of the population is considered not diverse whereas in Ciudad Bolivar, on average, 83% of the population is considered similar to one another (Table 4.1). From the perspective of intensity of segregation, this means that there is a process of microsegregation in Chapinero as different status groups inhabit the area, whereas residents of Ciudad Bolivar are of more similar socioeconomic status.

Table 4-1 Socioeconomic residential segregation index, Bogota (2007, 2011)

Urban district	2007	2011
Chapinero	0.154	0.071
Usaquen	0.323	0.274
Teusaquillo	0.546	0.493
Fontibón	0.657	0.524
Suba	0.650	0.546
Barrios Unidos	0.575	0.581
Antonio Nariño	0.653	0.646

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¹⁰⁰ The diversity among households can also be measured in terms of other variables of interest such as expenditure, years of school attendance, and so forth.

The socioeconomic residential segregation index is an indicator developed by the Universidad Nacional de Colombia which measures the variance in each territorial unit versus the variance of the higher territorial unit in the city (Secretaria Distrital de Planeacion, 2011). The index ranges from 0 to 1, where values close to 0 indicate a low level of segregation, whereas values close to 1 indicate high levels of segregation.

La Candelaria	0.694	0.652
Santa Fe	0.674	0.675
Los Mártires	0.723	0.682
Puente Aranda	0.751	0.725
Engativá	0.751	0.729
Kennedy	0.783	0.753
Tunjuelito	0.792	0.775
Rafael Uribe Uribe	0.803	0.793
San Cristóbal	0.813	0.813
Ciudad Bolivar	0.835	0.833
Bosa	0.845	0.843
Usme	0.852	0.855
Overall Bogota	0.678	0.645

Source: Planning Secretary of Bogota, 2011.

A second approach to the selection areas of analysis is to identify neighbourhoods which display similar economic conditions within each identified urban locality. To do this, it was considered appropriate to use the Colombian stratification system to track similar economic conditions among households in each urban locality. Bogota uses a socioeconomic stratification system, which classifies households according to the conditions of buildings. Based on six different strata or groups, buildings are classified according to the physical conditions and built environment that are present in the residential area. The process of focalisation through the system of socioeconomic strata operates as a mechanism of cross subsidy since higher strata contribute towards the benefits of lower strata (Table 4.2).

Table 4-2 Socioeconomic strata system and percentage of contribution

Strata	Income range	Subsidy and contribution
Stratum 1	Lower-low	0.50 (subsidy of 50%)
Stratum 2	Low	0.60 (subsidy of 40%)
Stratum 3	Lower-middle	0.85 (subsidy of 15%
Stratum 4	Middle	No contribution/no subsidy
Stratum 5	Middle-high	1.20 (contribution 20%)
Stratum 6	High	1.20 (contribution 20%)

Source: (Ley 142/1994 [Law 142/1994], 1994).

¹⁰² This system has been developed to charge households different rates with regards to the consumption of electricity, water, gas, and drainage services, among other utilities. As such, it is also a mechanism for geographic focalisation of social expenditure, since depending of the location of the building the contribution to utility charges will be different.

Based on the above, the selection of young adults consisted of prioritising those who were living in the urban districts of Chapinero and Ciudad Bolivar, and, additionally, who were classified under strata 1 and 2. This research design will allow a comparison of the production of capabilities among diverse (microsegregation) and homogeneous (macrosegregation) urban settings. Following this criterion, the neighbourhoods selected were Perdomo Alto in the urban locality of Ciudad Bolivar and Juan XXIII in the urban locality of Chapinero. Table 4.3 summaries the differences between the two case studies.

Table 4-3 Case studies: Chapinero and Ciudad Bolivar urban settings

Description	Case 1	Case 2
Residential segregation process	Polarisation	Fragmentation
Scale of analysis	Macrosegregation	Microsegregation
Income-based composition	Homogeneous	Mixed/heterogeneous
Type of sorting	Similarity (clustering)	Dissimilarity (outliers)
Urban setting	Ciudad Bolívar	Chapinero
Neighbourhood setting	Perdomo Alto	Juan XXIII
Criteria 1 (urban setting)	SRS = 0.833	SRS = 0.071
Criteria 2 (neighbourhood setting)	Strata 1 and 2	Strata 1 and 2

Source: Developed by the author.

4.4 Identifying and Choosing Domains of Urban Quality of Life

During the FGDs, young adults' comments were classified and organised to come up with a set of potential categories of quality of life. The process of data management was carried out using tools from Participatory Action Research and Framework Analysis (Ritchie & Spencer, 1994), which facilitated the process of organising and synthesising data.

FGDs were used to create a 'thematic framework', which classifies and organises data according to key themes, concepts and emerging categories (domains) discussed during FGDs. The creation of a thematic framework has usually been delivered through analysis and coding of verbatim transcription interviews or discussions where data are 'unwieldy and intertwined in content' (Ritchie & Spencer, 1994, p. 220). For this exercise, the thematic framework was developed by a process of consensus among participants during the FGDs, who collectively identified the major

categories of quality of life in the context of residential segregation. Thus, the identification of the thematic framework entailed the combination of participatory techniques to capture major discussions, so ordering and synthesising of data were easier to perform. During FGDs, the Metaplan method was used to enhance participation and classification of ideas. Metaplan is a method of visualisation based on the use of cards, which enables the classification and construction of ideas. This technique is used for moderators to enhance the process of participation and engagement of participants in workshops. On the basis of a participatory process, where all participants' contributions are of equal value, respondents worked to identify the thematic framework of what quality of life is. The researcher played the role of moderator to build consensus among participants to extract themes and coding for each dimension.

The exercise began with identifying the first themes and concepts related to quality of life in each urban locality and neighbourhood. The moderator started explaining that during the workshop cards of different colours would be used to present information visually and clearly. He also explained that the concreteness and clarity of suggestions and ideas would be central in the exercise. Immediately after this, groups were asked to answer the question: What does urban quality of life mean to me? The question was presented on a blue card, which was stuck on the wall so each participant could see it and reflect on it. The moderator explained that responses must be concise and no longer than three lines. Participants were told to write down responses on the cards. As participants wrote on the cards, the moderator collected them and placed them with the front side facing the wall. The intention was to encourage the identification of themes creatively and without bias from other responses. The moderator handed out more cards for those who wanted to write more than one card. There was no limit to the number of cards per participant. All answers on cards were treated as themes and concepts of what constitutes quality of life for young adults.

When the participants had completed their responses, the moderator turned the cards around and asked them to provide further details for each given response. To protect the anonymity of each participant, the moderator did not ask each person directly about what they had written on the cards, but rather asked the group as a whole, so each participant would feel free to add more information without feeling they are wrong or being stigmatised for their responses. In a sequence of asking why and how

during each response provided, a laddering technique (T. J. Reynolds & Gutman, 1988) was introduced in order to extract higher-order meanings that drive respondents to conceptualise quality of life in each neighbourhood. For each given response, the moderator asked why that aspect is important for conceptualising quality of life. New responses were registered on cards and added to the previously identified concepts. The information provided by respondents which was not registered on cards, was recorded on audio tapes to be analysed following the exercise. This stage was consistent with the protocol proposed by the methodology of the framework of identifying concepts and themes.

Once the participants had no further responses (themes and concepts) in relation to the initial question, the moderator asked the group to sort responses where meanings were similar or had a thematic coincidence. During the process of indexing responses, participants were asked to find links between responses in order to find a preliminary hierarchy of subjects where quality of life can be understood. To this purpose, cards were grouped into columns where similar meanings and recurring ideas were present. The moderator played a central role in making the participatory exercise inclusive and concise. Respondents found some themes difficult to sort, so other categories were created in order to advance the discussion.

The next step consisted of devising a label for each emergent category. As participants sorted the cards, the moderator asked the participants to come up with a name for each column, which should encompass the themes and concepts identified and grouped together. During a process of discussion, respondents summarised each column and came up with a comprehensive term. Each column was named through consensus, led by the moderator. All these stages were performed during each FGD conducted, where different domains and subthemes were identified. Some domains were similar between groups and were named in a similar way.

After obtaining the different domains, the moderator asked the participants to identify those capabilities which they considered central to achieving each dimension identified. The question asked was: Taking into account identified dimensions, *could* you say which capabilities are necessary to achieve the dimension identified? The moderator asked them to start their answer with 'To be able to ...'. Each response was

again registered on cards and was allocated below each dimension of quality of life (see capabilities responses in Table 4.10).

All categories identified by the FGD were grouped and listed in a total of 20 dimensions of quality of life for young people (see Table 4.4).

Table 4-4 Domains of urban quality of life for young adults in Bogota (all FGD)

Domains of quality of life (not ranked)		
Tolerance	Ability to dream	
Political participation	Shelter/housing	
Security	Family and friendship	
Leisure time	Education	
Support	Ability to consume	
Public space and mobility	Environment	
Health	Culture	
Food security	Success	
Feel free to choose	Creativity and production of ideas	
Work	Inclusion	

Source: QoL domains identified during FGDs.

4.5 Effects of Residential Segregation on Domains of Quality of Life

Once participants had identified a list of capabilities, a relationship process was established to detect how domains of quality of life feature in the production of urban spaces, and more specifically in the phenomenon of residential segregation. The working hypothesis for testing was to look at whether differences in how residential segregation operates, meaning polarisation (macrosegregation) or fragmentation (microsegregation), produce dissimilar effects in how young adults achieve domains of quality of life, and whether it is possible to infer that living in mixed communities brings advantages to worse-off young adults.

The social interpretation of how segregation affects the production of capabilities between places (Perdomo Alto and Juan XXIII) were carried out in two stages. After the identification and nomination of domains of quality of life (Section 4.4), each domain was linked to Lynch's five performance criteria of what constitutes a 'good city': vitality, sense, fit, access, and control. The performance criteria were used to relocate young adults' capabilities within an urban perspective, particularly as a methodological step to develop sensitive categories of young adults' quality of life in

the context of spatial inequalities. Young adults in each urban setting were asked to conceptualise each domain from an urban perspective. In operational terms, young adults were asked to classify each quality of life domain into a best-fit Lynch's performance criterion In a second stage, the place-based framework presented in Section 2.3.3 of this thesis was put in practice by evaluating how the place of residence enables participants to catch up with other peers (equity), to acquire opportunities (opportunity) and to enhance their ability to pursue actions towards valued goals (agency).

This section provides the results of this process, illustrating how domains of quality of life are linked to urban context, and how residential segregation has an impact on the production of these domains. Detailed young adults' comments regarding each domain of quality of life are not shown for the sake of brevity but are available upon request.

4.5.1 Linking Domains of Quality of Life and Lynch's Framework of Urban Performance Criteria

Lynch proposes that a concept of good quality of life in urban settings should be one that integrates purposeful human activity and the quality of places. He offers a normative theory of the city where five universal criteria should be used to assess the quality of places. This section uses Lynch's performance criteria of vitality, sense, fit, access, and control to assess domains of quality of life of young adults. Previously, Uhm, Lewis and Banerjee (2011) applied Lynch's framework to children's well-being, finding that the built environment has a critical role in how human functionings are developed. This section expands their intellectual work by using Lynch's performance criteria to evaluate perceptions among young adults about how living in the context of residential segregation affects the production of urban quality of life domains for them. The analysis carried out here differentiates between how young adults from the neighbourhoods Juan XXIII in Chapinero (fragmentation), and Perdomo Alto in Ciudad Bolivar (polarisation) define and operate domains of quality of life.

4.5.1.1 Vitality

Vitality refers to the capacity of an environment to 'support the health and biological well-functionings of the individual and the survival of the species' (Lynch,

1960, p. 121). This criterion is assessed in terms of three broad features: sustenance, safety and consonance. In terms of sustenance, urban space should provide an adequate amount of 'food, water, energy, and air' (p. 121), to satisfy biological human capabilities. Safety is related to the diminishing of hazards, ranging from issues such as air pollution, diseases and violent attacks caused by anthropogenic and non-anthropogenic factors. A vital space is effective when it fits the environment with human biological requirements and 'human rhythms', such as spaces that enable humans to sleep and walk, to be alert and to have an optimal sensory experience. (p. 122).

Young adults in Juan XXIII identified that vitality is largely secure in their neighbourhood. Critical urban services (water, sanitation and solid waste management) were established in the district during the first half of the 20th century¹⁰³. Nevertheless, they were critical that living close to better-off households has also brought other sorts of problems. They are in constant threat of losing their homes because of urban real estate development projects that are in progress in the area. Historically, entire neighbourhoods have disappeared through an extensive process of gentrification in the area. In the case of young adults in Perdomo Alto, vitality was thought to be poorly secured as subjects such as environment, life and health, and security are not effectively provided by local authorities.

Theses of social contagion (Crane, 1991) and collective socialisation (Sampson, Raudenbush, & Earls, 1997) (Sampson et al., 1997) offer different forms of representation for both urban settings. In the case of social contagion, represented by personal attitudes and individual behaviours that are transmitted by peer influence, young adults in Perdomo Alto perceived that social contact with peers might lead to negative outcomes such as antisocial behaviour (street fights, consumption of illegal substances, and criminal activity). Young adults in Juan XXIII considered that peer influence from better-off neighbours is non-existent. Proximity is relegated to initiate contact to solve common problems but without deepening social relations or social interchange. In the case of collective socialisation, less well-off neighbours in Chapinero are passive recipients of social norms, so they follow role models of

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¹⁰³ As a pillar of the hygienist doctrine of the early twentieth century, urban accessibility aimed at consolidating the centre-north axis of the city as the main development corridor for the location of middle and high income families where the Chapinero district is located today (Alfonso, 2012).

consumption and social behaviour from affluent neighbours. Conversely, young adults in Ciudad Bolivar are considered themselves as active agents so they influence role models that end up modifying social norms. Domains considered here to have a relation with the notion of vitally were life and health, food security, environment, shelter/housing, and security.

4.5.1.2 Sense

Sense is a domain that links perceptions, feelings and cognitive representations of place with the spatial form that a given urban space exhibits. Culture and experience inject personality into places, making them unique and intimate. Lynch proposes that the sense domain should be assessed by looking at how to be *in* a given place, allowing individuals to have access to a full sensory experience, one that does not simply allow them to differentiate between different locations, but one that lets them exercise their identity and interact with the spatial structure. Sense of place also depends upon the relationship between place and its function (congruence), the 'transparency' of social, cultural, political, and economical activities that occurs in places, and the 'legibility' to read and communicate among city-dwellers 'via symbolic physical features' (Lynch, 1960, p. 139).

During the FGDs and interviews, young adults identified that the criteria of sense is connected to the level of membership they possess to access and use places they experience. The greater the sense of community association they feel, the higher the level of identity they attach to that particular place. Young adults in Juan XXIII feel their sense of place is strong because it is a mechanism to cope and face everyday problems with surrounding residents. They considered they are the owners of the place because they have occupied it "from the beginning". In a similar fashion, young adults in Perdomo Alto also exhibit a strong sense of place, but in their case, it is because place empowers them to achieve greater outcomes. Domains of quality of life that were associated with this criterion were friends and friendship, tolerance, cultural expression, success, inclusion, and public space and mobility.

4.5.1.3 Fit

The quality of fit relates the spatial form to the cultural and behavioural actions of city-dwellers. It refers to the extent to which places are able to allow people to

function, as human behaviour is determined by the affordability of goods and services within certain places. Places are adapted to fit certain behaviour settings in the same way as individual and collective behaviours are adjusted to fit a given place (p. 151). Yet, the rigidity of some places means that human behaviour adapts to places more often than not rather than vice versa. Inclusive policies should attempt to expand the fit of places, so diverse interests and behaviours are considered in the production of places, although conflict might emerge. Two aspects are central to assess the degree of fit. One is manipulability or the degree of handling control of places in the sense of allowing adaptability without restraining future change; and resilience or the ability to restore places to allow significant actions.

Young adults' behaviours in both urban settings tended to be dissimilar as agency operates differently. Young adults in Perdomo Alto give a greater significance to those activities that have an impact on the territory and, therefore, that have benefited the entire community. For them, a social improvement is a victory as it can be materialised in the urban space. In the case of young adults in Juan XXIII, they pay more attention to individual actions as community relates more to their family than their neighbourhood. Domains that represent young adults' behaviours are the ability to dream, leisure time, feeling free to choose, and love and support.

4.5.1.4 Access

In a basic sense, access relates to the ability to use, or benefit from being in a given place. It is concerned with the choices people make once they have access to the material resources and certain human activities, as well as to other places and other people. The axiomatic idea that access should be maximised is modified by considering the effects that the processes itself created, particularly in terms of equity and control. Lynch argues that 'access cannot be measured by the sheer quantity of things' (Lynch, 1960, p. 191), criticising a Rawlsian approach where built environment is based exclusively on the provision of resources. Indeed, once the quantity of desired objects is reached, value is transferred to the 'degree of choice offered among accessible resources' (p. 191), and also to the degree to which those choices are available among groups of the population. Therefore, accessibility is linked not just to quantity but also to the diversity of choices available and the equal distribution of them in a given place.

Access to work and education were considered essential domains to improve young adults' quality of life. Young adults from both Ciudad Bolivar and Chapinero agree that access to education and job opportunities has improved with recent local administrations, although a lot of additional work still needs to be done. Social networks are important in improving accessibility, but they operate differently in each urban setting. In the case of young adults in Perdomo Alto, they felt that the lack of contact with better-off neighbours reduced their chances of having access to stable employment. Conversely, young adults in Juan XXIII appeared to find better opportunities in terms of jobs because they have contact with slightly better-off neighbours (middle-class neighbours). In this latter situation, it seems that young adults benefit from peers who have a closer social distance (middle-income neighbours) with them than with others (high-income neighbours) as they share information networks that are more suitable for their needs. Domains of quality of life susceptible to accessibility were work, education, inclusion and security.

4.5.1.5 Control

The dimension of control is associated with the ability to own a place, to use it, to monopolise it, and to govern it with the intention of modifying it or exercising the right to disposition of it (Lynch, 1960). Control suggests a 'true ownership' of a place, a condition that should be achieved by the congruence between those who use the place and those who exercise control of it. Responsibility to control well and a sense of certainty of spatial rights ensure that place is governed effectively. As access exercises influence over control, manipulating choices in places determines which people can be allowed to enter or may excluded from, a given place.

Young adults characterised control with domains of 'political participation', and 'ability to pay'. In both domains, control is exercised differently. Whereas control is provisional in Juan XXIII, as land ownership is uncertain because of the existence of latent evictions and the development of urban projects, in Perdomo Alto control is largely exercised, but is not very effective in making substantial changes to young adults' quality of life. Control is mainly operated by political participation. There are also distinctions in this regard. In the case of young adults in Ciudad Bolivar, participation is effectively exercised and has become the standard instrument to reclaim

unmet needs. Conversely, young adults in Chapinero described themselves as apathetic in political terms, which makes them invisible in the formulation of public policy.

4.5.2 Testing for Place Effects on Equality, Opportunities and Agency

Following the classification of domains into Lynch's performance criteria, participants were asked to assess them using the audit framework of the CA. As residential segregation is expressed differently in the two areas of analysis (Ciudad Bolivar and Chapinero), the aim here was to understand how different kinds of segregation (macro and micro) affect young adults' performance in achieving their valued domains of quality of life. By using the CA criteria to audit human disadvantage, the goal here was to ask the participants to assess their level of achievement of each performance criteria¹⁰⁴ by looking at the level of equality, opportunities and agency available in each urban setting.

Equality links the concept of economic opportunity to geographic fairness. This aspect is in line with Fainstein's conception of *equity*, or the fair 'distribution of both material and non-material benefits derived from urban policy and that does not favour those who are already better off at the beginning' (Fainstein, 2011, p. 36). Equity deals with the fact that different outcomes in terms of lifestyle among young adults should be the result of how they make choices and decisions, and not due to the geographically uneven provision of urban benefits. During the FGD, equality was defined as the perception young adults have regarding how urban assets are distributed. Opportunity was conceptualised as feasible alternatives that make it possible to achieve. They are directly shaped by structural conditions of power and domination that are embedded within places. And lastly, agency was conceptualised as people's ability to follow goals that they value and have reasons to value.

Equality (Juan XXIII, Chapinero)

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The concepts of vitality, sense, fit, access and control were described by looking at the degree of achievement in terms of sustainability, membership, behaviour, usability and participation, respectively.

 $^{^{105}}$ Aspects such as availability, accessibility and distance were considered to evaluate each performance criteria.

¹⁰⁶ Young adults were asked to assess each performance criteria by looking at the availability of options they have close to their place of residence.

¹⁰⁷ Young adults compared their life goals to those of other people and in particular to the context in which they live.

Young adults perceived that the distribution of domains of quality of life are reasonably secure in their neighbourhood. They feel they have an advantage over other city-dwellers as they are living in one of the most expensive parts of the city. Main urban amenities (public transport, security, public services, etc.) are relatively close to home and the main occupations and interests (job opportunities and educational centres) are conveniently located for them. They consider that the place is safer than other parts of the city, so even if they return home late at night they benefit from the private security of nearby gated communities. They do not find the idea of moving to other places in the city attractive, even though they have been offered remuneration in exchange for their houses. Nevertheless, they feel that the supply is not adapted to their needs as their tastes and financial capacity do not match with their interests and preferences. The availability of urban amenities and services is targeted at young adults with greater purchasing power. This means that worse-off young adults have had to adapt to place, and not vice versa. Mechanisms of participation are available and commonly used, but participants considered that their effectiveness is limited as they are aimed at solving mainly local needs rather than more fundamental economic issues. They feel their control over place is provisional as major urban development projects are under construction near their place of residence. They are afraid they will be evicted as has happened in nearby neighbourhoods due to the continuous land speculation in that area. This situation is particularly important as it is a direct effect of living in areas where better-off households are located.

The limited control young adults have over place produces a sense of segregation as they are outnumbered by middle- and upper-class families who surround them in their apartments located in buildings of more than 20 storeys. The creation of mechanisms to participate in, discuss and monitor government actions referring to land planning in the zone, such as the 'Environmental board for the Eastern Hills', have given them control over how to exercise their rights in terms of access to and use of the land. Nevertheless, these mechanisms provide provisional solutions as control over place is transitory.

For them, segregation is an everyday experience that is taught through the lack of interaction between residents and neighbours from nearby areas. Aesthetically, Juan XXIII's houses are painted with bright colours and the area looks like a typical working-class neighbourhood of Bogota, which contrasts with the façade of the

buildings made with pressed bricks and the private security guards of nearby gated communities. Thus, physical decay becomes more evident in Juan XXIII as people can immediately compare rich and poor settings, weakening young adults' sense of self-efficacy.

Equality (Perdomo Alto, Ciudad Bolivar)

Young adults mentioned that the distribution of basic infrastructure has improved notably in recent years, however they believe there is still a lot to do, particularly in security and environmental issues. Exposure to air and water pollutants has exacerbated health problems among residents. They do not perceive segregation as young adults from Juan XXIII do; they feel they do not live in conditions of segregation as they interact to a lesser extent with people of other socioeconomic strata, so the experience of being treated differently by others is less pronounced. They considered that there is a strong sense of community in the neighbourhood because marginality forces them to demand more from local authorities, however the control they exercise is not very effective and progress is extremely slow.

Equality of tangible urban assets is notorious in the case of Chapinero if compared to Ciudad Bolivar. Young adults in Juan XXIII experience a much better vitality than their peers in Perdomo Alto. However, young adults in Juan XXIII see more clearly the consequences of residential segregation as access to and control of urban assets is constrained. More importantly, they do feel segregated in comparison to young adults from the neighbourhood of Perdomo Alto who considered that the term 'residential segregation' did not characterise the urban context in which they live. As was stated by a young adult in Juan XXIII: 'we do know what segregation means because we are on the front line of the battle, every day' (Interview 10, 28 November 2015).

Opportunities (Juan XXIII, Chapinero)

Young adults feel that living in Juan XXIII has brought them better opportunities when compared to other young people. They have a good supply of social services, as well as alternatives for education and job opportunities. For some adults, living close to better-off families has increased accessibility to jobs such as domestic workers, dog walkers, home maintenance workers, among others. Nevertheless, they do

not consider the availability of low-skilled or unskilled jobs as real opportunities because these types of jobs do not improve their quality of life in the long term. In this regard, there is a feeling of a better quality of life in the territory but with the reservation that this improvement is not equal as most of the opportunities are not targeted to them but to well-off residents, and that access to opportunities is mainly conditioned by the ability to pay and influence social relations. Paradoxically, deconcentration of poverty in neighbourhoods such as Juan XXIII can exacerbate social and economic problems for their residents as they are targeted less by public policy due to dispersal. Juan XXIII's residents are in direct competition with middle and upper income gentrifiers who have arrived in the neighbourhood in order to take advantage of the available of opportunities. Competition of opportunities is mediated by the level of financial resources available to young adults, which is often to the detriment of the less well-off residents.

Participants feel that social integration in the area is becoming difficult. They feel that they are not welcome in their own neighbourhood as better-off residents, who are located next to them, do not walk on their streets or use their local shops. They feel that despite living in an area of high value, their properties are not valued as equal to those of their neighbours. They do not feel control over the future of their neighbourhood because ongoing urban renewal projects are attempting to gentrify the whole area, threatening the very existence of their neighbourhood.

Opportunities (Perdomo Alto, Ciudad Bolivar)

Participants feel that opportunities are not available to them, and that the state is doing nothing to improve the availability of opportunities. They strongly believe that it is they who must forge their changes. In this way, available opportunities are mainly located in their neighbourhood, in their territory, in their area of influence. They travel to other parts of the city to work or to attend school or college, but it is in their own neighbourhood that they are able to capitalise on their choices and opportunities. They do not feel they have access to other opportunities in other parts of the city, which makes them believe that it is only in their territory where they can achieve more. In this sense, youth groups are important organisations in opening up opportunities for young adults. These organisations work as catalysts for the construction of cultural identities that consider the territory not just a simple geographic portion but as the sum of

conditions that give them the opportunity to go ahead. Nevertheless, young adults in Perdomo Alto are under a constant precariousness of opportunities that make them more vulnerable to situations such as drug consumption, delinquency and gangsterism. Opportunities are presented by local social networks that help them to find jobs or satisfy specific needs in the short term, however these networks also prevent them from finding solutions in the long term as the opportunities provided do not enhance or stimulate social and economic mobility. Concentration of poverty in Ciudad Bolivar has been a political argument for residents to demand that local authorities implement specific antipoverty strategies, although constraints in public budgets and unsuitable polices may explain the failure to reduce poverty and inequality.

A greater number of new possibilities and alternatives appear to be open to young adults in Juan XXIII compared to Perdomo Alto. Job opportunities are the most frequent options expressed by these young adults in terms of positive attributes of the location, however these possibilities tend to impoverish them even more in the long term. ¹⁰⁸ In the case of young adults in Perdomo Alto, community-based organisations are creating more comprehensive opportunities where young adults find ways to mitigate the risk of living in marginality. Residential segregation operates differently in how opportunities are opened up to young adults. Young adults in Juan XXIII attempt to catch up with better-off peers through the use of formal mechanisms of social mobility (mainly work and education mechanisms), however having a university degree or a job does not necessarily lead to upward mobility. In the case of young adults in Perdomo Alto, opportunities are reduced although they tend to be more aligned with their needs.

Agency (Juan XXIII, Chapinero)

Participants feel their agency is reduced as they have to adapt to the context they inhabit. They adapt to neighbourhood rules and community behaviour, because they know they must follow the status quo that dominates the place. As opportunities in the neighbourhood are mainly aimed at better-off young adults (cafes, bars, restaurants, gyms), young adults' agency of Juan XXIII is determined by the level of attunement

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¹⁰⁸ Young adults mentioned that the jobs they find near their place of residence are low-skilled and low-paid jobs, which in many cases were identified as low-paid jobs that they do not provide a decent livelihood for their families.

with and assimilation into the culture and urban behaviour of the area. As such, agency is reactive for them because it reacts according to the interests of third parties, or in this case to the interests of the dominant group. Young adults in Juan XXIII follow role models that behave in a way that is considered 'normal' and acceptable for the dominant group in the area. For instance, disadvantaged young adults in Juan XXIII emulate social decisions related to education attainment, work habits and consumer behaviours, such as access to local cafés and restaurants. In this sense, they can be considered to be modelling positive behaviours (positive socialisation). By following positive role models, young adults in Juan XXIII have ended up in positive socialisation, however this progress has also been an offset of how they exercise their agency. In analysing agency performance - those things young adults have reasons to value by their own effort (instrumental agency success) (Sen, 1992a) - it is clear that the lack of control they experience in relation to their surrounding space significantly affects their potential as agents of change.

Participants are concerned that their capacity to occupy a place in their part of the city has become reduced as nearby neighbourhoods have been disappearing in favour of large real estate projects. Although some participants, and/or their families, own a house, real estate companies have forced many to sell their properties to new real estate developers. Thus, access to urban capabilities is greatly constrained and restricted, and mechanisms to reverse the situation, so they can exercise effective control over urban valued activities, are dominated by a lack of participation which ranges between apathy and impassivity.

Agency (Perdomo Alto)

The presence of several youth organisations has opened up a space for youth mobilisation and empowerment to demand action on sensitive issues. However, participants considered that participatory mechanisms have not been effective, and social problems related to accessibility and liveability have worsened in the area. The strong sense of community and identity that young adults exhibit within the territory has fostered a spirit of resistance where contestation is a *de facto* mechanism to demand action from local governments. Agency is exercised collectively as young adults tend to group together in order to demand action on specific issues. The presence of youth groups in the neighbourhood and surrounding areas has played an important role in

enabling young adults to exercise their agency. This is the case for instance of youth organisations that operate in the area, that are focused on providing skills to young adults. These groups allow young adults to confront and debate their immediate interests, while facilitating participation to face discriminatory actions. Therefore, agency is perceived by young adults as being of great value, however this value is weakened by the lack of real transformations in young adults' living conditions. From a perspective of collective socialisation, they feel that negative socialisation is transmitted by the presence of negative role models in the neighbourhood, meaning that peer effects keep them trapped in a cycle of low social mobility.

As such, agency is exercised differently in the two different areas of residential segregation. In the case of Juan XXIII, young adults' agency is transferred to dominant groups, which are able to appropriate the urban context for the sake of their own interests. In the case of young adults in Perdomo Alto, agency is more open and deliberately exercised, however the lack of opportunities erodes its effectiveness to produce changes. Thus, residential segregation has different effects on how agency is exercised; however, ultimately, how young adults can use their choices towards achieving the goals that they find important to pursue is clearly constrained in both cases. See table 4.5 for a summary of results.

Table 4-5 Effects of residential segregation on domains of quality of life (summary of results)

		Lynch' pe	erformance crit	eria as urban fui	nctionings	
	Case study locations	Vitality (sustainability)	Sense (membership)	Fit (behaviours)	Access (usability)	Control (participation)
Equality	Juan XXIII Chapinero	Secured largely	Sense of community but	Adaptable but not based on interests	Good availability but access and	Equal control but
	•		segregated		use restricted	•
	Perdomo Alto (Ciudad Bolívar)	Poorly secured	Sense of community and	Limited available behaviours but	Poor availability but access and	Equal control but not effective
Opportunity	Juan XXIII	Available, but not	strong identity Open but low	based on interests Mediocre	use not restricted Conditioned to	Limited and co-
	Chapinero	accessible	interaction with others	opportunities	market	opted
	Perdomo Alto (Ciudad Bolívar)	Not available and not even close	Mainly in the territory	Reduced opportunities	Conditioned to availability	Relatively open but uncertain
Agency	Juan XXIII Chapinero	Reactive to local interest	Strong sense of identity but	Adaptable, follow status quo	Constrained and restricted	Apathetic and indifference for
			threatened			change

Perdomo Alto	Proactive but	Strong sense of	Horizontal	Contestation,	Agency boosted
(Ciudad Bolívar)	mechanisms not	identity	hierarchies,	struggle	by local
	effective		communitarian		organisations
			agency		

Source: Developed by the author based on results of FGDs and Framework Analysis.

4.6 Ranking Domains of Quality of Life

The next stage of the evaluative framework consisted of ranking domains of quality of life to locate those capabilities that are more sensitive to the effects of residential segregation. During the operationalisation of the CA, once a list of capabilities has been identified, researchers are usually faced with the challenge of keeping the list of selected dimensions intact (dimensions that are thought to be essential to assess quality of life). Schokkaert (2008) refers to this as the indexing problem, as assigning weights to each dimension is not a straightforward procedure, and a standard protocol cannot be put in place. A multidimensional index of quality of life supposes that intrinsic dimensions are essentially different to one another, which means that one cannot assume a perfect sustainability among dimensions (p. 26), as dimensions are different *per se*.

The literature on the CA is rich in providing different methodological tools to calculate the weight of a given set of dimensions of well-being. Among other statistical techniques, principal component analysis or fuzzy set methodology are just two possible approaches that can be considered. On the side of qualitative research, weights can also be calculated by using subjective views from the population (Klasen, 2000). By doing this, individuals can vote for those dimensions they consider more critical to achieving a given specific research question.

The evaluative framework proposed here uses Borda's ranking rule as a suitable rank-order method to identify those domains that are more important in the context of urban segregation. Multidimensional indicators have the challenge of assigning different weights to each domain. It is difficult to decide which domains are more important than others. In this regard, the capability approach has used the Borda rule as an efficient rule system for aggregating dimensions (Dasgupta & Weale, 1992; Qizilbash, 1997).

Based on a framework of social choice theory, where people are expected to provide a preference ordering of the possible alternatives (Arrow, 1950, 1951), the

Borda count offers a voting procedure for ranking alternatives (Zahid & de Swart, 2015). Using the Borda count, the produced rank takes the relative preference of all the candidates, so at the end the result considers not just those dimensions that were ranked first, but also those that ranked last. As an aggregative method, the Borda count is considered a 'preference-based voting' system rather than a majoritarian one, as participants rank their preference by order. (Reilly, 2002).¹⁰⁹

Once Borda count had been selected as the method of aggregation, young adults were asked to arrange all domains identified according to the order of importance with regards to having a good quality of life in Bogota. The moderator asked respondents to prioritise each domain based on their experience of living in their neighbourhood. Thus, the given order by each participant would implicitly assess the effect of place in each neighbourhood. The Borda count was calculated for each dimension by giving the last alternative 1 point, and the top alternative the number of points equal to the total number (N) of domains identified. The total number of points obtained by each alternative is summed across all the options so that a partial rank is obtained. The results of the Borda ranking for each FGD are presented in Table 4.6.

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Unlike Condorcet criterion, the Borda count chooses a definite and systematic winner among multiple options without failing to find a majority winner. The Borda count asks people to pick out and order alternatives according to their preferences. The last preference cast should receive 1 point, the penultimate preference should get 2 points, and so on up to the first preference, which gets n points (n-1, n-2, ..., 0). The point awarded to each alternative will be summed across voters so the alternative with more points will be selected as a winner (Black, Hashimzade, & Myles, 2012).

¹¹⁰ To avoid collusion among participants, each of them was given a card to rank each dimension accordingly with its perceived importance. Completed cards were returned to the moderator, who reshuffled them so that the original answers remained.

Table 4-6 Ranking of quality of life for young adults using Borda count (each FGD)

FGD 1	Borda	FGD 2	Borda	FGD 3	Borda	FGD 4	Borda
Chapinero N = 17	score	Chapinero N = 9	score	Ciudad Bolívar N = 13	score	Ciudad Bolívar N = 16	score
1. Security	95	1. Shelter	46	1. Education	150	1. Education	96
2. Support	93	2. Work	43	2. Health	121	2. Affection and friendship	82
3. Education	92	3. Education	38	3. Autonomy	117	3. Health	76
4. Family and friends	84	4. Health	37	4. Security	106	4. Economy	73
5. Good habits	80	5. Environment	25	5. Work	105	5. Work	71
6. Tolerance	79	6. Security	24	6. Accessibility	99	6. Political participation	66
7. Food security	75	7. Street culture	23	7. Spaces for participation	97	7. Shelter	65
7 Work	75	8. Green spaces	20	8. Success	95	8. Food security	63
9. Leisure time	74	9. Family	14	8. Tolerance and responsibility	95	9. Leisure time	59
		•		with society			
10. Health	73			10. Creativity and production	89	10. Respect and tolerance	56
				of ideas			
11. Participation	70			10. Good friends	89	11. Environment	54
11. Public space and	70			12. Leisure time	56	12. Inclusion	51
mobility							
13. Shelter	69			13. Transform economic	55	13. Culture	47
				model			
14. Ability to dream	66					14. Ability to change the	37
•						territory	
15. Feel free to choose	54					15 Security	34
16. Responsible	43					16. Aesthetic	22
17. Ability to consume	32						

Source: FGD

A single list of higher-ordered dimensions was calculated from the ordinal information produced in each FGD. Using the results (ranks) of the first Borda round, a second Borda count was conducted so scores could be aggregated in a single list of rankings. FGDs' alternatives were ranked according to each component of quality of life. Again, all alternatives were cast with the worst scoring 1 and the best scoring the total number of available domains (N). The outcome of this exercise is reported in Table 4.7.

Table 4-7 Ranking of quality of life for young adults using Borda count (aggregation)

Domains of quality of life	Borda rank	Borda score
Education	1	64
Health	2	53
Work	2	53
Family and friendship	4	46
Safety	4	46
Shelter/housing	6	33
Political participation	7	30
Tolerance	7	30
Culture	9	28
Leisure time	10	24
Environment	11	20
Food security	11	20
Feel free to choose	13	18
Public space and mobility	13	18
Support	15	16
Ability to consume	16	15
Inclusion	17	11
Success	18	10
Creativity and production of ideas	19	8
Ability to dream	20	4

Source: FGDs

In each urban setting, young adults gave different weights for each identified domain of quality of life, confirming the issue of non-comparability among capabilities (see Table 4.8). With the exception of education, all domains received different weights in both urban settings. The most important domains for worse-off young adults in heterogeneous communities are: education, security, work, friendship and family, and

shelter. In the case of young adults from homogeneous areas, the most important domains are: education, health, work, political participation, and friendship and family. Domains are not the same but are quite similar. Three out of five domains are considered common among young adults in both urban settings.

Table 4-8 Ranking of quality of life for each urban setting

Dank	Juan XXIII	Dank	Perdomo Alto		
Rank	Chapinero	Rank	Ciudad Bolívar		
1	Education	1	Education		
2	Security	2	Health		
3	Work	3	Work		
4	Friendship and family	4	Political participation		
5	Shelter	4	Friendship and family		
5	Health	6	Security		
7	Public space and mobility	6	Tolerance		
7	Support	6	Culture		
9	Environment	9	Leisure time		
9	Tolerance	9	Feel free to choose		
11	Culture	11	Ability to pay		
12	Food security	12	Shelter		
13	Leisure time	13	Food security		
14	Political participation	13	Success		
15	Ability to dream	15	Creativity and production of ideas		
16	Feel free to choose	16	Environment		
17	Ability to pay	17	Inclusion		
18	Creativity and production of ideas	18	Public space and mobility		
18	Inclusion	19	Support		
18	Success	19	Ability to dream		

Source: FGDs

Differences in weight are also explained by characteristics found in each urban setting, indicating the role of place in shaping capabilities. A convergence/divergence analysis was carried out in order to nuance differences between positions in each ranking for both locations. Convergence occurs when domains from both locations tend to be located in the same ranking, independently of their positions. Divergence occurs when domains are widely separated from one another, independently of their positions. Minimal cardinal differences are found in domains of education and work. Both domains converge as young adults from Ciudad Bolivar and Chapinero placed equal

ranks to each other. Most domains tend to have a convergence pattern as ordinal distances are relatively close between them. This is the case for the domains of friendship and family, food security, inclusion, tolerance, culture, security, health, leisure, and ability to dream. At the other end of the scale, domains of political participation, public space and mobility, and support are divergent as the ordinal distance between urban settings is prominent. Other domains with a divergent pattern are feel free to choose, ability to pay, success, shelter, and environment

4.6.1 Refining and Classifying Domains of Quality of Life

After assessing how the differences in residential segregation affect domains of quality of life for young adults and developing a ranking of high order dimensions that accounts for these effects, the focus of the exercise moved to refining and reclassifying domains of quality of life for young adults.

The process of refining domains and classifying data was undertaken using tools from the methodology of framework analysis. Here, the reduction or merging of domains consisted of detecting substantive content, validating previous categorisation and reclassifying, if necessary, domains of quality of life (Ritchie & Spencer, 1994). The analysis of detection, categorisation and classification was carried out bearing in mind the results of the Borda count, as well as the frequency with which the domains were identified by the participants during the FGD (Figure 4.2).

Accessibility Shelter Public Green is a friends Leisure Success Family Stime Feeding Participation

Friends Leisure Success Feeding Culture Feel Free Success Family Stime

Feel Free Participation

Creativity Education Support tolerance Choose Environment

Figure 4-2 Frequency of emergent domains of quality of life using data from FGDs

Source: Frequency map using a word cloud generator at wordclouds.com.

During the process of detection, dimensions identified by each FGD were compared in order to find similarities of meaningful ideas. Equally, the analysis looked at the range of perceptions and attitudes related to each theme, as well as comparing each domain within groups and across groups. For instance, the dimension security was one of the dimensions that each FGD valued as a relevant category of quality of life (Table 4.9). For this domain, analysis was carried out with the aim of understanding 'what is happening' (Ritchie & Spencer, 1994, p. 239) within the category. For young adults, security is related not only to the consequences of insecurity and crime in Bogota where feeling vulnerable to assault is commonplace. Security is also related to elements of violence among young people belonging to different subcultures and the anxiety produced by the police presence. Thus, this dimension encompasses not just elements of bodily integrity but also of affiliation, particularly the capability to have social bases of self-respect and non-humiliation, entailing minimum protection against discrimination (Nussbaum, 2001). Thus, after applying a detection process to this domain, those elements that were associated with the latter definition of security (discrimination) were reclassified into the domain of inclusion.

Table 4-9 Subthemes identified in each FGD for the dimension of 'security'

FGD 1	FGD 2	FGD 3	FGD 4
Chapinero	Chapinero	Ciudad Bolívar	Ciudad Bolívar
More security	Less police presence	Be peaceful in my	Nights without
		surroundings	feeling fear
Security	No police corruption	Be mobile in the city under	Respect for human
		good conditions of security	life
No robbery*		Secure spaces	
Walk without feeling fear*			

^{* =} subthemes.

Source: Excerpt from FGDs.

Therefore, each dimension was examined, questioned and refined in order to identify the main subjects and topics. Young adults' capabilities were also examined to validate consistency between dimensions and inter-dimensions.¹¹¹ After examining the themes and capabilities in each dimension and paying close attention to similarities

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¹¹¹ In this section, the level of abstraction of each domain was reassessed by a consultative process with participants from the FGDs. As is recommended by some practitioners, new and refined domains were agreed by the group, and not by just a few participants (Kinghorn, 2010). This ensured that dimensions of quality of life were as general as possible to the extent that all young adults could understand the meaning of each dimension.

between the main ideas, attitudes, views and experiences that young adults expressed during FGDs, a process of classification and re-categorisation took place. Unlike the traditional process suggested by the framework analysis, where data and emergent themes are first categorised and then classified, here the nature of how data were collected and organised suggested that the classification should take place before the categorisation. Due to the fact that themes were classified directly with participants, an implicit pre-categorisation already existed. Thus, in order to aggregate all different domains from the FGD into a single list, it was necessary to start grouping themes within domains previously identified. In this sense, a classification process preceded the creation and then nomination of domains.¹¹²

Congruent with the above, themes and names of domains were kept as per the original list, as the list of dimensions of quality of life for young adults demands a genuine process of public scrutiny and open debate for the identification of domains. Having considered framework analysis as a valid inductive exercise to identify quality of life domains, this adaptation was central to operationalising Sen's ideas of well-being domains where inherent categories were identified not just considering the urban context where young adults are immersed but also their opinions and views about what could be categorised as quality of life in Bogota.

At this stage, 15 dimensions of quality of life were identified. Each dimension was grouped together with the relevant capabilities also identified and classified by young adults during the FGD. The outcome of this exercise is reported in Table 4.10.

Table 4-10 Refined list of quality of life domains for young adults in segregated spaces

Domains	Capabilities
1. Tolerance, respect and	To be able to live in harmony within the context and the
membership	community
To be able to accept and be	To be able to accept and be accepted by others
accepted by members of different	To be able to respect the life of others
communities	To be able to respect, love and value others' lives
	To be able to be tolerant

¹¹² In the event that it was not feasible to merge a category with an existing one, that category would be considered a new dimension of quality of life.

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To be able to be a good human being To be able to be recognised as a To be able to accept responsibilities as a citizen To be able to interact with other young people person with an individual identity and to be able to express it freely To be able to create cultural spaces To be able to express oneself freely To be able to be respected as an artist 2. Political and social To be able to influence political agendas participation To be able to produce participatory spaces To be able to demand action from To be able to transform the economic and social city model local authorities To be able to transform the social reality To be able to hear and be heard 3. Security To be able to move around the city without restrictions To be able to live safely (stigmatisation from the police) To be able to feel safe To be able to enjoy public spaces To be able to enjoy secure spaces To be able to be quiet in public spaces To be able to have nights without fear 4. Leisure time and recreation To be able to exercise autonomy in the allocation of time To be able to have joy in life To be able to spend time with family To be able to use leisure time to study personal subjects 5. Love, emotions and support To be able to provide support to family and friends To be able to receive affection and To be able to love one's family to be able to benefit from having To be able to benefit from family, communitarian and state the support of family, friends and support the state To be able to love and be loved by To be able to give and receive social support those around me To be able to give and receive love 6. Public space and mobility To be able to use and enjoy public spaces To be able to enjoy public spaces To be able to enjoy more green spaces and to be able to mobilise without To be able to move from one place to another without physical restriction in the city restrictions

7. Life and health	To be able to be healthy
To be able to achieve a reasonable	To be able to establish limits
level of good health without	To be able to have healthy habits
restricting new experiences	
To be able to connect with the	To be able to have a clean environment
nature and the environment	To be able to respect the environment
	To obtain to respect the on memory
8. Food security	To be able to be well nourished
To be able to meet dietary needs	To be able to produce local goods
9. Occupation	To be able to work based on an entrepreneurial idea
To be able to practise an activity	To be able to create new ideas to work
with economic remuneration	To be able to have a decent job
	To be able to have economic stability
	To be able to satisfy personal needs and interests
	To be able to create associations
	To be able to produce economic gains from independent work
	To be able to become an entrepreneur
10. Shelter/housing	To be able to live in a comfortable place
To be able to live in a comfortable	To be able to be sheltered
space, adapted to one's needs	
11. Independence, autonomy and	To be able to choose friends
social relations	To be able to have social relations with others
To be able to participate in social	To be able to make own decisions
networks and to be able to get	To be able to identify one's own 'life project'
ahead	
To be able to be independent and	To be able to surrous susself
To be able to be independent and	To be able to express oneself To be able to choose one's spirituality
feel like one has control over one's	To be able to choose one's spirituality To be able to make arrows and mistakes
own life	To be able to make errors and mistakes
12. Knowledge and learning	To be able to gain an academic title
12. Miowicage and ical linig	To be able to study
	10 00 abic to study

To be able to receive quality	To be able to obtain a quality education
education	
13. Consumption	To be able to buy
To be able to have enough money	
to buy what one wants	
•	
14. Success and prosperity	To be able to improve as a person
To be able to achieve aspirations	To be able to dream
	To be able to realise one's role in society
15. Inclusion and equality	To be able to not be stigmatised or 'singled out'
To be able to be recognised as a	To be able to receive decent treatment
member of society with rights and	To be able to be treated with dignity
duties	To be able to obtain a fair distribution of economic resources
	To be able to not be ignored
C FCD	

Source: FGDs

4.7 Discussion

This chapter explored the conceptualisation of domains of quality of life for young adults in the context of macrosegregation and microsegregation in Bogota. By looking at the urban setting of Chapinero (Juan XXIII) and Ciudad Bolivar (Perdomo Alto) the chapter looked at how patterns of urban segregation affect the production of relevant capabilities. The chapter presented a methodology to conceptualise relevant domains of quality of life from a bottom-up perspective in order to ensure the creation of an open list of capabilities that is specific to the context of residential segregation. The result in the application of this methodology was the first capability list created for young adults in the context of residential segregation in Bogota. The list is composed of 15 domains, where significant aggregated weights were given to domains of education, health, work, family and friendship, and safety (Table 4.10). Then, the developed list was employed for assessing qualitatively how young adults, living in places affected differently by residential segregation, achieve domains of quality of life. Additionally, young adults exposed to both diverse and homogenous neighbourhoods ranked domains based on personal criteria to identify critical areas of intervention and, more

importantly, to distinguish performance in terms of how differences in place affect the production of capabilities.

The overall findings suggest that patterns of micro and macrosegregation differ from each other as young adults advance differently in the achievement of each domain. The analysis was carried out using five criteria of assessment of urban settings: vitality, sense, fit, access and control; and three core concepts from the CA: equality, opportunity and agency.

Major differences are reported in the assessment criteria of vitality, access and control. Young adults living in communities close to better off inhabitants (Juan XXIII) reported a better urban setting in terms of health, environment and security aspects as sustainability in the area is largely secured. Provision of critical domains of work and education as well as availability of local public goods are also well provided for, which potentially gives them the opportunity to access them. Conversely, young adults living in concentrated poverty (Perdomo Alto) confirm the findings of previous studies that report that living in contexts of poverty is correlated to insecure and violent environments. Exposure to water and air pollution in concentrated poverty areas is a significant hindrance to quality of life, which additionally exacerbates violence and tension among residents.

The study found that mechanisms of neighbourhood effects operate differently in each urban setting. For instance, in the case of young adults living in diverse communities, mechanisms of social contagion by peers are almost non-existent as propinquity interactions between well-off and worse-off young adults is rarely reported. Conversely, in homogeneous settings, peer influence is an important mechanism to influence young adults' behaviours, which in many cases is reported as a negative influence. The same pattern operates in the case of social networks where young adults from diverse communities benefit from peers who are slightly more well-off than themselves (middle-class peers). This is the case of young adults in Juan XXIII who find expanded job opportunities as they come into contact with other disadvantaged young adults who are already working or studying. Potentially, they also increase their access to job opportunities as low-skilled labour offers are available to them from better-off neighbours. A conclusive remark here is that exposure to better-off

neighbours benefits less well-off neighbourhoods only if there is a relatively close class gap between them.

Collective socialisation as a neighbourhood effect also differs greatly between the two urban settings. Role models and norms from better-off neighbours influence behaviours in terms of culture and consumption. Young adults from Juan XXIII reported following a tacit status quo of coexistence where they are mostly passive agents. Nevertheless, role model mechanisms are powerful in improving social behaviour and enhancing social control. Results from this chapter question U.S. and Western European studies which suggest that weak social cohesion and control in areas of concentrated poverty stimulate an insecure context and contribute to high rates of criminality and delinquency (Galster, 2012). Although collective socialisation between young adults of different strata has been an important asset in Perdomo Alto (the area closest to better off inhabitants), it has contributed little to reducing levels of criminality and insecurity in the area, except that it serves as a strategy for survival and coexistence. Criminality and insecurity in concentrated poverty spaces suggest that other mechanisms are at work. Equally, the fact that the existence of diverse neighbourhoods in Bogota is not the product of a deliberative public policy of mixing social classes, but rather an effect of endogenous and exogenous forces of land prices, suggests that social capital and long-term ties between same-class neighbours are not abruptly removed from their natural contexts but rather increased. In the case of Juan XXIII, long-term ties are present between members of the community, and although they are under constant threat by external actors, they are strengthened by young adults' leadership and participation.

From the perspective of the CA, perceptions of equality, level of opportunities and how agency is operated also differ systematically between the two urban settings, suggesting that young adults' outcomes follow different trajectories. Residential segregation in concentrated poverty spaces operates as a mechanism that reduces equity in terms of sustainability and accessibility. Conversely, segregation at the micro scale allows young adults to have access to a much more equal availability of resources, improving mostly biological aspects of their quality of life. Nevertheless, some nuances are also identified. Despite young adults' control over their spaces tending to be equal in both urban settings, for residents living in diverse communities there is a constant threat in terms of how control is exercised, as land ownership is provisional. This situation

produces more extreme feelings of segregation and separation among less-well-off neighbours in diverse communities, as they explicitly consider themselves more excluded than their peers in Ciudad Bolivar. Equality is also severely affected in diverse communities. Availability of resources is not a major issue as they are largely secure. Instead, inequality operates in terms of accessibility as urban amenities are restricted for use by well-off residents with the ability to pay.

An expansion of opportunities is reported by young adults living in diverse communities. These opportunities are mostly reported in terms of job opportunities and access to urban infrastructure. Although the availability of those opportunities might improve quality of life standards, the lack of a spatial level playing field makes competition harder for less well-off young adults in diverse communities. Associated opportunities in private and non-excludable and non-rival public goods at local level are mostly won by well-off neighbours who have a better ability to pay. In this latter aspect, the expansion of opportunities seems to be offset by the lack of options to interact on equal terms with better-off residents. This finding is in line with previous studies that suggest that poor residents tend to have less access to, for instance, health services when they are located in affluent areas (Jones & Duncan, 1995).

In terms of agency, effects are also divergent in each urban setting. The main finding in this aspect suggests that microsegregation affects levels of agency based on threshold-like relationships (Galster, Quercia, & Cortes, 2000; Galster, 2014). The fact that Juan XXIII is a minority group within the urban setting of Chapinero influences how role models and norms operate. This aspect suggests that results need to be interpreted with caution as they are context-specific to the microsegregation process of Bogota. In essence, young adults' agency in Juan XXIII is subordinate to local norms as power and dominance relations exercised by better-off residents constrain and restrict the achievement of valued domains of quality of life. In contrast, young adults in Ciudad Bolivar exercise an active agency as social homogeneity incentivises contestation and struggle for the achievement of unmet needs. In this regard, agency as social cohesion and collective efficacy tends to be more visible, not more effective, in contexts where concentrated poverty is at large. Agency operates through a thresholdlike process suggesting that according to the demographic composition of each urban setting, different levels of agency can be achieved: if there were a greater number of less-well-off young adults in Chapinero, could we expect a more active level of agency

on the part of young adults? A reasonable approach to account for these sorts of non-linear relationships requires quantitative data to model agency outcomes.

After looking at the effects that residential segregation has on young adults' capabilities using a qualitative perspective, the next chapter moves towards the development of a composite index of capabilities that provides information about their general quality of life. Taking distance from the residential segregation problem, the analysis will focus on aspects related to the operationalisation of the capability approach (CA) by developing an index of capabilities (CI) that can provide insights about how young adults fare with respect to a range of capabilities and as a whole within the index.

Chapter 5 Before Entering Adulthood: Developing an Index of Capabilities for Young Adults in Bogota

5.1 Introduction

Following the qualitative assessment of the effects that residential segregation has on young adults' capabilities, this chapter moves towards the development of a composite index of capabilities that focuses on their general well-being and agency. Taking distance from the residential segregation problem, the chapter focuses on aspects related to the operationalisation of the capability approach (CA) by developing an index of capabilities (CI) that can provide insights about how young adults fare with respect to a range of capabilities and as a whole within the index. Drawn on bottom-up identified domains of quality of life for young adults in Bogota, the CI encapsulates a wider evaluative space of well-being, one larger than the one proposed for welfarist approaches¹¹³, thereby making a significant contribution to Quality of Life (QoL) studies.

Within the field of public policy, the role of evaluation has been central to assessing public interventions in terms of necessity, efficiency and validity. QoL studies have focused on assessing the performance of public policy in different domains and terrains. Critically, the development of QoL studies has grown in popularity amongst researchers during the last two decades, during which time the literature on the subject has produced in excess of 100 definitions and models (Cummins, 1997). Today, the concept of QoL is still contentious as the research community uses a myriad of different definitions and interpretations to approach it.

The concept of QoL has been used to understand and model different aspects of people's lives. Both the importance of cities today and the impact that they have on how people live have proved alluring to QOL studies which have grown in number aiming to evaluate and model different aspects of urban life (Marans & Stimson, 2011). A good example of this is, for instance, is the increasing number of rankings that attempt to assess the degree of liveability that certain cities provide for residents. Thus, quality of

155

Additionally, this thesis will investigate the CI with other no-welfarist approaches to quality of life, particularly to hedonic and cognitive assessment of well-being. Please refer to Chapter 7 of this thesis.

urban life (QOUL) refers to the importance of place in structuring people's lives. Mulligan et al. (2004) interpret QOUL as the degree of satisfaction which an individual experiences from the surrounding human and physical conditions (p. 729).

From a broader perspective, QoL studies conceptualise well-being as a multidimensional process that is influenced by personal and environmental factors (Schalock, Gardner, & Bradley, 2007, p. 6). Common domains used in urban QoL studies are based on objective and subjective domains where physical, social and emotional components are assessed (Halvorsrud & Kalfoss, 2007). In terms of approaches to urban evaluation, QoL and QOUL measurements have been dominated by the liberal and utilitarian perspectives of well-being. In the former, people flourish according to the level of resources they are able to command (monetary and nonmonetary assets), a rather Rawlsian approach to the built environment where the provision of resources will rebalance uneven geographies. In the latter, quality of life is a function of subjective utility, where happiness or life satisfaction parameters are the common unit of evaluation (Robeyns & Van Der Veen, 2007). In both streams of research, approaches used to investigate QOUL clearly rely on the role that urban infrastructure and amenities play in shaping urban life, where conceptualisations and methodologies are drawn mainly from economics, giving little space for other disciplines to emerge (Mulligan et al., 2004).

A much less explored field in QoL and QOUL studies has to do with the notion of capabilities and functionings as measurements to evaluate the level of quality of life that people experience. The notions of capabilities and functionings are part of the conceptual framework of the CA, which defines well-being as the "freedom people have to enjoy valuable activities and states" (Alkire, 2016). The CA, pioneered by Amartya Sen (1979), stipulates that neither resources nor happiness are satisfactory spaces on their own to evaluate QoL. In the case of the liberal perspective of QoL and QOUL, not all resources are intrinsically valuable, rather they are instrumental to achieve other goals. From this perspective, quality of life should be conceptualised not as the presence or absence of resources but by what these resources enable people to achieve (Sen, 1985b). The concept of capabilities is relevant in discussing domains of urban quality of life as it enables the expansion of the informational space of evaluation, from the mere existence of urban amenities to aspects such as how distribution of resources are made or to ask "what they do to people's lives" (Nussbaum & Sen, 1993).

The operationalisation of the CA requires that individual quality of life should be assessed by looking at functionings and capabilities, rather than focusing on the provision of resources or the utility achieved. By using the CA to investigate how people achieve a better QOUL, current evaluative frameworks of urban policy, which focus on merely 'counting' the number of inputs and outputs that the city provides, can be improved as the attention will move towards the effective capabilities people are able to achieve in urban contexts. Within this discussion, Blečić et al. (2013) have coined the term "countability approach" to refer to these kinds of evaluative approaches in opposition to the "capability approach", which emphasises the effective abilities people have to promote or achieve value goals.

The operationalisation of how QOUL can be modelled by using functionings and capabilities is clearly one of the main challenges that researchers face in order to apply the framework empirically (Comim, 2008). A recurrent alternative to operationalising the CA is based on the application of a bottom-up perspective where individuals directly identify those aspects that contribute to achieving a good quality of life. In the context of QOUL, a bottom-up perspective would involve a direct consultation with stakeholders on those aspects that are decisive for achieving a good quality of life in urban environments. As such, this chapter calculates a measurement of QOUL by using relevant capabilities and domains (functionings) identified by a bottom-up exercise where people identify dimensions of what makes a valuable urban life (see Chapter 4 of this thesis). The result is a capability index (CI) that empirically explores the use of capability achievements as a space for evaluating QOUL. The analysis uses an individual perspective to facilitate the identification of domains that are sensitive to the urban environment. More specifically, the chapter is based on domains of QOUL identified by young adults (18 to 25 years old) living in the context of residential segregation in Bogota.

Considering these arguments, there appears to be good reasons to apply the concept of QOUL to young adult populations using the conceptual assumptions of the CA. With this idea in mind, the aim of this chapter is twofold. First, the chapter develops a measurement of QOUL based on the normative framework of the CA to capture urban domains that affect quality of life for young adults living in Bogota. Secondly, the chapter presents a methodology to use secondary aggregated data to build a QOUL measurement based on capabilities. The result of these two aims are a

capability index (CI), which uses the domains built from qualitative data in Chapter 4 of this thesis, to assess young adults' urban life. The chapter is organised as follows. Section 5.2 'Materials and Reliability Test' details young adults' QOUL dimensions recovered from aggregated secondary data. Section 5.3 'Methods' describes the methodological framework for the construction of the capability index. Section 5.4 'Results' covers the assessment of QOUL on young adults in Bogota using the CI. Section 5.5 'Discussion' presents major findings and general trends identified in the CI with a view to informing policymakers about how to improve levels of QOUL on young adults in Bogota.

5.2 Materials and Reliability Test

5.2.1 Data

Based on the final list of domains identified by young adults and reported in table 4.10 of this thesis, the analysis uses secondary data to measure proxies for functionings and capabilities. Young adults' capabilities are grouped together in a list of 15 domains of quality of life that were conceptualised through the use of a participatory methodology that facilitated their identification, validation, refinement and ranking. These domains were used to analyse the results of random sample surveys with the intention of providing statistically representative findings for the entire young adult population of Bogota in terms of capability performance.

Population characteristics of young adults were obtained from the J14 Survey which is part of the 2014 District Youth Study. In this study, the survey was conducted in 19 out of 20 urban districts in Bogota, leaving out those districts that did not have an urban characterisation. The J14 survey constitutes the most recent data available with relation to socioeconomic characteristics of the young adult population in Bogota and was designed with a rights-based approach in mind. Table 5.1 presents a summary of the descriptive statistics of the J14.

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¹¹⁴ Please refer to section 4.2 for further details regarding the methodology used to identify relevant capabilities for young adults in Bogota.

¹¹⁵ The urban district of Sumapaz was not included in the sample as it is considered mainly a rural district.

The survey is part of the initiative by the Secretary of Social Integration, the District Institute for the Protection of Children and Youth (IDIPRON), and the Observatory of Cultures in Bogota to assess how young people in the city effectively exercise their rights. The survey was carried out under the administration of the Mayor of Bogota, Gustavo Petro during his 2012-2016 administration. ¹¹⁶ The stratified sample used the same system of socioeconomic classification of strata used to classify buildings in the city. The sampling frame is made up from the cartographic inventory and the list of houses at block level. This framework is associated with a cadastral code (Codigo Homologado para Informacion Predial) that identifies every property in the city.

Table 5-1 Descriptive statistics J14 survey

*** • 11			N	umber (p	ercentage	<u>.</u>)	
Variable	Categories	1	2	3	4	5	6
Stratum	4: (1) Lower-low, (2) Low, (3)	557	2,599	2,723	1,706	152	17
	Lower middle, (4) Middle, (5)	(7.18)	(33.52)	(35.12)	(22.00)	(1.96)	(0.22)
	Middle high, (6) High						
Gender	2: (1) Male, (2) Female	3,937	3,801				
		(50.77)	(49.02)				
Age	3: (1) 18 to <21 years, (2) 21 to	2,533	2,913	2,308			
	<24 years, (3) 24 to 28 years	(32.66)	(37.56)	(29,76)			
Marital	6: (1) Married, (2) Divorced, (3)	447	89	16	5,561	1,075	400
status	Widowed, (4) Single, (5)	(5.76)	(1.15)	(0.21)	(71.72)	(13.86	(5.16)
	domestic partner >2 years, (6)						
	domestic partner <2 years						
Ethnicity	7: (1) Black or African	400	20	2,050	103	3,470	37
	Colombian, (2) Roma, (3)	(5.34)	(0.27)	(27.36)	(1.37)	(46.31)	(0.49)
	White, (4) Indigenous, (5)						
	Mestizo, (6) Raizal.						
Second	2: (1) No, (2) Yes	6,227	1,527				
language		(80.31)	(19.69)				
Place of	2: (1) Bogota, (2) Other	5,558	2,136				
Birth		(71.85)	(27.61)				

Source: J14 Survey

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¹¹⁶ The survey applied a stratified two-stage sample design to 10,939 young people aged from 14 to 28 years, during August to September 2014. The survey covered Bogota's 19 urban districts with a margin of error of +/- 1% points at the 95% level of confidence.

The survey collected data from Bogota's young adult population, making it the only focused survey that targets this population. Data from people between 18 and 28 years (young adult population) was retained from the dataset, deleting 3,185 observations from a total of 10,939 observations. Items from the J14 survey were used to identify the 15 constructs that determine young adults' quality of life. From the total range of dimensions identified in the Focus Group Discussion (FGD) and ranked in the previous section, no relevant items in the questionnaire were identified for the dimensions of 'feel free to choose', 'environment', 'culture' and 'success'. Therefore, these dimensions were not considered in the analysis. Table 5.2 shows observable variables from the J14 survey which match dimensions of quality of life identified by young adults and subsequently used to calculate the CI for this population.

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¹¹⁷ Data for those aged 14 to 17 were not considered in the analysis.

Table 5-2 Observable variables from the J14 survey and identified dimensions of QOUL for young adults

	Identified domains of QOUL for you adults						
	Tolerance	Political Participation	Security	Leisure time	Support	Health	Food security
	Neighbourhood conflict	Political participation	Robbery and assault	Enjoyment of public space	Institutional support	Discrimination due to illness	Food Freedom
			Presence of armed		Family support		Precarious food
>	Conflict among	Political incidence	groups	Sports and artistic		Discrimination due	
vey	young groups of			activities	Neighbourhood	to permanent	Discrimination
4 Sur	young people	Active complaints	Presence of gangs		Support	limitation or disability	for food practices
Ţ	Street fights	Freedom of	State security		Support friends	•	•
E	V 0	expression	•		**	Affiliation social	Meals per day
from	Cooperation	•	Police action		Government	security in health	
Items	•	Equality of			support	·	
te	Discrimination	participation	Security in the			Perception of	
	by way of		neighbourhood		support from illegal	service in social	
	talking	Leadership at work			groups	security in health	
	-	or at the study site	Safety in the city		_		
		Entrepreneur	•		Anguish		

(Continued)

Identified domains of QOUL for you adults								
Work	Shelter/ Housing	Family and Friendship	Education	Public space and mobility	Inclusion			
Job selection	Equality to have a home	Independence to choose office	Level of studies attained	Use of public space	Discrimination by: race, gender, sexual			
Second language	Charles of the form of	In day on day on 40	(Secondary)	Auditory quality	orientation,			
Employment	State of the facade of the house	Independence to choose sexuality	Level of studies attained (Tertiary)	status State of air that is	physical or aesthetic			
	State of green areas	Neighbourhood	Educational quality	breathed	appearance, urban tribe in young people (customs or			
	State of sidewalks		Евисинони чинну	State of hygiene	cultural practices),			
2	and footpaths		Level of studies you	state of thysicine	cuitii di pi dettees),			
			want and believe you will achieve	State of the streets	spatial discrimination, by			
			(technical)	State of the cycle paths	income, internal displacement			
			Level of studies you want and believe you will achieve (university)	<i>p.</i> ww.	condition, pregnancy condition and NEETs			
			Level of studies you want and believe you will achieve (postgraduate)					

5.2.2 Psychometric Testing for the J14 Survey

A reliability test was conducted to measure the consistency between the observable variables and the constructs the survey attempted to assess. A test of internal consistency was performed using Cronbach's alpha (α) (L. A. Clark & Watson, 1995) to evaluate consistency among items.

The first level of analysis consisted of testing for reliability α for the entire instrument. The J14 survey measures a set of nine rights of the young population in Bogota (Education, Work, Health, Life, Freedom, Equality, Culture, Participation, and Habitat). Internal consistency of the whole survey was found to be highly reliable (303 items; $\alpha = .93$), which suggests that the scale is unidimensional. At the second level, dimensions of quality of life for young adults identified previously in FGD's and which matched *items* of the J14 survey (table 5.1), were used to assess their reliability. For this level, the reported α was found to be also highly reliable (56 items, $\alpha = 0.78$). At the third level, a new reliability test was conducted after applying a mode imputation to missing data at a threshold of 30%. For this level, internal consistency obtained a moderate alpha (63 items, $\alpha = .68$), which suggests that *items* selected from the J14 survey are suitable for measuring young adult's capabilities based on dimensions found during the FGD.

5.3 Methods

5.3.1 Exploratory and Confirmatory Factor Analysis

Once the reliability test had confirmed the internal consistency of the J14 survey, observable variables were used to develop a capability index for young adults in Bogota. The index is deliberately *incomplete* (Sen, 1992b) as it is operationally context specific to the situation that young adults live in in Bogota. Functionings that are valuable for young adults are based on interpersonal comparisons of quality of life where "ambiguity and fuzziness" (p. 49) are present. So, even though the use of secondary data to match young adult's capabilities can lead to incompleteness, as there are items (questions) which were not designed with this goal in mind, observable variables can be still operated in such a way that it will be possible to identify valuable

capabilities and observe general well-being trends (Erica Chiappero Martinetti & Roche, 2009).

The methods applied in this section are based on the idea of operationalising the CA in order to understand young adults' quality of life in Bogota. The techniques employed here have been used previously by researchers in the field of the CA (Lelli, 2001; Balestrino & Sciclone, 2001; Schokkaert & Van Ootegem, 1990; Rosas, 2011). Nevertheless, the specificity of this exercise has required adaptations of the methodology. This has meant that the way methods and techniques have been used have taken some distance from similar empirical exercises.

For the construction of the CI, a multivariate data reduction technique was put in place to aggregate data following identified dimensions of quality of life in young adults. Observable variables from the J14 questionnaire were used to reduce data to a small number of indices or factors. By carrying out an Exploratory Factor Analysis (EFA), components that account for the maximal amount of explained variance, and that can extract domains of quality of life for young adults using the specification given by the FGD, were identified. The EFA was implemented using factor extraction through Principal Component Analysis (PCA). As an exploratory exercise, the aim was to explore if predefined domains of quality of life could be extracted coherently from the J14 survey, investigating similarities between the explored underlying factor structure (latent constructs) of the survey and the domains identified previously by young adults. At this point, correlations between variables will describe relationships, and no causation between variables and constructs is claimed. 118

After conducting an exploratory analysis, a confirmatory exercise was conducted based on Structural Equation Modelling (SEM) to examine how well structural coefficients conformed to the theoretical model proposed by the results of the PCA (Jöreskog & Sörbom, 1978; Krishnakumar & Chávez-Juárez, 2016; Krishnakumar & Nagar, 2008). Confirmatory Factor Analysis (CFA) was conducted to measure relationships between constructs and latent variables, and path analysis to show relations between variables. The rationale for running a SEM was to determine and

dimensions of the data.

¹¹⁸ Based on the high α from the reliability test of the J14 Survey, the administration of PCA is recommended. The justification for using this data reduction technique was based on the idea that PCA extracts components that are not correlated with each other, which means that they measure unrelated

validate the urban quality of life constructs identified during the exploratory test – testing the overall theoretical model. The proposal here was to test the model and to assess its significance, in order to extract an index of QOUL for young adults in Bogota from the available data. SEM is a covariance analysis that tests statistical relationships between latent variables (Yeh et al., 2010). Unlike PCA, SEM shows the interrelation and covariation between latent variables (the structural model) in addition to the measurement model, which identifies relationships between observed variables and latent constructs (figure 5.1). SEM is often visualised by path diagrams showing relationships of dependency between latent constructs and observed variables. Paths are direct relationships between variables and can be interpreted as regression coefficients (straight arrows). Covariances are correlations between latent variables and are represented by curved arrows. The measurement model in SEM is a confirmatory exercise while the structural model is the combination of measurement and path dependency relationships (Mcdonald & Ho, 2002). The structural model identifies endogenous (dependent) and exogenous (independent) variables. Independent variables exert an influence on other constructs, while dependent variables are those constructs that are influenced by exogenous and endogenous variables (Schreiber, Nora, Stage, Barlow, & King, 2006).

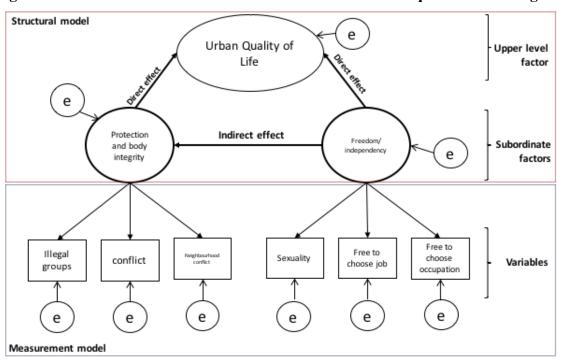


Figure 5-1 Structural and measurement model in structural equation modelling

Source: Developed by the author based on Schreiber et al. (2006).

In the example of figure 5.1, the constructs 'Protection and bodily integrity' and 'freedom/independence' are exogenous variables as they have a direct effect on the latent variable of Urban Quality of Life (dependent variable). Equally, 'Freedom/independence' has a direct effect on 'Protection and bodily integrity' and an indirect effect on the construct 'Urban Quality of Life' mediated by 'Protection and bodily integrity'¹¹⁹. By carrying out the SEM, the total effect of 'freedom/independence on the latent variable of 'Urban Quality of Life' will be the summation of its direct and indirect effects. In addition to SEM, a regression model was run to predict the CI based on sociodemographic variables. Care was taken not to include any of the variables of the aggregated measure as predictors of the regression model.¹²⁰

5.3.2 Regression Analysis

It could be the case that differences between levels of capabilities in terms of gender, age and strata can be technical artefacts of correlation between other variables that constitute well-being among young adults, and that were not captured by the CI. A Mann-Whitney U one-way analysis¹²¹ of variance to test differences in medians between the CI and sociodemographic variables was conducted. The test confirmed that differences in scores between genders, strata, age groups and ethnicities are all statistically significant, meaning that the CI is sensitive to inequalities.

Table 5.3 shows a general overview of differences for each component of the index in relation to gender, age, race and strata. In the analysis, young adults' genders explain differences in terms of security, independence, education and health. For the case of age group, there are significant differences between young adults and older young adults in areas associated with discrimination and leadership. Inequalities associated with strata are significant in almost all components of the index. This shows

¹²⁰ For all the techniques applied, measures of goodness of fit were calculated. All analyses were conducted in Stata 13.1 with the exception of the one-way ANOVA on ranks which was computed by SPSS.

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¹¹⁹ Note that a variable can be dependent (endogenous) or dependent (exogenous) at the same time according to the directionality of the relationships.

¹²¹ A Kruskall-Wallis test was conducted for independent variables with more than two groups.

that those living in lower strata report greater limitations in achieving dimensions of quality of life in Bogota.

Table 5-3 Differences in terms of gender, age, race and strata for the capability index

	Gendera	Age ^b	Ethnicity ^b	Strata ^b
Protection and bodily integrity	-2.870**	6.082*	24.839**	1334.050**
Habitat and built environment	-1.033*	91.207**	53.234**	452.183**
Freedom and independence	-3.568**	150.665**	26.613**	156.288**
Occupation	-2.650**	7.242*	4.503	77.341**
Food security	-3.144**	347.841**	19.037**	60.908**
Equality and no- discrimination	-1.448	103.139**	10.285	3.073
Right to education	-4.946**	47.085**	13.338*	180.228**
Leadership and participation	1.330	221.197**	12.954*	24.869**
Love, support and affection	1.493	5.211	10.829	20.543**
Health and life	-3.057**	20.274**	7.496	62.796**
Capability Index	-4.378**	5.498	14.223*	407.019**

^{**}Significant at 1% level; *Significant at 5% level

In order to determine whether significant differences shown in table 5.5 are independent, a multiple linear regression was calculated to predict the index of QOUL based on additional variables which are sensitive to inequality for young adults. A reduced form of socioeconomic variables is such that:

$$CI_{i} = C_{0} + \beta_{1} \alpha_{i} + \beta_{2} \delta_{i} + \beta_{3} \theta_{i} + \beta_{4} \vartheta_{i} + \beta_{5} \mu_{i} + \beta_{6} \eta_{i} + \beta_{7} \zeta_{i} + \varepsilon$$

$$i = 1, ..., I.$$
(5.1)

where, CI is the reported quality of life of individual i, α is the gender of the individual, δ is the group age, θ is the socioeconomic strata, θ is the ethnicity group, μ is the marital status, η is a dummy variable of having dominance in more than one language, ζ is the place of birth and ε is the error term of individual i.

^a Mann-Whitney U Test

^b Kruskal Wallis Test

5.4 Results

5.4.1 Principal Component Analysis

The first hypothesis for testing was that a relationship between observed variables (items and indicators of the J14 survey) and the QOUL domains identified for young adults in Bogota (underlying latent constructs) exists. To do this, Principal Component Analysis (PCA) was used to explore the possible underlying factor structure using only the items from the questionnaire that related to young adults' quality of life domains.

The data were screened for missing values by using simple mode imputation. The same protocol for missing values applied to the internal consistency coefficient was used in this section. The minimal amount of observation required for PCA was satisfied. As the questionnaire reports qualitative and quantitative data (mixed measurement level data), a nonlinear PCA (Categorical PCA or CatPCA) was conducted. An optimal quantification exercise (optimal scaling) quantified the qualitative data by assigning numeric variables to categorical observations (discrete categories) (Linting, Meulman, Groenen, & van der Koojj, 2007). CatPCA used Multiple Correspondence Analysis in 6,998 observations. All data were non-negative and dichotomous to ensure that the cross-tabulation of variables produced scales in the same direction.

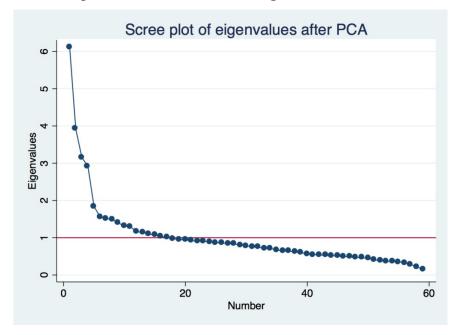
The factorability of 14 dimensions of quality of life for young adults was examined by calculating a matrix correlation and an anti-image correlation. Different criteria for the factorability were used. Firstly, the suitability of the quality of life domain data for CatPCA was tested. The measurement of sampling adequacy of Kaiser-Meyer-Olkin (KMO) was adequate, with a result of 0.84. Secondly, a test of variable redundancy was performed to see how the observed correlation matrix diverged from the theoretical matrix. Bartlett's test of sphericity was significant ($\chi^2(1711) = 1.14e+0.5$, p < .001), meaning that correlations between items were sufficiently large for CatPCA (Table 5.4).

Table 5-4 Test of appropriateness for CatPCA

Bartlett test of sphericity	Chi-square = 1.14e+05
	Degrees of freedom = 1711
	p-value = 0.000***
	H0: variables are not correlated
Kaiser-Meyer-Olkin Measure of Sampling	KMO = 0.844
Adequacy	

The initial 16 eigen values indicated that the first five components explained 30% of the variance. Components from 5th to 16th had eigen values over one, and all together explained 26.96% of the variance (See figure 5.2).

Figure 5-2 Scree plot of non-linear PCA using K1



Source: K1 Method retrieve using Stata 13.

Factor retention was drawn on the results of the eigenvalue-greater-than-1 rule method (K1) (Kaiser, 1960). K1 was contrasted with results from Parallel Analysis (PA) (Velicer, 1976) and Minimum Average Partial (MAP) (Horn, 1965), as suggested by an anonymous reviewer. Results from PA suggested extracting 14 principal components which were comparable with the results of K1. In contrast, MAP method suggested to retain 4 principal components. Based on the multidimensionality that is expected to be captured by a measure of quality of life, the decision for retention was based on the results of PA rather than MAP. PA seems preferable to MAP as this latter method has a

tendency to severely underestimate the number of factors (underfactoring) (Zwick & Velicer, 1986).

All components were examined using oblimin (promax) and orthogonal (varimax) rotation of the loading matrix after performing CatPCA. The rotation of the matrix is recommendable as variables tend to load in both axes, making difficult its interpretation. Both rotation strategies rendered similar results (results were even similar to the unrotated solution), however a varimax rotation was selected as this rotation maximizes the factor loadings, assuming no correlation between the components and showing loads in only one possible component (Linting et al., 2007).

During the rotation of the loading matrix, two components did not contribute to the factor structure as they did not have more than three variable loadings which is the recommend level for retention (Spector, 1992). Items where retained on a component if loadings were .30 or greater (Tabachnick & Fidell, 2006). Factor structure showed clean intercorrelations among variables and no major cases of cross-loading level between components was produced, satisfying criteria for convergent and discriminant validity. Additionally, face validity was confirmed with experts and young adults (during the previous FGDs) to evaluate whether the factors retained appeared to measure a global measure of quality of life (Haywood, Garratt, & Fitzpatrick, 2006). As the objective of the exercise was to create a composite index that addresses different aspects of a measured trait, all items that contributed to a specific factor were considered in the analysis. Table 5.5 shows the factor loading for each 14 components retained.

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¹²² From the total of items, cross-loadings were identified in two items. They were dropped as there were other strong loaders on each component (Costello & Osborne, 2005).

Table 5-5 Pattern Matrix Principal Component Analysis

Items	Comp1	Comp2	Comp3	Comp4	Comp5	Com6	Com7	Comp8	Comp9	Comp10	Comp11	Comp12	Comp13	Comp14	Unexplaine
p12_depen				0.346											0.647
d~_ p29_actual				0.548											0.258
~_ p17_asiste				0.549											0.213
~c p15_nivel_					0.418										0.402
~_ p26_1_niv					0.591										0.184
e~_ p26_2_niv					0.582										0.213
e~_ p31_recibi															0.748
p46_servic														-0.575	0.443
p43_afilia~														0.732	0.334
1 p48a_calif															0.586
p65_dificu															0.629
~_ Jovenes_ho															0.665
~r															
p15a_anos _~s p52a_robos															0.625
															0.539
p52b_pand i~_ p52c_grup	0.333														0.453
p52c_grup o~_ p52d_fuerz	0.359														0.452
p52d_fuerz ~_	0.346														0.499
p52h_confl	0.363														0.417
p52j_confl ~	0.389														0.400
p52j_const	0.382														0.436
p52j_rinas	0.363														0.386
~_ p54_vida_ p~_													0.327		0.660

p55_proteg					-0.685	0.367
~a p67_apoyo				0.529)	0.583
p68_espa~i			0.480			0.541
o_ p68_espac			0.533			0.384
~a_ p68_espa~			0.659			0.360
go_ p72_1_con			0.037			
p/2_l_con ~a						0.652
p72_1_con	0.318					0.540
~a_ p72_1_con ~b_ p72_1_con	0.366					0.432
~c_ p72_1_con	0.374					0.424
~d_ p72_1_con	0.369					0.445
~e_ p72_1_con ~f_ p72_1_con	0.352					0.454
~f						
p/2_1_con ~g	0.397					0.362
~g_ p72_1_con ~h	0.357					0.480
~h_ p19_1_co mi~a		0.591				0.359
mi~a p19_1_co mi~c		0.615				0.312
mi~c p19 1 co		0.511				0.489
p19_1_co mi~e						
p20_1_rec u~b						0.709
p27_1_pra c~s				0.534		0.557
p39_algun				0.409		0.589
p39_algun _~o p64_discri				0.338		0.647
~0						
p69_parte_ ~n				0.523		0.612
p53_opone						0.717
_~s p55_proteg ~b						0.351
~b p55 proteg			0.629			0.423
p55_proteg ~f			****			

p55_proteg		0.558	0.635	0.373
∼g p57_peli∼d io		0.622		0.380
io p57 pelig~		0.464		0.334
p57_pelig~ jo p57_peli~ri				0.450
o p58_libres	0.346			0.515
~a				
p58_libres ~n	0.421			0.367
p58_libre~j o	0.412			0.370
p58_libres ~d	0.439			0.315
p58_libre~ po	0.421			0.367
p58_libres ~s	0.395			0.437
p63_joven			0.6936	0.326
_~c p63_joven			0.687	0.330
~n				

Note: Extraction method: Principal component analysis. Rotation method. Varimax

On the process of retention, several criteria were put in place in selecting items for the CI, and final decision where based on the items response distribution, factor loadings, wording and meaning of each of the items within the J14 survey A total of 14 components were retained and renamed in the final analysis structural equation modelling (Table 5.6).

Table 5-6 Reduction of domains from FGD to component extraction

Domains of Urban QoL FGD	Components after CapPCA
1. Tolerance	Compl_Protection and bodily integrity (PBI)
2. Political participation	Comp2_Habitat and built environment (HBE)
3. Security	Comp3_Freedom and independence (FI)
4. Leisure time	Comp4_Occupation (OCC)
5. Support	Comp5_Right to education (RED)
6. Public space and mobility	Comp6_Food security (FEE)
7. Health	Comp7_Protection and bodily integrity (PBI)
8. Food security	Comp8_Leadership and participation (LDP)
9. Feel free to choose	Comp9_Love, support and affection (LSA)
10. Work	Comp10_Leadership and participation (LDP)
11. Ability to dream	Comp11_Equality and no discrimination (END)
12. Shelter/housing	Comp12_Health and life (HEL)
13. Family and Friendship	Comp13_Love, support and affection (LSA)
14. Education	Comp14_ Health and life (HEL)
15. Ability to consume	
16. Environment	
17. Culture	
18. Success	
19. Creativity and production of ideas	
20. Inclusion	

Source: FGDs

Results from the exploratory analysis with CatPCA were used to apply a confirmatory exercise using Structural Equation Modelling (SEM). As there were significant correlation between items, a CFA was suitable to carried out. Data preparation to run SEM was done by using the same criteria as for CatPCA. Data were calculated for young adults between 18 to 25 years old and missing data were handled through mode imputation. Correlations between observed variables where tested previously during the CatPCA through measures of sampling adequacy, such as the Kaiser-Meyer-Olkin test (KMO) and Bartlett's test of sphericity. As a model specification, a single-factor measurement model and a multiple factor measurement model were put in place to understand all the underlying structure of items and latent variables (Appendix 3).

For the measurement model, data points were calculated between observed variables and subordinate factors. CFA was conducted for each construct identified by the exploratory exercise. For each model component (endogenous variable), a goodness-of-fit test was used to identify the plausibility of the model and to see if some components could be omitted in the final model. Results of goodness-of-fit-test on component 4, 9 and from 11 to 14 showed discrepancies between the observed and expected value. These components were omitted to create a more parsimonious model.

For the structural model, subordinate factors were examined towards a latent variable or upper level factor. A total of 703 parameters (37 observed variables and 666 covariances) were analysed. The method of estimation was significant in both the test of targeted model against saturated model ($\chi^2(602) = 7437,05$, p < .001) and the test of baseline model against saturated model ($\chi^2(666) = 76733,1$, p < .001), meaning the null hypothesis can be rejected and the alternative hypothesis accepted, indicating that there is a significant difference between observed variables and the theoretical model.

Three additional tests of goodness-of-fit were carried out to measure how well the specification model fit the data. The Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI) and the Root Mean Squared Error of Approximation (RMSEA) were used. The CFI compares the model to the fit of the baseline mode while TLI assigns penalties for each parameter added to the model (Bentler, 1990). RMSEA assesses how well the given model approximates to the true model. As a general recommendation values for CFI and TLI >0.9 and values for RMSEA <0.5 indicate a good fit. The results of SEM for the young adults' model showed a good fit to a single-factor model (CFI = 0.91, TLI = 0.901, RMSEA = 0.04 [90% CI = 0.03, 0.04]). The theoretical model obtained a close fit as lower bound, at 90% confidence interval, was below 0.05 and a good fit as the upper bound was not above 0.10 (Browne & Cudeck, 1992) (Table 5.5).

Table 5-5 Summary of fit indicators for the capability index

Fit statistic	Values	Description
Likelihood ratio		
chi2_ms(602)	7437.058	model vs. saturated
p > chi2	0.000***	

¹²³ By assuming that the sample follows a multivariate normal distribution, Maximum Likelihood (ML) estimation was considered for the regression.

175

chi2_bs(666)	76733.184	baseline vs. saturated
p > chi2	0.000***	
Population error		
RMSEA	0.040	Root mean squared error of approximation
90% CI, lower bound	0.039	
upper bound	0.041	
Pclose		Probability RMSEA <= 0.05
Baseline comparison		
CFI	0.910	Comparative fit index
TLI	0.901	Tucker-Lewis index
Size of residuals		
SRMR	0.033	Standardized root mean squared residual
CD	1.000	Coefficient of determination

^{***} p<0.01, ** p<0.05, * p<0.1

Results from exploratory and confirmatory exercises were used to construct a capability index for young adults in Bogota. A normalisation process was put in place to scale a unique dimensionality on the composite indicator. Constructs were standardised (z-scores) to have a mean of zero and a standard deviation of one, so all items will have a similar dispersion across respondents (Nardo, Saisana, Saltelli, & Tarantola, 2005). To estimate a final capability index for young adults, outcomes for each component were calculated by identifying maximum and minimum values.

$$Index = \frac{(real\ value) - (Maximum\ value)}{(Maximum\ value) - (Minimun\ value)}.$$

All results were weighted by the respective survey expansion factors and final scores were calculated by averaging procedures, allowing substitutability between dimensions (Kuklys, 2005).

5.4.2 Descriptive Results of the Capability Index

On a scale of 0 to 100, the CI for young adults in Bogota is 57%, showing a tight difference between men (58%) and women (56%). A Mann-Whitney test indicated that the score of the CI was greater for men (Mdn=3937) than for women (Mdn=3801), where the distributions of scores of the CI in both groups differed significantly (Mann-

Whitney U = 7.1674615e6, P<0.05, two tailed). This test has been used as observations from the data are rankings and not direct measurements.

With respect to the scores for each component, the component of "Right to education" is the one that contributes most in the construction of the index (Figure 5.3). This is consistent with the results of the Borda count, which also reports these variables as the most relevant for young adults (Chapter 4). Equally important is the Occupation component, which registers a relevant level of significance in the Borda Count and is the dimension that contributes least to the total result of the index. Findings are clearer if socioeconomic stratification is considered. Strata differentiation by residential location shows clear differences in terms of capabilities between young adults living in stratum one and two (54%) and young adults living in places where the strata is higher (65%, 66%) (Figure 5.4).

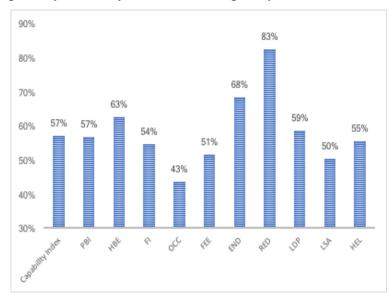
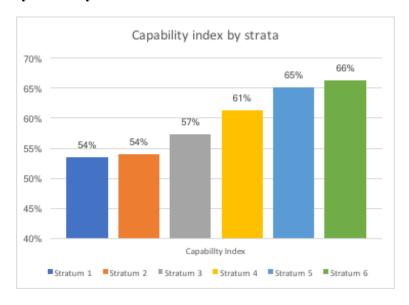


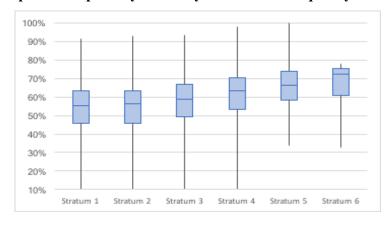
Figure 5-3 Capability Index by dimensions of quality of life

Figure 5-4 Capability Index by each socio-economic strata



A box plot of the distribution of scores among strata suggests that young adults from stratum one to four have obtained different results on the index, showing a large dispersion among the data (Figure 5.5). For the case of strata five and six, it is interesting to observe that their scores are much less dispersed than within other strata. Similarly, scores from strata six do not report values as high as the other strata, suggesting that young adults living in locations with higher socioeconomic strata tend to internalise adaptive preferences to a lesser extent. Having said this, these results need to be interpreted with care as further research is required to confirm the findings.

Figure 5-5 Box plot of Capability Index by dimensions of quality of life.



With regards to domains of quality of life, most of the components follow the rationale that the higher the strata, the higher the result on the CI. This is true for 'Protection and bodily integrity', 'Freedom and independence', 'Food security', Equality and non-discrimination', 'Right to education' and 'Health and life'. However,

as a multidimensional index, the CI also shows trade offs in certain domains for those who are normally described as better off. This is the case for domains such as 'Habitat and built environment', 'Leadership and participation'. For these domains, there is a detriment in term of capabilities for young adults who inhabit "better" areas in the city (Figure 5.6).

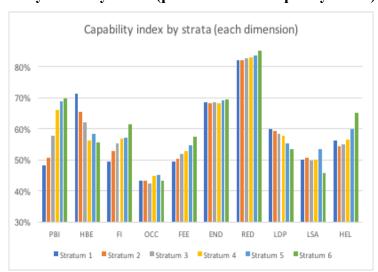


Figure 5-6 Capability Index by strata (per dimension of quality of life)

When comparing variables of gender and age, the CI shows additional differences. For younger adults, the CI is higher for women than for men. This pattern is similar for the case of older young adults (25 to 28 years old), where women also perform better than men. The pattern is reversed for young adults between 21 and 24 years old as men score higher than women on the index (Figure 5.7). The difference of the CI scores between young adults aged 18 to 20 and between 21-24 was significant accordingly to the Mann-Whitney test (U=3.575248e6, p<0.01).

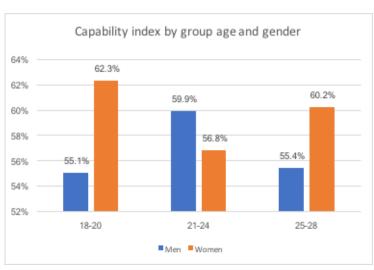


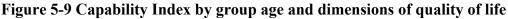
Figure 5-7 Capability Index by gender and age

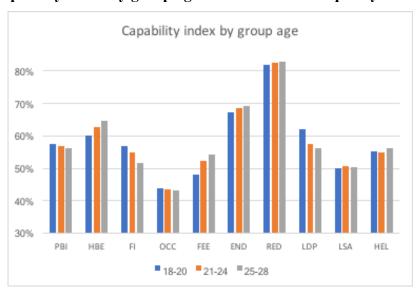
In terms of components of quality of life, the scores obtained follow the tendency of the overall index, in which gender differences are not marked (Figure 5.8). With respect to age groups, younger adults faced more difficulties in the following domains: accessing features of the built environment, food security and inequality and discrimination. Aspects regarding 'Freedom and Independence' and 'Leadership and Participation', tend to diminish as the young adult advances into adulthood (Figure 5.9). A Kruskal-Wallis test confirmed that there are statistically significant differences between all three age groups of young adults with regards to their scores on the CI (χ^2 (6.568), p=0.037).

Capabilities index by gender

80%
70%
60%
50%
40%
PBI HBE FI OCC FEE END RED LDP LSA HEL

Figure 5-8 Capability Index by gender and dimensions of quality of life.





More interestingly, the CI shows different patterns if a place-based perspective is introduced into the analysis. The consideration of location shows that from a gender

perspective, men obtain better scores in capability achievements than women (figure 5.10). Regardless of the socioeconomic stratum, women experience a lower level of capabilities than men. Unlike the results displayed in figure 5.6 above, the consideration of strata directly affects the level of young adults' capabilities. In particular, if the stratum is considered, the CI will show a different level of achievement among women and men. The application of a Kruskal Wallis test shows that there was a statistically significant difference between the scores obtained by young adults living in each stratum ($\chi^2(126.377)$, p<0.01).

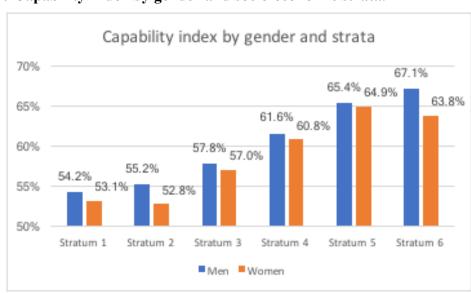


Figure 5-10 Capability Index by gender and socio-economic strata.

Indeed, if we consider strata as a proxy for the qualities of place, the location of residents plays a fundamental role in explaining how capabilities are exercised. (Chapter 6 will investigate this aspect further). For the case of strata one and two, capabilities are much more modest than for the other strata (figure 5.11). An additional Kruskal-Wallis test was conducted to identify statistically significant differences between strata groups and scores on the CI (χ^2 (103.417), p<=0.01). Although there are significant differences between results of the CI and all strata, further research is required to compare demographic differences between young adults.

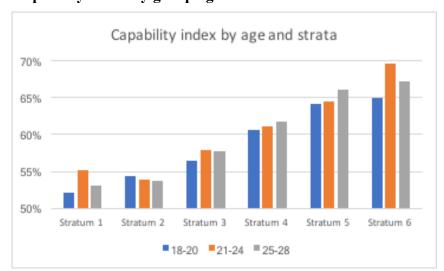


Figure 5-11 Capability Index by group age and socio-economic strata.

5.4.3 Regression Analysis

The J14 survey does not include any variable of income performance that can be regressed in the model, so differences between capabilities and income were not computed. As there was no compelling reason to exclude outliers and scores with high leverage (heteroscedasticity) from the analysis, robust standard error regression was used to deal with them.¹²⁴

A significant regression equation was found (F (9, 18) =130.06, p<0.001, with a R² 0.0655). The p-value associated to the F-statistic was significant, therefore independent variables jointly predict the CI. A multivariate regression was also undertaken for each component of the index. The regression results are presented in Table 5.6. The pairwise relationship from Table 5.5 and the multivariate regression holds for the case of gender and strata to predict the index of QOUL. Additional variables of sensitivity to inequality, such as 'Dominance of a second language' and 'Place of Birth' are also significant in the regression (at 5% and 1% level, respectively). Conversely, the relationship between 'Group Age', 'Marital status' and 'Ethnicity' and the CI is ambiguous. The multivariate regression also calculates coefficients for age groups (18-20, 21-24 and 25-28 years old) and for lower, medium and high strata.

but affect observations uniformly within each group. Equally, the regression model was also run using fixed effect models in order to control for variables that cannot be observed (Allison, 2009).

¹²⁴ The regression model incorporates effects of clustered data for the case of each urban locality of Bogota (Sumapaz locality was excluded), as some capabilities do not affect observable data individually but affect observations uniformly within each group. Equally, the regression model was also run using

With regards to specific components of the index, male young adults have a better level of education and health than women. There is a significant relationship between the degree of access to urban services and being a man. The older the young adults are, the better the achievement of capabilities, particularly in terms of 'Food security' and 'Health'. However, older young adults have a reduction in their capability levels of 'Freedom and independence' as well as in 'Leadership and Participation' in comparison with younger peers. To move to adulthood means assuming more responsibilities and commitments which tend to negatively affect the capacity 'to make own decisions' and reduce the ability 'to influence political agendas' and 'to produce participatory spaces'. Another important finding lies with the improvement of the capability to 'Equality and non-discrimination' once young adults become older. This finding is in line with the argument that the entrance to adulthood is marked by processes of inequality and discrimination for the youngest of the young adults (Webster et al., 2004).

There is also a significant relationship between the capability of 'right to education' as young adults become older. There is no evidence that inhabiting a better stratum increases the level of capabilities in terms of education. Although it is interesting that the relationship between better capabilities in education and occupation are not significant. In theory, it would be expected that better educational capabilities would result in better job options for young adults. In this regard, it could be hypothesised that having better educational capabilities is not enough to secure their labour security, as today it is more difficult to find a job or have financial independence than before.

Regression results showed a positive and significant relationship between better socioeconomic strata and capability index scores as young adults belonging to higher strata double the score of the index in comparison with their peers in lower strata. Stratification positively affects capabilities associated with 'being able to feel safe' and 'enjoying public space'. Young adults living in areas with better strata have marginally higher capabilities in terms of 'Health and Life' than those living in more impoverished neighbourhoods. Strata also plays a significant role in young adults' capabilities to be able to feel free and independent in the city, which also means that young adults living in deprived areas are forced to experience a more restricted life in the city. This result is consistent with the perception disadvantaged young adults have of law enforcement

agencies such as the police who are perceived as prejudiced and discriminatory institutions (World Values Survey, 2012). Conversely, there is a negative association between better strata and the ability to interact with urban services (Habitat and Built Environment). Equally important is the finding that strata are not significant in aspects related to discrimination and inequality in the city. This result is consistent with previous research (Bogliacino et al., 2015), whose findings point out that urban stratification is more dominant in the production of stigmas rather than causes of inequality.

There is a marginally positive association between being single and the level of 'Employability' and 'Freedom and Independence'. For the case of female young adults, this result accounts for the burden that early and unplanned pregnancy can have on future employability. The 'Ethnicity' variable was controlled for in the case of young adults who described themselves as mestizos. Although being single is not significant in relation to the CI, marital status determines achievements in 'Food security' and reduces the level of 'Discrimination and Inequality' for young adults. This result can be interpreted as a sort of 'singlism' or the stigmatization of adults for being single (B. M. DePaulo & Morris, 2005; B. DePaulo, 2006) that can bring negative stereotypes and discrimination towards young adults, for instance when looking for job opportunities or housing (Morris, Sinclair, & DePaulo, 2007). In the case of ethnicity, regression results are not significant in most of the components of the index, except for the ability to participate in and lead social processes. The dominance of a second language is a good predictor for most of the components of quality of life for young adults. Being a young adult with dominion of a second language significantly predicts all components of the CI except for the capability of 'Love, support and affection', "Equality and Discrimination" and 'Protection and bodily integrity'. Bilingualism tends to be correlated with better levels of education, normally private schooling, and educational attainment, suggesting an association between bilingualism and household income. This result contradicts Anglo-American studies (Carliner, 1981; Grenier, 1997; Henley & Jones, 2005; Shapiro & Stelcner, 1997) where bilingualism tends to be associated with income disadvantages¹²⁵. In the Bogota context, the acquisition of a second language

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¹²⁵ Here it is important to consider the context of multilingual societies where migration flows have an effect on the labour market. In these contexts, bilingualism may have a relationship with earning disadvantages (Henley & Jones, 2005).

(English) is perceived as a mechanism to improve employment prospects¹²⁶, access better education and raise social status (British Council, 2015).

For the components 'Love, Support and Affection' there is no significant relationship with socioeconomic factors, apart from the case of young adults living in better strata. Qualitative data gathered from FGDs suggest that young adults feel anxious about their future and despite major advances in social, economic and technology domains, they perceive that their life is tougher compared to that of previous generations.

The ability to speak a second language is a determinant for being able to 'Feel free' and having better labour opportunities. Finally, place of birth is also a good predictor of domains of quality of life for young adults. The regression model shows that being born in Bogota has a significant positive relationship with the degree of 'Freedom and independence', 'Employability' and 'Right to education' achieved. Conversely, young adults who were born in Bogota tend to have lower capabilities in domains related to 'Habitat and built environment' and 'Equality and non-discrimination'.

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¹²⁶ According to a survey carried out by the British Council (2015) on the state of bilingualism in Colombia, 59% of respondents and 54% of employers consider that English skills improve employability.

Table 5-6 Fixed effect regression model for each component of the capability index (differences by predictors)

Variables	Capability Index	Prote/bodily integrity	Habitat/built environment	Freedom/ independenc e	Occupation	Food Security	Equality Non- discriminati	Right to education	Leadership Participation	Love_supp_ affection	Health/ Life
Gender	0.014***	0.006	0.012***	-0.000	0.00326*	-0.006**	-0.002	0.008**	-0.004	-0.005*	0.008***
	(0.004)	(0.005)	(0.004)	(0.004)	(0.002)	(0.003	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)
Age (20-24)	0.007**	-0.006*	0.020***	-0.013***	0.000	0.039***	0.012***	0.007***	-0.042***	0.006	-0.002
	(0.003)	(0.003)	(0.005)	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)	(0.004)	(0.004)	(0.003)
Age (25-28)	0.007	-0.007**	0.031***	-0.038***	-0.004	0.055***	0.0172***	0.001***	-0.055***	0.003	0.010***
	(0.004)	(0.003)	(0.006)	(0.005)	(0.004)	(0.003)	(0.002)	(0.002)	(0.005)	(0.005)	(0.003)
Strata (Medium)	0.042***	0.088***	-0.039***	0.011	0.005	0.019***	0.004	0.003*	-0.001	-0.009*	0.008*
	(0.005)	(0.0127)	(0.011)	(0.008)	(0.007)	(0.005)	(0.002)	(0.002)	(0.005)	(0.004)	(0.004)
Strata (High)	0.086***	0.136***	-0.039***	0.020***	0.008	0.036*	0.000	0.009	-0.016	0.023***	0.046***
	(0.005)	(0.009)	(0.007)	(0.006)	(0.007)	(0.019)	(0.004)	(0.006)	(0.030)	(0.007)	(0.004)
Marital status	0.006	0.021***	-0.051***	0.048***	0.0136***	-0.019***	-0.011***	-0.003	0.012**	0.005	-0.004
	(0.005)	(0.005)	(0.005)	(0.005)	(0.003)	(0.004)	(0.001)	(0.002)	(0.005)	(0.003)	(0.004)
Ethnicity	0.007**	0.005	0.001	0.010**	0.001	-0.000	-0.001	0.001	0.011***	-0.007*	0.005
	(0.003)	(0.004)	(0.005)	(0.004)	(0.004)	(0.003)	(0.002)	(0.001)	(0.003)	(0.004)	(0.003)
Language	0.0135**	0.031***	-0.097***	0.056***	0.0146***	0.011***	0.002	0.013***	-0.021***	-0.005	0.015***
	(0.005)	(0.008)	(0.007)	(0.006)	(0.004)	(0.003)	(0.003)	(0.002)	(0.005)	(0.004)	(0.004)
Place of birth	-0.011***	-0.013**	-0.047***	0.027***	0.0193***	-0.006*	-0.006***	0.006***	0.005*	-0.009**	0.001
	(0.004)	(0.005)	(0.006)	(0.004)	(0.004)	(0.004)	(0.002)	(0.002)	(0.003)	(0.004)	(0.003)
Constant	0.529***	0.502***	0.715***	0.484***	0.403***	0.492***	0.686***	0.808***	0.607***	0.514***	0.540***
Observations	(0.006) 7,680	(0.009) 7,680	(0.008) 7,680	(0.007) 7,680	(0.006) 7,680	(0.004) 7,680	(0.002) 7,680	(0.002) 7,680	(0.007) 7,680	(0.004) 7,680	(0.006) 7,680

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

5.5 Discussion

This chapter reports a measurement of QOUL based on secondary data. The instrument is an aggregated measurement of ten constructs of quality of life for young adults in Bogota. The result is a composite capability index which attempts to broaden methodological approaches that are currently used to design and test measurements of urban QoL. It is important to stress that this capability index does not constitute a psychometric test as it is not based on primary data. In contrast, the index is a methodological construction which uses previously identified young adults' domains of quality of life to extract observable values from secondary data, that allow the construction of domains of QOUL for this population.

This capability index provides two elements to the burgeoning literature in QoL studies. On the one hand, there is a methodological contribution to operationalise the CA as a QoL measure; and on the other hand, an informative contribution to improving policy interventions involving young adults in Bogota. In the first case, the CI is the result of linking qualitative (FGD's) and quantitative data (secondary survey data) to identify proxy measurements of capabilities for young adults. The CI assesses quality of life in young adults using ten items and provides a general score for the entire population of 57% on a scale of 0 to 100. The construction of the CI relies on secondary data which in turn was adapted and evaluated by testing reliability in each of the constructs previously identified during FGDs. The methodological sequence includes exploratory analysis for data reduction and confirmatory analyses to identify latent variables. Unlike other indices of QOUL, which are based mostly on physical, social and emotional components, the CI includes domains related to tolerance, democracy, equality and habitat.

The CI is also an informative tool for the study of QoL of young adults. Research into QoL of this particular demographic group is very limited. Measurements of QoL of young adults become fundamental as they can inform to what extent these populations are enjoying a "good quality of life" (D'Agostino & Regoli, 2013). In Bogota, knowledge about the situation of young adults has improved considerably, after having been treated as a residual group within a larger demographic population for

some time. Bogota now has a normative and policy framework aimed at improving the quality of life of young people based on a human-rights approach (Gutiérrez, 2014). The current public policy empowers young people to exercise mechanisms of civil participation more actively. The vision of 'no future', inherent to the 80's and 90's where young people were stigmatized and defined as 'dangerous', has been progressively substituted by more progressive visions that explicitly recognise the need for youth citizenship as well as designing suitable public policies to resolve ongoing challenges. Despite the transition towards the design of a better policy framework, the approaches used to collect data still omit multidimensional components of QoL. Within this context, the CI becomes a tool that seeks to broaden the informational basis of judgements through evaluating different spaces of well-being in young adults.

Starting from this framework, the CI presented here is the first attempt, to the best of the author's knowledge, to build a composite indicator of QOUL for young adults in Bogota that satisfies Sen's requirement of public reasoning and discussion for selecting relevant capabilities (Sen, 2004). Chen et al (2004) have developed a quality of life instrument for young adults, aged 18 to 25 years old, using a sample from upstate New York counties. The instrument is comprised of 14 multi-items scales which assess aspects related to physical health, social relationships, role functions and environmental context. However, QoL categories were not identified during a process of public scrutiny, which would have given young adults the opportunity to define categories of quality of life which they have reason to value.

The interpretation of the CI must be carried out while keeping in mind the results of each of the dimensions. Differences in age, sex and stratum vary across dimensions, making the analysis more complex and informative. Domains of 'Education', 'Equality and Discrimination' and 'Habitat and built environment' are the constructs that contribute most to the CI respectively. The high score of the domain 'Education' is understandable for its 'intrinsic value' for development. Unlike human capital theory (G. S. Becker, 1962), which focuses mainly on the economic value of schooling in terms of the acquisition of skills and competences, education in the CI is seen more in terms of its role in encouraging aspects of human flourishing and social

change (Sen, 1997). 127 For young adults, the capability to be able to access and received quality education is central to improving their quality of life before entering adulthood. Young adults with higher strata and closer to adulthood show slightly higher levels of capabilities in terms of equality and non-discrimination. A different scenario is observed in the domain of 'Habitat and built environment' as results show that young adults from higher strata obtain lower results in their capability scores. Issues regarding bodily integrity, security and mobility can be issues that negatively affect the capability scores for this population. This last relationship is an important finding and should be pursued in further research.

Results suggest that men have a slightly better score on the CI than women. The chapter found strong evidence that men have better capabilities to operate in the city, achieve a better level of education and have a healthier life than women. In contrast, results also show that women obtained better results for capabilities than men when they are grouped by age category, with younger women more capable than their older peers. This finding is important as it seems that women arrive with better capabilities from childhood and adolescence than men, but rapidly undergo a marked process of decapitalization of capabilities during their transition to adulthood. In this way, the CI highlights the relevance of reducing gender inequalities among young adults in Bogota. Women experience lower levels of capabilities in all the domains of the index, showing a systematic gap in term of capability achievement compared to men.

Comparisons between different age groups support previous empirical findings that QoL declines when people become older (Grisales Romero, Márquez, & Rojas, 2014). For example, results confirmed that capability scores are lower once young adults enter adulthood. Likewise, their ability to practice an economic activity, demand actions of local government (civil participation) and access quality education correlate negatively when young adults grow up or enter adulthood.

¹²⁷ The difference between human capital and human capability is explained by Sen. In the former, the reason for valuation is mainly indirect in the form that human qualities are in function to improve commodity production. This means that improvements in education are valued in terms of increasing production possibilities. In the case of human capability, the role of education is not just valued as capital but also in its ability to allow individuals "to lead lives they have reason to value" and to enhance the substantive choices they have" (Sen, 1997, p. 1959).

As expected, there is strong evidence that young adults with better socioeconomic strata double their capability scores compared to other groups. Living in "advantageous" places has important and enduring repercussions in life trajectories for young adults. Findings also suggest that there is a higher variation of capability achievement among young adults who inhabit more deprived areas of the city (stratum 1 and 2), in which they report low and high scores at the same time. Those young adults living in more advantageous areas of Bogota (stratum 5 and 6) have a lower probability of obtaining a low level of capability achievement, and therefore scores vary to a lesser degree. In this respect, the CI shows serious differences between groups of young adults, particularly if location is considered. This finding suggests the need to explore further the role of place in shaping capabilities. Results showed that if strata (a proxy of location) are considered, levels in the capability score change. Therefore, considering a place-based approach to the index of quality of life will render additional insights to understand the relationship between quality of life and capabilities. This will be the aim of the following chapter.

Chapter 6 Marginal Youth: Mapping Spatial Capability Exclusion in Bogota

6.1 Introduction

Urban poverty and residential fragmentation as social problems have usually been studied as processes that tend to manifest themselves aspatially (D. Massey, 2009; Soja, 2009, 2010), in the sense that urban poverty's occurrence is unrelated to the place where it is generated. Urban poverty is understood in this sense as a problem that is contained in the urban space but is not a direct manifestation of it. Lemanski and Marx (2015) point out that the lack of communication between research on the spatiality of places (located mainly in geography) and the research on how and why urban poverty happens (located mainly in the discipline of development studies) has led to the direct consequence that urban dynamics, and particularly urban poverty, are no longer scrutinised from the perspective of their own spatiality.

So far, the thesis has shown that our understanding about young adults' life trajectories can be complemented by using capabilities as a space for evaluation. From a qualitative perspective, residential segregation has been depicted as a factor that reduces the availability of relevant options for young adults. This result has rendered the hypothesis that residential segregation hampers the achievement of key domains of the quality of life differently in young adults if the scale of segregation is considered. It is important now to move towards a more direct analysis where capabilities can be inspected from the perspective of their own spatiality.

Indeed, with the omnipresence of the city as the natural place of urban life, the city becomes not only the space that contains human relations but also a space that defines them, that causes and transforms them. Therefore, in a context of urban deprivation, 'the spaces of the city', in addition to containing and holding urban poverty, also contribute to reproducing and unfolding relations of unbalanced power and an uneven development. Although it is indisputable that the urban agenda has expanded towards objective and subjective dimensions of development (B. Evans et al., 2016), the essence of urban well-being remains tied to a commodity framework which understands economic growth and neoliberal paraphernalia as mechanisms to alleviate urban poverty. Within this discourse, cities have been described almost exclusively as

centres of innovation and economic growth intended to generate trickle down benefits for all kinds of urbanites (Fainstein, 2011).

When measuring quality of life and locating urban poverty in city spaces, the normative debate about its definitions becomes relevant, as developing a definition of urban poverty will inevitably determine its form and characteristics. In tackling this issue, this chapter introduces the Capability Approach (CA) as an evaluative framework to investigate spatial fragmentation in Bogota. The chapter endeavours to capture the effects of the production of fragmented spaces¹²⁸ by looking at how inequalities and residential segregation are manifested in the space when a multidimensional approach to poverty is considered.

This chapter employs spatial thinking to examine differentials in young adults' well-being and agency across Bogota. It maps the spatial patterning of capabilities in the city at different scale levels, using a composite indicator of capabilities (see previous chapter), which aggregates domains of quality of life relevant to young adults. The result is a description of young adult poverty as capability deprivation that reveals socio-spatial differences in human advantage in the Bogota landscape.

The chapter is structured as follows: Section 6.2 'Data and Variables' briefly reviews data collection and the distinct geographical scales employed to assess spatial autocorrelation and residential segregation. Section 6.3 'Methods' explains in detail the methods used in each independent analysis. Section 6.4 'Results' presents the results identifying city areas where a capability driven intervention should be taken into consideration. Section 6.5 'Discussion' recapitulates major findings and discusses how spatial relations have a capability narrative on young adults' quality of life in Bogota.

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¹²⁸ The concept of fragmented spaces is associated with the idea of a 'city of fragments' or the tendency of modern cities towards the development of spaces that are separated or detached from each other (Castells, 1977; Grafmeyer, 1993; Graham & Marvin, 2001; Landman, 2011). Urban fragmentation is conceptualised as "a spatial phenomenon that results from the act of breaking up, breaking off from, or disjointing the pre-existing form and structure of the city and systems of cities" (Burgess, 2007, p. 1). When urban fragmentation produces enclaves of poverty and wealth, the results is a process of residential microsegregation as mixed communities are located at the micro level.

6.2 Data and Variables

The chapter considers the socio-spatial distances of capabilities for young adults in Bogota and assesses whether multidimensional measures of urban poverty exhibit differences with income-driven measurements. The chapter uses the positionality of young adults to define urban poverty in terms of domains which are fundamental to living a good quality urban life. Here, the definition of quality of urban life is based on a multidimensional composite index which aggregates 10 different dimensions of what is considered a good quality of life in Bogota – the capability index (CI).¹²⁹ The CI uses a different definition and methodology to classify urban poverty in Bogota. The classification of urban poverty in Bogota has traditionally used the socioeconomic stratification system as a proxy of households' ability to pay, which relies mainly on an assessment of the physical state of buildings and which can be notoriously deficient to conceptualise human flourishing. To correct for this, the chapter compares the spatial distribution of CI in relation to urban poverty based on strata.

Scores of the CI were georeferenced using three different areal scales: i. Districts, ii. Zonal Planning Units (UPZs), and iii. Blocks. Bogota is divided into 20 urban districts and 111 UPZs. Districts are administrative–political divisions with relative homogeneity in terms of geography, culture and economic activity. Each district is divided by several UPZs, which are larger than neighbourhoods and that serve to plan urban development at the zonal level. The smallest spatial unit used were blocks. 130

For the case of the regression model, scores of capabilities were geocoded using census tracts data available from the J14 survey. In the regression model, the dependant variable is the CI. Independent variables are socioeconomic observations captured in the J14 survey. Independent variables measure different levels of inequality in young adults: percentage male, percentage stratum group, poverty rate, percentage ethnicity (mestizo) and percentage with a Bachelor's degree. The stratum variable measures residential deprivation and calculates the quality of the built environment in each block. The regression coefficient for these variables estimates whether belonging to higher

¹²⁹ Please refer to Chapter 5 for the identification of domains of QoL for the young adult population in Bogota and Chapter 6 for the design, aggregation and construction of the CI.

¹³⁰ For each spatial scale, the CI was computed by obtaining an average indicator of capabilities for each areal unit. Cartography was employed to geo-reference each administrative unit using QGIS. Scores of capabilities were joined from the J14 survey to available shapefiles of urban districts, UPZs and blocks from the Capital District's Spatial Data Infrastructure (IDECA).

strata renders equal, higher or lower levels of capability scores. For education outcomes, the percentage of young adults without access to secondary education was considered as a proxy for education inequality. The domain of income poverty is represented by quality of air in the neighbourhood. As with other variables in this set, ethnicity and gender variables attempt to capture degrees of inequality in the production of capability scores.

6.3 Methods

The chapter is designed to detect the spatial distribution of capabilities and to reveal whether - if there is segregation patterning - it is distributed in the urban structure of Bogota. To answer these questions the chapter employs three different but interconnected analyses. First, Exploratory Data Analysis (EDA) is put in place with the aim of testing the presence of spatial autocorrelation among scores of the CI for young adults, and to identify and locate similarities/dissimilarities in terms of capability achievement among young adults. By assessing the statistical significance of local values at each location it is possible to identify whether geographic areas are represented as a cluster or outliers of capabilities. The working hypothesis is that the CI exhibits a spatial dependency as observed values in one location depend on the values observed at neighbouring locations. Second, spatial regression is conducted to assess the importance of the spatial components as well as the effects of socioeconomic variables in the CI. A central point in this section is to test whether space/location influences the scores in the CI. A better fit of the spatial regression model in comparison to classical models will indicate that there is intrinsically a spatial narrative in how capabilities are produced in the Bogota urban structure. And third, a battery of segregation indices is calculated to measure residential fragmentation levels based on capabilities of young adults in Bogota. In comparison to measurements of segregation based on ethnicity, income or class, the article uses capability deprivation as a measure of young adult poverty to test the level of residential fragmentation presented in the urban space of Bogota. Here, the residential segregation pattern produced by the stratification system used in Bogota is compared to the segregation pattern produced by capabilities. The existence of differences will reveal the lack of coherence of territorial redistributive policies to tackle multidimensional domains of human flourishing for

young adults, while also describing the current pattern of residential fragmentation in the city.

6.3.1 Spatial Autocorrelation Analysis

As part of the EDA, a test of spatial autocorrelation analysis was performed to investigate whether the CI has a spatial pattern across the city or not. Spatial autocorrelation measures the degree of heterogeneity and clustering using both feature locations and feature values at the same time, so results allow the reporting of the extent to which points (scores) cluster or are randomly spread throughout space.

For the case of the CI, spatial autocorrelation measurements contribute to performing hypothesis testing in the sense of whether scores of the index follow a dispersed, clustered or randomly spatial distribution. Moran's *I* index is a correlation coefficient which tests the degree to which similar (or dissimilar) spatial units are clustered or not. In a context of model specification, a measurement of spatial autocorrelation based on a global Moran's *I* will identify a positive autocorrelation when values cluster, and a negative autocorrelation when dissimilar values cluster. ¹³¹ In the context of the capability measurement, a positive Moran's *I* will indicate that neighbouring districts have similar capability scores, whereas a negative result will show that spatial areas with low capability scores tend to cluster near to spatial areas with high capability scores. ¹³² Negative correlation should be interpreted as more mixed society and positive correlation will be interpreted as large geographical distance between groups and therefore, a less integrated society.

As one of the interests of this chapter is to identify local similarities and differences of the CI in the space for young adults, the analysis uses a local statistic for cluster detection. Based on a decomposition of global Moran's *I*, the chapter reports analysis performed by using local indicators of spatial association (LISA) to localise significant high/lower capability areas that are not accounted for by chance (Anselin,

¹³² The use of Moran's *I* for assessing spatial equity has become popular within the literature of the CA. For instance see (Haddad & Nedović-Budić, 2006; Tovar & Bourdeau-Lepage, 2013; Wismadi, Zuidgeest, Brussel, & van Maarseveen, 2014; Wismadi, Brussel, Zuidgeest, & van Maarseveen, 2015; Macedo & Haddad, 2016).

¹³¹ Values for Moran's I range from 1 (perfect positive spatial autocorrelation) to -1 (perfect negative spatial autocorrelation). Moran's I = 0 indicates values are random and independent in space.

1995). A local Moran's *I* was conducted to test significant spatial clustering of similar and dissimilar values using 'hotspot' and 'coldspot' maps, displaying homogeneity, diversity and transition using observed values.¹³³ During the testing of spatial autocorrelation, statistical significance was set at the 99% confidence level. In order to reduce the likelihood of reporting clustering without this type of patterning from actual spatial distribution - as even with complete spatial randomness (CSR) can be identified a kind of clustering - a Monte Carlo test was carried out of 999 permutations of random datasets (Good, 2010). Comparison between the observed Moran's *I* values and the sample distribution produced by the permutation bootstrap test will produce a pseudo *p*-value¹³⁴ for hypothesis testing.

Figure 6-1 Connectivity histograms at different administrative scales

Source: Connectivity histograms retrieved using GeoDa.

Spatial autocorrelation measures were calculated for the different geographic units identified. Unlike the results of the previous chapter, spatial analysis allows an examination of different geographical results as data are aggregated in different administrative forms. For this section, spatial autocorrelation was calculated using

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¹³³ A binary relation of cluster and outliers is represented in the map where four different relations are identified: a cluster of high values (HH), a cluster of low values (LL), an outlier of high values surrounded by low values (HL) and an outlier of low values surrounded by high values (LH).

¹³⁴ Significance levels are dependent on the number of permutations. (Anselin, 2003).

scores of the CI by urban district, UPZs, blocks (points and polygons) as well as for each individual score (points) of the sample. Different from aspatial analysis, the use of spatial statistics entails the selection of a value for conceptualising spatial relationships so it can account for the influence of neighbouring units. A spatial weight matrix will impose a neighbourhood structure on the data aiming to account for the similarity between location and values. Spatial weight matrices were calculated for each zone using common spatial conceptualisations such as contiguity weight of first order (queen's case and rook's case contiguity) and distance weight (fixed distance and k-nearest neighbours). 136

By assessing normality of histograms and the connectivity map offered as features by GeoDa, different possible neighbourhood weights for each specific zone were inspected and compared (Figure 6.1). Moreover, occurrences of *islands*, or unconnected observations were discarded. The final selection of spatial weight matrices was based on polygon contiguity matrices that show high coefficients of spatial autocorrelation along with a high level of statistical significance (Voss & Chi, 2006).¹³⁷

6.3.2 Spatial Regression Model

Statistical analysis is performed to identify the effects of exploratory variables such as gender, age, strata, marital status, dominance of second language and ethnicity to predict values of the CI. A spatial regression was conducted to account for the presence of spatial effects on how capabilities are produced among young adults in Bogota. First, ordinary least square (OLS) estimation was run and results were compared with spatial statistical models, particularly the spatial autoregressive model (SAR) and the spatial error model (SEM).

In standard regression models, one of the assumptions is independence of the observations, where residuals follow a normal distribution with zero average and constant variance. In the case of the spatial linear model, the presence of spatial

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¹³⁵ For each scale unit, a spatial weight matrix was created in GeoDa.

Other conceptualisations of spatial relations such as inverse distance or distance band were not considered as they do not reflect the inherent relationships of neighbourhood integration. The polygon contiguity conceptualisation is more effective for this case as it considers that spatial relationship is a function of polygon proximity, meaning that for those young adults who share a boundary, spatial integration tends to increase.

¹³⁷ For each autocorrelation test, a first order queen contiguity was used.

dependence violates the hypothesis of uncorrelated values. The existence of spatial dependence in the data is likely to bias inferences as spatial data can show correlation in variables and error terms. In other words, if spatial dependence is ignored in the regression model, inferences will not be robust (Haining & Amable, 2013). To improve the predictive power of spatial data and to account for spatial effects when spatial dependencies are significant, spatial regression models include an autoregressive coefficient (ρ) , that measures levels of spatial dependence, and a weight matrix (W), that specifies the conceptualisation of spatial relationships (Chi & Zhu, 2008).

An important step in model specification is to identify whether autocorrelation occurs in the data being studied. Two primary types of spatial dependence, as a misspecification problem, can affect spatial data (Anselin & Rey, 1991). The first, a spatial error model, occurs when spatial influences come through the error terms. Here, spatial autocorrelation is considered a nuisance (error autocorrelation) and its effects reduce model efficiency (Matthews, 2006). A second type of spatial dependence is when the dependent variable is affected by values of the dependent variables in nearby places. 138 Here, a lag term is included in the regression model to account for spatial dependencies causing the residuals to be uncorrelated. If, after testing for spatial dependence, there is evidence of significant spatial autocorrelation, one of the two previous models should be used to take spatial effects into account. In the case of this study, there is no previous suggestion of how capabilities can be affected by spatial relations. Intuitively, it is considered that individual's capability scores tend to be predicted by capability scores in nearby neighbours and not because of the existence of unmeasured variables. This means spatial dependence might follow a lag model in the regression model.

Firstly, an OLS model was estimated for comparison with the spatial autoregressive model (SAR) and the spatial error model (SEM). In the case of SEM, the error model corrects the effects of inefficiency of estimates by adding a spatial error specification to the model. In SAR, model bias is corrected by adding the spatial lag term as an exploratory variable in the model. The decision rule for spatial regression model selection is based on the spatial regression decision process suggested by Anselin

1991) and its effects bias predicted estimates.

¹³⁸ This type of spatial dependence is also known as substantive spatial dependence (Anselin & Rey,

and Rey (2014).¹³⁹ The selected regression model is the one that obtains the best predictive results based on the statistical significance of the spatial autoregressive coefficient, and by comparing the model that obtains the highest log-likelihood and the smallest AIC (Akaike info criterion). The estimation models included are the ordinary least square (OLS) model and the spatial model. The description of the OLS model is:

$$CI_i = \beta_0 + \beta_1 \alpha_i + \beta_2 \theta_i + \beta_3 \vartheta_i + \beta_4 \mu_i + \beta_5 \eta_i + u$$
 (6.1)

where CI is the reported quality of life of individual i, α is gender, θ is socioeconomic stratum, θ is ethnicity, μ the quality of air at the neighbourhood level as a proxy for poverty, η is school attendance, and μ is the error term of individual i.

6.3.3 Measures of Segregation

Socio-spatial divisions, or the degree to which two or more people live separately from each other, can be quantified by different measures of segregation that account for this feature of disproportionality. Popular measures of segregation include the index of dissimilarity (D), which calculates the evenness with which two different groups are distributed in an aerial unit, or the exposure or interaction index, which captures the sociological aspect of segregation as it measures the probability that a member of a given group interacts with a member of a different group (Reardon & O'Sullivan, 2004). For capturing the multidimensional process that urban segregation exhibits, researchers have agreed that five dimensions should be considered to quantify the degree of segregation presented. Massey and Denton argue that people can be segregated in a 'variety of ways' (1988, p. 283). For instance, minorities can be overrepresented or underrepresented in certain urban areas (evenness). They can be isolated or integrated in the urban space (exposure). They might be spatially concentrated in terms of the physical space occupied in a given territory (concentration) or can be located close to the urban 'central core' (centralisation). They can also be grouped or dispersed in the urban space (clustering). 140

The analysis employed the GeoDa regression tool to run the OLS estimation and to check spatial

autocorrelation through Moran's *I* and Lagrange Multiplier (LM) tests as well as to calculate measures of goodness-of-fit in the regression model.

140 Evenness and exposure are considered structural dimensions of segregation and are non-spatial

Evenness and exposure are considered structural dimensions of segregation and are non-spatial indices as they are not sensitive to changes in the size of geographic areas (Wong, 1993) - as such, these two dimensions CA from the checkerboard problem as they do not account for the proximity among

Following the argument that urban segregation in Bogota is a multidimensional process, where patterns of segregation tend to move towards a more cellular residential segregation (microsegregation), the quantification of the separation among groups in the city requires the use of different indices to account for the diverse aspects of segregation. This means that an attempt to measure the level of segregation fragmentation requires not only an assessment of each of the five dimensions mentioned above but also accounting for the spatial component of the phenomenon. To do that, both aspatial and spatial indices of segregation were calculated, aiming to compare the level of information offered by indicators as well as to expand the interpretation of the process of segregation in Bogota.

Using scores of the CI¹⁴¹, segregation was measured at urban district, UPZ and block level for different groups of young adults in terms of capability achievement, portraying the spatial distribution of those groups across Bogota, and therefore, identifying the pattern of residential segregation in terms of capabilities. In the case of spatial units, the analysis used 19 urban districts, 99 UPZs and 2042 blocks. Table 6.1 shows the distribution of population for each spatial unit.

Table 6-1 Young adult population groups by level of capability scores

	Urban loc	Urban locality UPZs			Blocks		
Groups	Number of	%	Number of	%	Number of	%	
	people	/0	people	/0	people		
Very low capabilities	495	6	540	7	440	6	
Low capabilities	1322	17	1404	18	1375	18	
Medium capabilities	2426	31	2520	33	2171	28	
High capabilities	2436	31	1987	26	2082	27	
Very high capabilities	1074	14	1265	16	1679	22	
Total population	7753	100	7716	100	7747	100	

Note: Attrition in the number of people reported in both UPZ and block level are due to missing values that were not georeferenced.

groups but only for the composition of the areal unit. Conversely, concentration, centralisation and clustering domains are spatial in nature which means that indices assess the contiguity between centroids to account for interaction among groups.

¹⁴¹ Scores of the CI were classified based on natural breaks (Jenks), where five category groups were created for each areal unit: 'very low', 'low', 'medium', 'high' and 'very high'. These categories were spatialised by joining them with urban district, UPZ and block shapefiles of Bogota, downloaded from the Cadastre of Bogota web page, using QGIS 2.6.1. The created shapefile is uploaded in the open-source software Geo-Segregation Analyzer, where the set of segregation indices are calculated.

Domains of evenness, exposure, concentration and clustering were measured to assess the level of segregation within the distribution of capabilities of young adults across the urban landscape of Bogota. Table 6.2 lists spatially and non-spatially segregated indices calculated for each dimension. For the case of evenness, in addition to the dissimilarity index and the entropy index, the Gini coefficient and the Atkinson index were calculated as they are the only evenness measurements that satisfactorily incorporate inequality measurement theory into segregation measurement (D. R. James & Taeuber, 1985).¹⁴²

Equally, patterning of segregation by capabilities is compared with strata segregation, aiming to assess whether the ongoing stratification policy in Bogota is adequate to target the deficit in capability achievement among young adults. The lack of similarity in the patterning of segregation by strata and capabilities would suggest that territorial stratification policies are not suitable to tackle gaps in capability achievement and major reforms aimed at better focalisation should be taken into consideration.

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¹⁴² All indices calculated in this section range from 0 to 1, where values close to 0 account for low levels of segregation and values close to 1 account for high levels of segregation. The selection of indices is based on the criteria of comparability and the potential to compare spatial and non-spatial indices across different urban scales.

Table 6-2 Selected indices of segregation

Dimension	Index	Spatial nature		Type			Level		
<i>B</i> michiston	index	Spatial nature	One group	Two groups	Multi-group	Urban locality	UPZs	Blocks	
Evenness	Index of dissimilarity (D)	×	✓	✓	✓	✓	✓	✓	
	Index of dissimimarty adjusted (adj)	✓	✓	✓	×	✓	✓	×	
	Entropy index (H)	×	✓	✓	✓	✓	✓	✓	
	Gini index (G)	×	✓	✓	✓	✓	✓	✓	
	Atkinson index (0.1), (0.5), (0.9)	×	✓	×	×	✓	✓	✓	
Exposure	Isolation index (xPx)	×	✓	×	×	✓	✓	✓	
	Interaction index (xPy)	×	×	✓	×	✓	✓	✓	
	Correlation ratio (Eta ²)	×	✓	×	×	✓	✓	✓	
Clustering	Spatial proximity index (SP)	✓	×	✓	✓	✓	✓	×	
Concentration	Delta index (DEL)	✓	✓	✓	×	✓	✓	×	
	Index of relative concentration (RCO)	✓	×	✓	×	✓	✓	✓	
Local indices	Location quotient (QL)	✓	_	_	_	✓	✓	✓	
	Entropy (H2)	✓	_	_	_	✓	✓	✓	

Source: Indices of residential segregation using Geo-Segregation Analyzer (Apparicio, Martori, Pearson, Fournier, & Apparicio, 2014)

6.4 Results

6.4.1 Spatial Autocorrelation Tests

Figure 6.2 shows the distribution of the CI based on the natural grouping inherent in the data using the data classification methods of natural breaks (Jenks). A visual examination of the CI suggests that autocorrelation of scores is plausible (Tobler's law 144) and that the assumption of independent errors between scores might not hold in this case. Autocorrelation seems to be clearer under larger areal units (urban district and UPZ) and less obvious when there is a lower scale (blocks and individual scores).

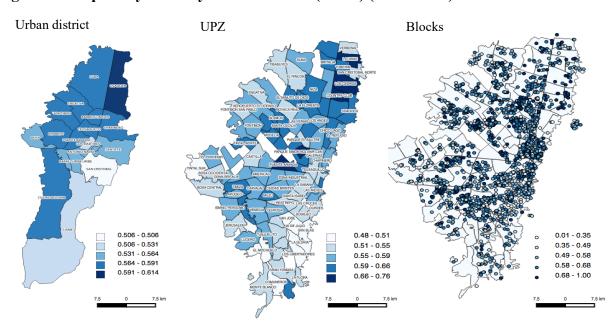


Figure 6-2 Capability index by natural breaks (Jenks) (five classes)

Note: The distributions of the capability index in the different maps are not intended to be comparable as they use different areal units and natural class breaks, which use data-specific classifications.

Variance and outliers were also explored using boxplot graphs and box maps in GeoDa. Given that most of the cases fall within the 25–75% range, the data show a normal distribution (Figure 6.3).

The method classifies the data through class breaks that best group similar values and which

maximises the differences between them (M. J. D. Smith, Goodchild, & Longley, 2015) ¹⁴⁴ "everything is related to everything else, but near things are more related than distant ones" (Tobler, 1970)

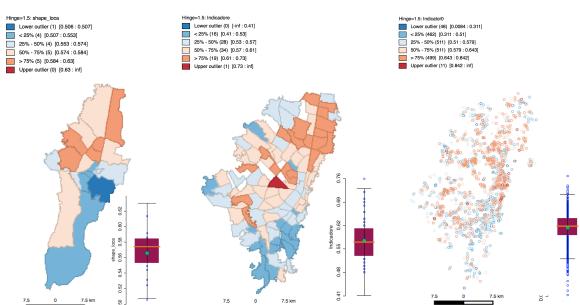


Figure 6-3 Box plots and raw rate calculations for the capability index at different areal units

Note: Hinge = 1.5. Blue colour on map denotes tracts with low scores on the capability index. Red colour denotes tracts with high scores.

Tests for autocorrelation at different aggregation levels were positive and significant. Results showed that young adults with high capability scores tend to be located close to other young adults with high capability scores, and places with low capability scores tend to be located close to other disadvantaged areas. This demonstrates that young adults are spatially differentiated in terms of how capabilities are achieved in Bogota. Using local spatial autocorrelation indicators (LISA) it is possible to identify where sorting is located. From the urban district and UPZ perspectives, capabilities are sorted in a clear fragmented and polarised fashion. Figure 6.4 shows the distribution of significant scores of the CI at urban district, UPZ and block levels using LISA indicators.

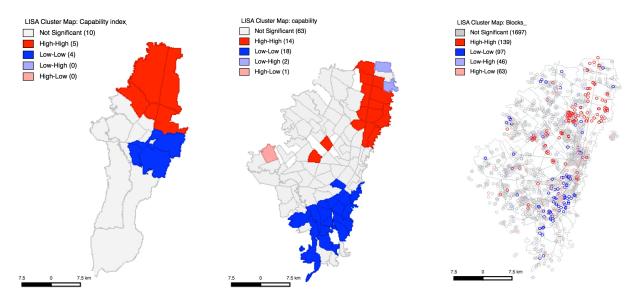


Figure 6-4 LISA indicators by urban district, UPZ and block level

Note: p < 0.05, 999 permutation. Census tracts with no significant spatial autocorrelation are left in grey.

At district level, there is a positive spatial autocorrelation and significant spatial clustering, Moran's I = .439, p = 0.01, n = 19. The urban districts of Chapinero, Barrios Unidos, Usaquen, Suba and Engativa cluster significantly advantaged young adults (p = .05), which indicates that young adults with high scores reside near to other young adults who report high scores in the CI. In contrast, the urban districts of Santafe, San Cristobal, Antonio Narino and Rafael Uribe Uribe cluster disadvantaged young adults in terms of capability achievement (p = .05).

According to Moran's *I* results, these districts can be characterised as significantly disadvantaged local districts that are surrounded by other significantly disadvantaged urban districts in terms of capability achievement. The rest of the urban districts obtained capability scores that are significantly different from neither their neighbouring urban districts, nor from all the districts in Bogota. At this level, observations suggest that there is no significant evidence of processes of microsegregation in terms of capabilities. Negative autocorrelation (presence of outliers) was not found in the results, suggesting a high level of homogeneity within urban districts. This finding is in line with macro patterns of spatial division in Bogota as there is evidence of significantly large and similar clusters of young adults that are geographically separated from each other (Table 6.3).

Table 6-3 Significant clusters for the capability index (urban district level)

Cluster of low capabilities	Poverty pockets	Isolated oasis	Clusters of high capabilities
Low-Low (LL)	Low-High (LH):	High-Low (HL)	High-High (HH)
Blue	Light blue	Pink	Red
Antonio Narino**	_	_	Barrios Unidos**
Rafael Uribe Uribe***			Chapinero**
San Cristobal***			Engativa**
Santa Fe**			Suba**
			Usaquen**

Note: *** p < 0.01, ** p < 0.05, * p < 0.1.

On the side of UPZs, spatial clustering is also significant (Table 6.4). Moran's I for local spatial autocorrelation at this level was 0.373, p = 0.001, n = 98. As expected, the Moran's I for capability scores shows a spatial autocorrelation similar to a fragmented city. At this level, an autocorrelation test points to the existence of two local 'hotspots' of high capability values in the western part (2 UPZs) and the north-eastern part (12 UPZs) of the city (p = .05). The northern hotspot constitutes traditional areas that advantaged households tend to inhabit in Bogota. There is just one cluster of low values ('coldspot'), but it is quite large in area. This cluster is composed of 18 UPZs and is located in the south-eastern part of the city. Geographic distance between young adults with better and worse levels of capabilities continues to be marked in this scale.

Interestingly, at this scale two additional zones show some negative autocorrelation (spatial outliers). On the north-eastern part of the city, close to the periurban zone, two UPZs (San Cristobal Norte, p = .001; and Verbenal, p = .05) constitute poverty pockets in terms of capabilities. On the other hand, an 'isolated oasis' of high capabilities is present in the western side of the city. The UPZ of 'El Porvenir' presents significant high scores on the CI (p = .05) compared to its neighbouring peers, suggesting an unsynchronised development between capability achievement in this UPZ and neighbouring UPZ achievement. Domains of the CI follow similar spatial patterns to the aggregated capability score.

Table 6-4 Significant clusters and outliers for the capability index (UPZ level)

Cluster of low	Poverty pockets	Isolated oasis	Clusters of high capabilities
capabilities	Low-High (LH)	High-Low (HL)	High-High (HH):
Low-Low (LL)	Light blue	Pink	Red
Blue			
20 de Julio***	San Cristóbal Norte***	El Porvenir	Bavaria
Ciudad Jardin***	Verbenal***		Britalia***
Danubio			Chico Lago
Diana Turbay***			Ciudad Salitre Occidental***
El Mochuelo			Country Club***
Gran Yamosa			El Prado***
La Gloria***			El Refugio
Las Cruces			La Alambra***
Los Libertadores			Los Andes
Lourdes			Los Cedros
Lucero***			San Jose de Bavaria
Marco Fidel Suarez			Santa Bárbara***
Marruecos			Toberin
Monte Blanco***			Usaquen***
San Blas***			
San Jose			
Sosiego***			
Tunjuelito***			

Note: *** p < 0.01, ** p < 0.05, * p < 0.1.

Using a more fine-grained scale of visualisation analysis, cases of separation and interaction between groups can be better identified. At block level, Moran's I indicates a significant positive autocorrelation (0.0929, p = 0.001, n = 2042). The univariate LISA analysis showed that two areas of hotspots are located in the north-western part of the city (Nuevo Monterrey, Potosi, Pasadena, Puente Largo, Santa Rosa and Los Andes) and in the north-eastern part (Bella Suiza) (p = 0.05). For coldspots, visualisation analysis showed a cluster in the south-eastern part of the city, following equal tendency of the urban district patterning. Unlike visualisation analysis at urban district and UPZ level, patterns of interaction between groups are identified at the block level (groups that obtained different scores and occupy nearby locations). In total nine 'poverty

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 $^{^{145}}$ LISA indicators were calculated at the block level using two different weights (contiguity and k-nearest) and using visualisation by points and polygon units. Different weights and the visualisation analysis were conducted to evaluate the robustness of results.

pockets' of capabilities and eight 'isolated oases' of capabilities were identified. Visualisation at the block level identified dissimilarity trends of high-low (weak read) areas (p = 0.01) in the urban districts of Los Martires (Santa Isabel), San Cristobal (Villa Javier and San Isidro), Chapinero (Granada and Juan XXIII), Barrios Unidos (la Castellana), and Engativa (Normandia). Conversely, dissimilarity trends of low-high (blue) values were identified in the urban districts of La Candelaria (Las Aguas), Teusaquillo (La Soledad), Chapinero (Granada, Marly, Villa del Cerro), Fontibon (Modelia) and Engativa (Normandia).

At the address level, Moran's I remains positive but with a lower degree of autocorrelation (0.04, p = 0.001, n = 7754). When LISA indicators for capability scores and socioeconomic stratification data are compared, the level and location of significance dependence differentiates between both variables. Moran's I for strata is positive and significant (0.276, p = 0.001, n = 7754) and higher than reported for capability scores, suggesting that clustering is more acute in terms of socioeconomic strata than capabilities. Generally, clustering by strata is higher in lower strata (1, 2, 3 and 4) and lower in higher strata (5 and 6). (Figure 6.6)

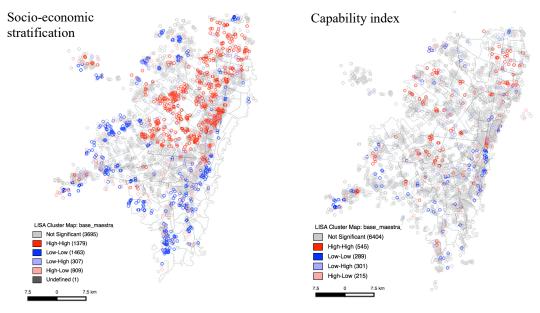


Figure 6-5 LISA indicators for strata and CI scores at address level

Note: p < 0.05, 999 permutation. Census tracts with no significant spatial autocorrelation are left in grey.

The LISA analysis identified different high-risk areas of capability deprivation among young adults if domains of the index are taken into account (only at UPZ level). Figures 6.6 and 6.7 show the spatial distribution of each domain of the CI in terms of significant

concentration of high and low values of scores. Some interesting conclusions can be drawn from this analysis.

First, values of high-low and low-high were more regular in the patterning at lower scales, implying spatial inequality in capability scores. At the same time, this patterning also suggests the existence of mixed communities in term of capabilities across the city landscape, weakening the north–south polarisation argument.

Second, significant inequalities are portrayed in the domains of 'integrity' and 'right to education' in comparison to other domains, as areas with low-high patterning cluster close to hotspots. Interestingly, 'right to education' also shows a catching up process as there is evidence of high low values in common coldspots.

Third, young adults who report better scores in terms of habitat and built environment, leadership and participation, occupation, and health and life are located in areas where on average there are worse capability scores (Figure 6.7). This finding is in line with the regression analysis of Chapter 6, where young adults living in higher strata experience a low level of capabilities when choosing access to urban amenities and when they decided to be social leaders and participant citizens. Moreover, results of the spatialised CI follow patterning that is not income-driven, implying new pathways for young adult intervention.

And fourth, nonsignificant clustering appears mainly in the western part of the city, suggesting a smooth capability patterning of the city which means that young adults in those areas have more similar capabilities.

Figure 6-6 Capability Index by each component (at urban district level)

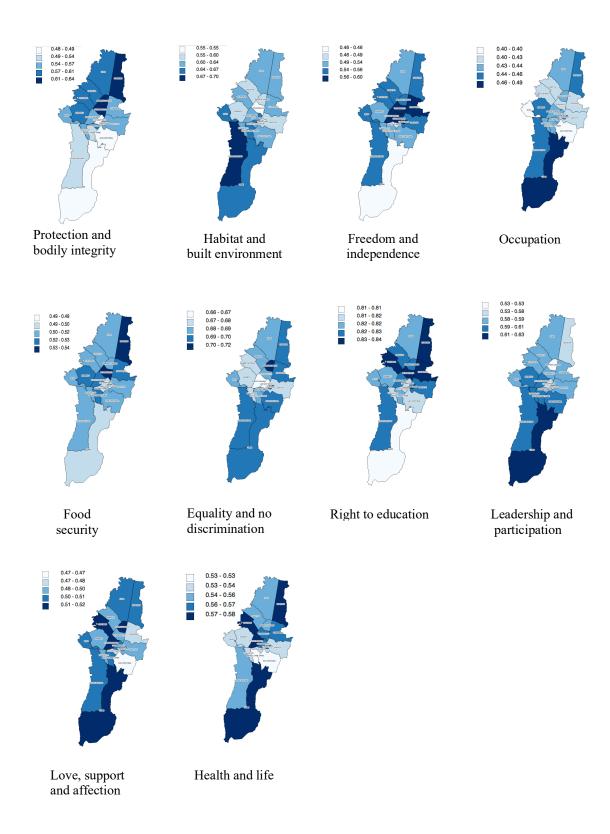


Figure 6-7 Cluster and significance maps for each domain of the capability index

Protection and b/integrity (I = .4992) 6. Equality/non-discrimination (I = .046) 2. Habitat/built environment (I = .230) 7. Right to education (I = .068)8. Leadership/participation (I = -.017) 3. Freedom and independence (I = .326)4. Occupation (I = .131)9. Love/support/affection (I = .012) 5. Food security (I = .203)10. Health and life (I = .130)

Note: All figures are mapped at p = 0.05 on significance maps. The significance map shows the locations with a significant local statistic, with the degree of significance reflected in increasingly darker shades of green.

6.4.2 Regression Models

A spatial regression analysis was conducted to investigate how spatial dependence affects CI scores. The OLS regression model was tested by non-spatial regression diagnostics such as multicollinearity condition number (10.233) and the Jarque-Bera test statistics for normality of the errors (p < 0.001).

A diagnostic for spatial effects was calculated by using a spatial weight file on the OLS regression. Specification checks were performed to ensure using a correct spatial model. First, the Lagrange Multiplier (LM) statistics for lag (ρ) and error (λ) terms were significant (p < 0.001), rejecting the null hypothesis of no spatial autocorrelation and requiring for testing robust LM statistics. The robust LM (lag) obtained a p = 0.039 and the robust LM (error) becomes no longer significant (p < 0.84), suggesting spatial lag alternative as the most appropriate model to retain. ¹⁴⁶ In the regression, Moran's I test is highly significant (p < 0.001), suggesting that we can reject the null hypothesis of no spatial autocorrelation (Anselin & Rey, 2014).

Following the decision rule by Anselin and Rey (2014), a spatial lag model is estimated to control for spatial dependency. The description of the SAR model is:

$$CI_i = \beta_0 + \rho WCI + \beta_1 \alpha_i + \beta_2 \theta_i + \beta_3 \theta_i + \beta_4 \mu_i + \beta_5 \eta_i + u \tag{6.2}$$

where ρ is the spatial autoregressive parameter, WCI is the weights matrix or $n \times n$ spatial lag operator for CI, $\beta_0 \sim \beta_5$ are the coefficients with the explanatory variables, and u is the error term of individual i. The spatial autoregressive (SAR) model was conducted confirming the presence of spatial dependence as the spatial autoregressive coefficient is statistically significant ($\rho = 0.12, p < 0.01$). A SAR model points out the relevance of the spatial component in the capability approach. In theoretical terms, the spatial dimension suggests that capability scores at specific areal units are related to scores in neighbouring areal units.

Another test for spatial dependence, the likelihood radio test, is also statistically significant (LR = 251, p < 0.01) which confirms strong evidence of spatial autocorrelation in the residuals. As a result, the general fit of the model improved using

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¹⁴⁶ This specification can be interpreted as the best way of controlling for spatial dependence of capability scores since a given young adult's capability score is related not only to its own starting level of quality of life, but also through the level of capability that other neighbouring young adults have.

a SAR model. There is a marginally higher value for R-square and log likelihood, and a smaller value report for AIC, suggesting a better fit. Coefficients for independent variables in the lag model remain virtually the same as the OLS.

The lag variable (Rho) coefficient parameter that reflects the spatial dependence inherent in the data, confirms a positive correlation between the scores of the CI and neighbouring observations. Young adults without secondary education is negative and highly statistically significant, meaning that capability scores are lower in areas with lower educational attainment. In the same direction, deprived neighbourhoods are associated with lower capability scores (Table 6.5).

Table 6-5 Comparison OLS and spatial regression (SAR model) results

Variable	Multiple linea	r regression (OLS)	SA	R model
	Coefficients	<i>t</i> -value	Coefficient	z-value
Stratum (1-6)	0.0384774*	14.0804	0.036355	13.2582*
Ethnicity	0.0100019*	3.55998	0.00980364	3.50043*
Gender	0.0125682*	4.48196	0.0125431	4.48722*
Poverty	-0.0991185*	-34.878	-0.0987704	-34.8553*
Education	-0.011191*	-3.88444	-0.0109349	-3.8073*
Adjusted R2	0.174905		0.180020	
Rho $(\rho)^a$			0.126099	5.50834*
Log likelihood	5224.22		5349.81	
Akaike criterion	-10436.4		-10685.6	
Schwarz criterion	-10394.7		-10637	
Moran I (residual spatial	0.0279*	5.7164		
autocorrelation				

^{*}Significance at p < .001.

Conversely, estimates for gender (male), ethnicity (mestizo) and higher strata are significant and positive. As such, being male and mestizo and living in areas with higher strata increases the capability scores for young adults in Bogota. It is important to mention here that although the SAR model has improved the model fit, the spatial effects are not completely controlled by the model. However, we can still argue that for capabilities, space matters. The lag model yielded improvement to the classical regression model, which means that controlling spatial dependence (spatial autocorrelation) can effectively improve the model performance. In other words, when

^a Spatial autoregressive coefficient.

spatial weights are considered in the model, the spatial regression becomes more capable of predicting the CI than using a classical OLS regression (Stieve, 2012).

6.4.3 Segregation Measurements

Results are based on the proposed domains for measuring residential segregation by Massey and Denton (1988)¹⁴⁷. Tables 6.6 and 6.7 show indices results for the dimensions of evenness, exposure, concentration and clustering.¹⁴⁸ By using this analytical framework of residential segregation, it is possible to measure the degree of separation that exists between two or more groups from different manifestations of segregation. Segregation by capabilities can expand the informational base of urban poverty as its multidimensional nature captures the degree of spatial inequality embedded in the urban space of Bogota.

Evenness

The dissimilarity index (D) shows that young adults who obtained very low (D = 0.67) and very high (D = 0.54) scores in terms of capabilities are those who are more segregated and underrepresented in Bogota. These two groups are less likely to be evenly spread across the whole city, showing a tendency of patterning between those who obtained lower and higher capability scores. At the urban district and UPZ level, the patterning of underrepresentation of these groups is also present but in a lower degree than in the block scale. Nevertheless, for low (D = 0.50), medium (D = 0.43) and high (D = 0.43) score groups segregation is medium and for the groups in the extremes segregation is high, ¹⁴⁹ revealing a medium-high level of residential segregation of capabilities in young adults in Bogota (multigroup D = 0.48). By comparing levels of segregation in terms of strata and capabilities, the former shows a much higher intensity in each group, suggesting that in Bogota, young adults are more segregated by strata than by capabilities. Figure 6.8 shows the local index of location quotient (LO) which

¹⁴⁷ Please refer to section 1.2 of this thesis for a conceptual discussion regarding these measurements.

¹⁴⁸ The domain of centralisation was not considered as Bogota has a polycentric urban structure, where other areas in the city rather than the traditional CBD (city's historical centre), are able to influence land prices and population of cities.

in residential segregation literature a common rule of thumb to assess the level of intensity of segregation is that the dissimilarity is high for scores above 60%, medium for scores between 30 and 60% and low for scores under 30% (Iceland, Weinberg, & Hughes, 2014).

illustrates the degree of underrepresentation (LQ < 1) and overrepresentation (LQ > 1) of capability groups at a UPZ level.

Low Medium High

Figure 6-8 Spatial distribution of capability scores using location quotient (LQ)

Note: LQ < 1, indicates underrepresentation; LQ > 1, indicates overrepresentation.

Figure 6.8 shows a clear underrepresentation of low scores of capabilities in the north-eastern part of the city, places where young adults with better rankings tend to be located. Geographic distance is also presented among young adults with low and high values, but to less extent in young adults with middle values of capabilities.

As expected, the degree of diversity (entropy) varies according to the scale used in the analysis. The entropy index (*H*) (also called the informational index), which measures the diversity of each aerial unit in terms of the degree of departure or deviation from the diversity presented in the whole urban system (Theil & Finizza, 1971), shows that capability diversity is lower when bigger areal units are considered

and higher as the scale is finer (see Table 6.6). At the block level, the multi-group H shows that levels of integration tend to have a low-moderate level as just 35% of all areal units have the same composition as the entire system. Results at UPZ also confirm this trend. Figure 6.9 shows degrees of diversity across Bogota using local H. A visual inspection indicates that diversity tends to be more prominent that homogeneity, however it calls to attention the existence of 'mono-capabilist' spaces in the northeastern, central and north-western parts of the city. By contrast, a corridor of 'multi-capabilist' spaces is located in the central part of the city, starting on the south-western side of the San Cristobal urban district and extending to the north in the urban districts of Chapinero and Barrios Unidos. Looking at H and D in its one-group version, levels of diversity and exposure are much higher than the equal distribution among groups (dissimilarity). This suggests that capability segregation is more prominent in terms of evenness than in terms of exposure, meaning that the distribution of capabilities tends to be more unequal for those with lower capabilities, although they have a higher likelihood of meeting people with other levels of capabilities.

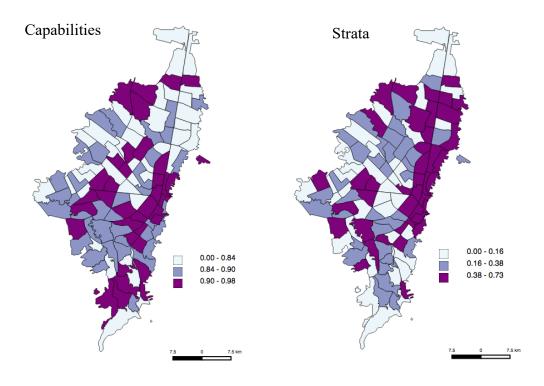


Figure 6-9 Diversity by capability scores and socioeconomic strata

Note: The entropy index varies from 0 (totally homogeneous) to 1.0 (totally heterogeneous).

Table 6-6 Results of selected indices of segregation for evenness

Index	Dissin	nilarity inc	lex (D)		nilarity ind multi-group		D adjus	ted tract co	ontiguity	Ent	ropy index	(H)		ntropy inde nulti-group	
Index	Ul	Up	В	Ul	Up	В	Ul	Up	В	Ul	Up	В	U1	Up	В
Very low	0.160	0.248	0.680				0.134	0.205	n/a	0.021	0.053	0.387			
Low	0.112	0.164	0.504				0.077	0.104	n/a	0.011	0.029	0.287			
Medium	0.082	0.125	0.432	0.105	0.172	0.487	0.029	0.049	n/a	0.007	0.018	0.230	0.016	0.045	0.351
High	0.072	0.137	0.432				0.031	0.059	n/a	0.007	0.022	0.231			
Very high	0.165	0.273	0.541				0.118	0.164	n/a	0.027	0.074	0.314			
T 1	G	ini index (<i>G</i>)		Gini index nulti-grou		A	tkinson (0.	1)	A	tkinson (0.	5)	A	tkinson (0.	9)
Index	Ul	Up	В	Ul	Up	В	Ul	Up	В	Ul	Up	В	Ul	Up	В
Very low	0.217	0.344	0.829				0.008	0.052	0.644	0.040	0.117	0.739	0.073	0.172	0.935
Low	0.151	0.230	0.693				0.004	0.019	0.416	0.018	0.051	0.551	0.033	0.079	0.893
Medium	0.101	0.178	0.623	0.1450	0.241	0.673	0.002	0.006	0.314	0.009	0.026	0.474	0.017	0.046	0.901
High	0.107	0.194	0.621				0.002	0.010	0.321	0.011	0.035	0.475	0.018	0.058	0.900
Very high	0.234	0.373	0.729				0.010	0.034	0.427	0.047	0.120	0.580	0.080	0.212	0.911

Note: Ul: urban district, Up: UPZ, B: block.

Table 6-7 Results of selected indices of segregation for exposure, clustering and concentration

	Exposure										
Index	Isolation index (xPx)			Correlation ratio (Eta²)			Relative diversity (R)				
	Ul	Up	В	Ul	Up	В	Ul	Up	В		
Very low	0.074	0.094	0.316	0.011	0.026	0.274					
Low	0.179	0.202	0.413	0.011	0.025	0.287		0.032			
Medium	0.319	0.342	0.483	0.008	0.022	0.282	0.011		0.293		
High	0.320	0.275	0.472	0.009	0.024	0.277					
Very high	0.157	0.224	0.478	0.022	0.071	0.334					
		Clusteri	ng			Concen	tration				
Index	Spat	ial proximity	index (SP)		Delta index (L	DEL)	Index o	f relative concer	relative concentration (RCO)		
	Ul	Up	В	U1	Up	В	Ul	Up	В		
Very low				0.301	0.446	0.991					
Low	0.999	1.000	n/a	0.371	0.426	0.981	-0.170	0.007	0.114		
Medium	0.999	1.008	n/a	0.366	0.395	0.971	-0.272	-0.006	0.389		
High	0.998	1.030	n/a	0.361	0.406	0.973	-0.181	-0.013	0.443		
Very high	0.995	1.062	n/a	0.355	0.441	0.979	-0.107	-0.007	0.385		

Note: Ul: urban district, Up: UPZ, B: block.

Exposure

For this domain, indices of isolation ($_xP_x$) and interaction ($_xP_y$) were calculated. $_xP_x$ shows that the group of young adults with 'very high' capability scores has the least probability of meeting other groups of young adults. They have the highest probability (47%) of meeting members of their own group rather than other groups. It has also been observed that the isolation index gradually declines as capability scores are reduced between groups. This means that higher levels of isolation occur in better off young adults, whereas interaction among young adult groups is more frequent as they have lower capabilities. As $_xP_x$ and $_xP_y$ are asymmetric indices the chances of meeting varies among groups. Table 6.8 shows the different possible chances of meeting for each group. The chances of interaction for young adults with 'very low' capabilities are notoriously low in comparison with chances of meeting other groups. Exchanges of interaction tend to be more equitable from 'low' to 'very high' groups, and much less equitable for young adults with 'very low' capability scores. ¹⁵⁰

Table 6-8 Pairwise interaction index (xPy) for the capability index

	Very low	Low	Medium	High	Very high
Very low	_	16%	22%	19%	12%
Low	5%	_	22%	19%	13%
Medium	4%	14%	_	19%	14%
High	4%	12%	20%	_	16%
Very high	3%	11%	18%	20%	_

Source: Geo-Segregation Analyzer.

Concentration

Results from the delta index (DEL) and the absolute concentration index (ACO) show that the degree of concentration among groups is moderate at the UPZ level. In relative terms, young adults with a very low level of capability scores are those who are more concentrated in Bogota (DEL = 0.44, ACO = 0.57), meaning that 44% of young adults with very low scores would have to move residence to achieve uniform density. Similar results are shown at district level, showing dispersion among capability score results. For the case of block level, the relative concentration index (RCO) was

¹⁵⁰ Table 6.7 also shows the correlation index (Eta²) which controls for population composition so that the asymmetrical relation is removed. Eta² shows that interaction tends to be moderate-low between all groups.

calculated to assess the concentration of a given group based on how other groups are distributed (majority). RCO shows that there are no cases of equal concentration of groups as values are not close to 0. By contrast, most values tend to show that there is a moderate concentration of all groups except for the group with 'very high' capabilities, which tends to be less concentrated than the majority in densely populated areas of Bogota.

Clustering

Unlike other segregation measurements reviewed here, the spatial proximity (SP) index takes into account the spatial structure of how capabilities are distributed in the urban space (White, 1986).¹⁵¹

At UPZ level, young adults that share 'high' and 'very high' scores of capabilities (SP = 0.9945) tend to be closer to each other, whereas groups with lower capability scores tend to live nearby (Table 6.9). In other words, there is evidence that young adults with lower capabilities tend to cluster separately in Bogota, while young adults with higher capabilities are likely to live or be closer to other young adults with high capability scores. In the same vein, evidence of clustering occurs across a significant portion of the capability spectrum ('very low', 'low' and 'medium' scores) however this happens in a context of low spatial concentration.

Table 6-9 Pairwise spatial proximity index (SP) for the capability index

	Very low	Low	Medium	High	Very high
Very low		1.0004	1.0075	1.0297	1.0615
Low	1.0004		1.0045	1.0249	1.0465
Medium	1.0075	1.0045		1.0096	1.0178
High	1.0297	1.0249	1.0096		0.9945
Very high	1.0615	1.0465	1.0178	0.9945	

Finally, segregation indices were calculated to each component of the CI.

Source: Geo-Segregation Analyzer.

Results showed that young adults are more segregated by factors associated with domains of 'protection and integrity', 'habitat and built environment', 'freedom and independence' and 'occupation'. This finding suggests that these areas are the domains

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¹⁵¹ The index is greater than 1 when members live nearer to members of their own group and it is less than 1 when members of one group are located closer to members of the other group. In the case of values of 1, there is no evidence of differential clustering between groups (White, 1983).

that segregate the most in Bogota. To a lesser extent, young adults segregate themselves for conditions related to the 'right to education', 'equality and non-discrimination' in the city and the capacity for 'leadership and participation' (Table 6.10).

Table 6-10 Multi-group indices D, G and H for components of the CI

Index	Strata	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
D	0.66	0.52	0.48	0.48	0.47	0.45	0.44	0.45	0.46	0.45	0.45
G	0.81	0.71	0.67	0.67	0.66	0.64	0.63	0.64	0.65	0.64	0.63
H	0.50	0.39	0.34	0.34	0.34	0.32	0.33	0.33	0.33	0.32	0.32

Note: 1) protection and bodily integrity, 2) habitat and built environment, 3) freedom and independence, 4) occupation, 5) food security, 6) equality and non-discrimination, 7) right to education, 8) leadership and participation, 9) love, support and affection, 10) health and life.

In the case of education capability, segregation for the 'very low' group is at the highest with a dissimilarity index of 0.95, and 0.93 for the component of 'equality and non-discrimination'. Segregation is also present in the domains of 'health and life' (D = 0.76) and 'protection and bodily integrity' (D = 0.74), as was reported earlier. Differences between groups and domains of the CI were also confirmed with the results of G. For instance, in the case of the domain of 'right to education', segregation in capability groups of 'very low' (G = 0.98) and 'low' (G = 0.90) is almost perfect. Results from exposure measurements also confirm this trend. The level of interaction from all groups towards the 'very low' group is also nil. This suggests that young adults with 'very low' scores are hyper-segregated as all measures of segregation are high.

A bivariate correlation between evenness and exposure measurements and the index of capability was performed aiming to assess the relationship between quality of life and levels of segregation and integration among young adults. For the case of evenness, the dissimilarity index was used to look at the association between capability score groups and segregation. Results show that there is a contra intuitive relationship between capability scores of (M = 0.57, SD = 0.11) and the level of segregation in Bogota. For young adults with higher scores of capabilities ('high' and 'very high'), higher levels of quality of life are associated with higher levels of segregation (r = 0.125, n = 2042, p = 0.01). Conversely, for those young adults with low scores of capabilities ('very low' and 'low'), higher levels of quality of life are associated with lower levels of segregation (r = 0.256, n = 2042, p = 0.01). For young adults with medium scores, association was not significant. This result shows that young adults

with better capability scores are more resilient to offsetting segregation effects than other young adults.

6.5 Discussion

Urban poverty and inequality demonstrate a spatial representation. The way place is configured, ordered and administered has implications for how people achieve better quality of life standards. For the case of young adults in Bogota, quality of life is sensitive to the effects of place, showing that levels of achievement are not equally distributed for all of them. The distribution of capabilities presented here helps to understand a more active role of places in explaining quality of life variations. Place has relational effects on human advantage and needs to be considered as equally important as compositional effects when assessing people's lives (S. Cummins, Curtis, Diez-Roux, & Macintyre, 2007).

The autocorrelation test, regression model and measurements of segregation show that in Bogota, the geographical distance that exists between advantaged and non-advantaged groups leads to differences in the levels they score in the CI, meaning that the achievement of capabilities in young adults is sensitive to their and their neighbours' location. As a summary of findings, three main issues can be pointed out. First, young adults with similar capability levels tend to live closer to one another, suggesting a clustering of capabilities in Bogota. Second, capability scores are intrinsically mediated by the place where those young adults are located. And third, geographic inequalities show that residential segregation, in all its possible domains, is more prominent for young adults with lower capability scores. More importantly, segregation is associated with lower levels of quality of life for disadvantaged young adults, while at the same time it seems to positively affect quality of life levels of the most advantaged young adults. This finding indicates that residential segregation tends to widen the levels of inequality based on capabilities among young adults.

From the perspective of patterning in capability segregation, results showed a process of microsegregation in terms of capabilities. Results of testing global and local autocorrelation for the CI showed that hotspots, 'high-high' areas, were mostly located in the northern part of the city, indicating a significant capability advantage compared to other zones in Bogota. In particular, the UPZ of Santa Barbara is statistically significant

as a cluster of high capability scores. In contrast, coldspot areas were mostly located in the south-eastern part of the city, particularly the UPZ of Sociego, whose 'low-low' correlation type is most significant, implying that capability achievement tends to be relatively lower than in the rest of Bogota. Young adults with a low capability level are more likely to live in the urban districts of San Cristobal and Rafael Uribe. There are significant areas appropriate for capability-driven interventions. For instance, at UPZ level, nine high risk coldspots were identified with low capability scores in young adults (p = 0.01) and two significant low-high areas (p = 0.01). A capability place-based approach suggests policy intervention should focus in these areas. This result demonstrates that spatial inequality in terms of capabilities still follows a macrosegregation process, where better off households occupy northern locations in the city and worse off populations consolidate their social and cultural activities in southern parts of the city (Alfonso, 2012).

By considering this spatial autocorrelation in a spatial regression model, the analysis identified that there is a significant relationship between the level of capability scores and the degree of deprivation among young adults. Results confirm the importance of considering the spatial structure of the data in the analysis, as the model improves its estimation if neighbouring relations are not ignored. Spatial relationships in the case of capability scores work as a confounding variable and not considering this will lead to erroneous conclusions about the relationship between deprivation and scores of capabilities.

For all segregation indices calculated, scores increased as a much finer-grained scale was used, validating the existence of MAUP. Score differences of D for all groups at district and UPZ level are marginal or moderate in the intensity of segregation, suggesting that capability segregation is not so different between bigger areal units. Nevertheless, at block level segregation scores increase substantially. This finding suggests that segregation in capabilities follows a pattern of macrosegregation rather than microsegregation: high and low scores in capabilities tend to live apart from one another as segregation intensifies within lower scale units.

All indices of evenness rendered similar rankings despite the fact each index treated differently the redistribution of minority groups among areal units – due to the transfer principle. *D*, *H*, *G* and *A* provided evidence that segregation operates in terms

of capabilities, and that young adults with very low and very high scores tend to be underrepresented in spatial units. A multi-group D indicates that 48% of young adults would have to change location to allow a more equal capability patterning in Bogota. This finding also indicates that studies which attempt to measure segregation of capabilities might retain D as a consistent indicator for evenness, as well as to allow comparability of results.

From a more conservative approach, in the results from the multi-group entropy index (the only index that obeys the principle of transfer) the level of segregation among adults is still moderate (H = 0.35), much less than the segregation by strata (H = 0.50). As Aliaga and Alvarez (2010) argue, the higher result of H compared with D suggests that capability diversity may have happened as an effect of internal migration of young adults with higher scores to areas with lower scores.

The most segregated capability group is the one that includes young adults with lower scores. This group finds itself in a situation of 'hyper-segregation' (D. S. Massey & Denton, 1989) as it scores the highest level of segregation in terms of evenness, exposure, concentration and clustering. Interestingly, the second most segregated group is the one that has the most advantaged young adults in terms of capabilities. Sixty-seven per cent of young adults with very low capability scores would need to change their place of residence for there to be an equal distribution of the young adults population in Bogota in terms of capabilities. In equal terms, 54% of young adults with very high capability scores would have to move location to produce a better capability distribution in the urban context. The high level of segregation between these two groups reveals that segregation is a political problem for the poor but not for the rich. Having a high level of segregation for young adults with high capabilities also reveals that the reality of segregation is wrongly documented and is often influenced by the social and political perception of inequalities that considers segregation as a "default" state of the disadvantaged population.

Young adults with average capabilities (medium scores) tend to be the least segregated group as they are more evenly distributed in the city. A greater number of less segregated young adults in terms of capabilities indicates a possible hypothesis that the city is experiencing a trend of upward mobility in terms of capabilities, however without panel data available it is not possible to describe the trend of this pattern.

Although the ongoing patterning of segregation in capabilities suggests that a large proportion of young adults, with average capability indicators, tend to be distributed evenly in the urban space of Bogota, the fact that many young adults are not segregated hides a situation of severe inequality at the extremes of capability distribution, as young adults with very low and very high capabilities are those who are most isolated and segregated in the city.

As expected, interaction between capability groups is less likely to happen between dissimilar groups. This pattern is in tandem with strata segregation as groups tend to interact with closer groups. In more detailed analysis, dissimilarity values tend to be higher for young adults with lower capability scores with the particularity that isolation tends to improve in relation to other groups. As Sabatini, Rasse, Mora and Brain (2012) note in the case of Chilean cities, disadvantaged populations have a higher disposition to social integration than other groups, although it is restricted in practice due to the lack of housing supply in heterogeneous areas. This tendency is reversed when capabilities are distributed by strata. In this latter case, young adults with lower scores tend to be distributed more evenly in the space but, at the same time, they are more isolated than other peers. This situation helps us to argue that the greater the level of capabilities, the higher the level of isolation among young adults in Bogota.

An important finding indicates that the association between segregation and quality of life generates different outcomes if scores of capabilities are considered. For instance, for worse off young adults, having a better quality of life is associated with lower levels of segregation, lower levels of isolation and higher levels of exposure and interaction with other groups. However, this rationale is reversed if better off young adults are taken into consideration. For them, quality of life is associated with contexts where levels of segregation and isolation are higher and when the degree of interaction and exposure is lower. Or, to put the point differently, segregation, whether dissimilarity or isolation is taken into account, might be negatively affecting quality of life among disadvantaged young adults and, at the same time, benefitting the most advantaged young adults. This rather contradictory result suggests that residential segregation might generate different effects on quality of life for young adults, which complicates how policymakers approach the problem of residential segregation in Bogota. Further research is needed in this area to better understand the causal relationship mediating between quality of life and segregation.

In terms of the stratification policy in Bogota, differences of evenness and exposure are identified when comparing strata and capability segregation. Strata segregation shows higher levels of segregation in each domain compared with results of capability scores. As Aliaga and Álvarez (2010) identified by comparing strata with variables such as poverty and education, this study finds that strata segregation does not correspond to the patterning produced by capability segregation. This finding indicates that stratification policies should modify their targeting goals to efficiently tackle ongoing deficits of capability achievement among young adults in segregated areas of Bogota.

Quality of life based on capabilities can be more informative that other measurements of well-being. In our case, spatialising capabilities among young adults shows that domains have different trends across groups. LISA indicators showed that domains such as 'protection and ybodily integrity' and 'right to education' can be seen as sources of spatial inequality among young adults. This is also confirmed with measurements of segregation, as 'right to education' and 'non-discrimination', present almost perfect levels of segregation, suggesting they are the domains that segregate more young adults in Bogota. In addition to this, those young adults that tend to have a very low ability to receive quality education tend to be more segregated than other peers. In the same vein, young adults with very low scores in the domain of inclusion (feeling incorporated into society) are highly segregated in Bogota.

In terms of city structure, the hypothesis of moving from a model of macrosegregation towards one characterised by the presence of wealthy and less advantaged enclaves has two different stories if strata or capability is considered as a measurement of poverty. If strata are considered, a city structure based on macro differences is clearer than one that presents a pattern of microsegregation. On the other hand, if we compare through the lens of capabilities, the level of segregation at macro level becomes less intense as a microsegregation patterning emerges as lower levels of isolation appears in most of the groups. The above suggests that young adults' capabilities are more equally distributed and that there is a better level of exposure to other groups if we use measurements of poverty based on strata. Equally important here is that the patterning of microsegregation at block level is not observed in larger spatial units. As more advantaged households have moved to more central areas in the city, the level of interaction between dissimilar groups has become more real. Although more

interaction has incentivised this process of microsegregation, the ongoing mix between different groups has not been sufficient to modify the classical patterning of polarisation and division of the 'north rich' and 'south poor' presented in larger spatial units, such as at the UPZ and district level.

In order to establish conclusive arguments about the weakening of the north—south pattern, distinct temporary measurements of the CI are needed to assess trends. In this regard, it is important to consider that evenness and exposure measures tend to show a global intensity of segregation while lacking information about more detailed patterning of segregation, therefore results from clustering using spatial autocorrelation can provide more information about the level of segregation variation in Bogota.

Nevertheless, and bearing this in mind, results suggest that there is not one but multiple processes of segregation when spatial differentiation is based on capabilities, challenging the elaboration of public policy and the design of mechanisms that attempt to reduce socio-spatial inequalities in urban settings. These results suggest the potential for the wider application of spatial analysis in revealing patterns of residential segregation in well-being and agency data. Clustering of capabilities is informative to policymakers to develop contextually sensitive policy interventions that can alleviate spatial inequalities in Bogota.

Based on the aforementioned results, the analysis now moves to understanding the effects of place on the configuration of young adults' capabilities in Bogota. Bearing in mind that capabilities among young adults differ spatially, the question arises as to whether socio-spatial differentiation, based on different patterns of residential segregation, has an impact on levels of capability achievement among young adults. The next chapter uses primary data to test the effects of heterogeneous neighbourhoods upon capabilities in order to find evidence of the impact that residential segregation has on young adults' quality of life in Bogota.

Chapter 7 The Influence of the 'Fragmented City' on Well-being: Do Heterogeneous Neighbourhoods Affect Young Adults' Trajectories in Bogota?

7.1 Introduction

Quality of urban life, as a measurement of people's achievement and well-being, is an outcome that varies from place to place. In the literature on neighbourhood effect, place attributes are likely to influence individuals' trajectories and levels of quality of life. For instance, for those living in deprived neighbourhoods, place is seen as a factor with lasting consequences on how residents perform and achieve outcomes. Social norms, peer influence and role models, collective socialisation, exposure to violence, and public services (Galster, 2012) are some mechanisms by which deprived and non-deprived places tend to differentiate vastly, indicating the sort of effects that can be caused by the intrinsic characteristics of the places where people live.

As neighbourhoods are still the central places where people develop their social life, research has been overwhelmingly focused on estimating the effects that neighbourhoods have on people's trajectories. Since the publication of 'The Truly Disadvantaged' (Wilson, 1987), literature on neighbourhood effects has tried to prove the hypothesis that individuals living in disadvantaged neighbourhoods and contexts of urban poverty are more likely to experience worse outcomes than peers living in betteroff urban areas. Factors that explain how the concentration of poverty affects individual outcomes are diverse in nature, particularly if the multidisciplinary approach to understanding why space and place affects the life changes of the poor is considered. Within this context, Galster (2012) clarifies that most of the scholarly work on neighbourhood effect has been focused on researching the effects of residential environment by looking at the impact on a set of either behavioural outcomes (Jencks & Mayer, 1990; Aber, Gephart, Brooks-Gunn, & Connell, 1997; Ellen & Turner, 1997; R. Atkinson & Kintrea, 2001; Booth & Crouter, 2001; Ioannides & Loury, 2004) or health outcomes (Wandersman & Nation, 1998; Green & Ottoson, 1999; Pickett & Pearl, 2001; Xue, Leventhal, Brooks-Gunn, & Earls, 2005; Steinmetz-Wood et al., 2017). When these outcomes are investigated in a comprehensive way, the outcome of interest

is transferred to aggregate data in a single indicator of quality of life. By doing this, neighbourhood effects are associated with a single measure of analysis, as urban well-being occurs on different scales and needs to be addressed by an aggregative and multidimensional outcome.

From a critical position, particularly regarding how and where the neighbourhood effect research has been done, studies have mainly either inspected the identification of potential mechanisms through which neighbourhood effects take place or focused on quantifying causal pathways for specific individual outcomes. For the second case, it is quite remarkable that little interrogation of specialised literature has been carried out in order to scrutinise the type of outcomes where effects are evaluated. Indeed, the type of outcome to be analysed seems to have less relevance when it comes to understanding the mechanisms by which the neighbourhood effect operates. Contemporary literature on neighbourhood effects has focused widely on quantifying the relationship between place effects and individual outcomes; research has been considerably less focused on dealing with which, and how, neighbourhood characteristics affect those outcomes (Ellen & Turner, 1997; Galster, 2012).

This criticism becomes relevant when a human perspective is taken into consideration in the study of the literature on neighbourhood effect. For instance, scholars (Wilson, 1987; Jencks & Mayer, 1990; Sampson, 2012) have agreed with the argument that urban poverty has become more concentrated over the years; yet this does not address what sort of evaluative space is under scrutiny in making this claim. Traditionally, individual outcomes are linked to welfarist approaches where an exclusively utilitarian assessment of well-being is considered, excluding other informative spaces of quality of life that can provide useful insights about how people develop. At the urban policy level, the assessment of urban life takes an even more utilitarian perspective as outcomes are valued almost exclusively in monetary terms. This is the case of urban quality of life indicators that place the emphasis of evaluation on counting the number of goods provided by the urban policy (Blečić et al., 2013), without paying attention to the fact that individuals differentiate in their personal characteristics and, therefore, in their ability to transform urban assets into human advantage. Regional science studies have also been inclined to privilege the use of objective secondary data from the census or Living Standards Measurement Study (LSMS) to quantify well-being, leaving aside other informative spaces (Danny Dorling

et al., 2007; Glasmeier, Martin, Tyler, & Dorling, 2008). This chapter argues that the selection of outcomes to assess differentials of quality of life between urban settings is not just a mere methodological decision for researchers, but on the contrary, it constitutes a political decision with clear paradigmatic consequences, as the emphasis of evaluation is not only applied to the causes and mechanisms that are behind the production of neighbourhood effects but also to the outcome variables where the effect is demonstrated.

In operational terms, this idea aims to operate an evaluative framework that associates the interpersonal variation in the ability of individuals to the assessment of quality of life. In this regard, Sen's capability framework (Sen, 1985b, 1992a) could be considered a suitable framework to overcome the limitations of neighbourhood effects literature, in particular, and urban quality of life studies, in general, that look narrowly at the availability of resources as one of the main measurements of well-being. The capability approach (CA) considers that the emphasis of evaluation should be focused on a set of valuable 'being and doings' which can be measured by the available opportunities (capabilities) and the different combinations of outcomes (functionings) that an individual can achieve (Sen, 1992a). Within the capability framework, the 'capability to function' is specifically the outcome of interest, which assesses the effective opportunities people have to undertake those actions they have reason to value. By looking at capabilities, the evaluative space of individuals' quality of life is expanded as the core of evaluation is no longer just under the scrutiny of utility-based approaches (e.g. happiness) or resourcism (e.g. income and commodities), but instead in assessing to what extent domains of quality of life have been achieved and what sort of obstacles are present to hamper individuals' freedom to choose effective opportunities.

To understand how capabilities as individual outcomes perform in the context of neighbourhood effects, this chapter is grounded in the case of spatial polarisation in Bogota. The chapter analyses the case of macro and microsegregation as patterns of residential segregation in Bogota to quantify the effects of spatial inequalities on young adults' quality of life. Unlike the previous chapter, where the Index of Capabilities is mapped to visualize the patterns of spatial inequality and segregation among young adults, this chapter goes a step further by focusing on measuring the effect that spatial inequality, from a perspective of residential segregation, has on capabilities of young adults. Residential segregation in Bogota has generated a city divided by socioeconomic

strata, where the most economically depressed areas are located to the south and periphery of the city, while more affluent areas are located in northern areas of the city (Alfonso, 2012). Despite this, the city, divided between the north and the south, has begun to be described as a fragmented city, in the sense that a process of social mixture is evolving (Aliaga & Álvarez, 2010; Thibert & Osorio, 2014; Higuera, 2016). Mixed communities are present now in the urban space of Bogota, reflecting a change in the geographic scale of segregation which is more micro and localised than before.

As will be explained in greater detail later, the fragmentation of the city is due more to factors in the dynamics of the land market than to urban policies aimed at the creation of heterogeneous neighbourhoods or mixed communities. Contemporary urban policy has been engaged in reducing concentrated poverty through social mix policies. Experiences in mixed communities can be seen in the United States, starting with the Gautreaux programme (J. E. Rosenbaum & Zuberi, 2010), and followed by the well-documented initiative of Moving to Opportunity (Katz, Kling, & Liebman, 2000; Sanbonmatsu et al., 2011; Chetty et al., 2015). Other mixing experiences are well documented in the UK (Lupton & Tunstall, 2008; Bretherton & Pleace, 2011; Kearns, McKee, Sautkina, Cox, & Bond, 2013; Tunstall, Green, Lupton, Watmough, & Bates, 2013), Netherlands (Ostendorf et al., 2001; Uitermark, 2003), Australia (Arthurson, 2012) and in Europe (Musterd et al., 2014).

In the context of urban policy, 'mixed communities' is a controversial strategy as there is limited evidence that these sorts of urban settings have a substantial effect on individual outcomes, particularly in reducing poverty. The assumption that social mix is a suitable alternative to address the negative effects which are present in deprived neighbourhoods (Wilson, 1987; Kearns & Mason, 2007; Lupton & Tunstall, 2008; Glossop, 2008) requires further investigation, particularly when social mix is not a deliberate policy implemented by the state. From an evaluative perspective, these aspects lead to questions such as: To what extent does fragmentation in cities affect people's quality of life? Are there advantages of living in a mixed community in terms of freedom, opportunities and satisfaction with urban life? Does Anglo-European literature on neighbourhood effect, and more specifically, on social mixing policies,

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¹⁵² Concepts of mixed community (Arthurson, 2012, 2013), diverse community, heterogeneous or specialised neighbourhoods (Cheshire, 2012) and microsegregation (de Duren, 2006; Tach, 2014) have been used interchangeably in this section.

provide suitable theoretical and methodological frameworks to understand the urban dynamics from an alternative part of the world? In methodological terms, does place have a deterministic effect on people's trajectories? Can we advance towards finding causal relationships between mixed neighbourhoods and quality of life?

To answer these questions, the chapter looks at the neighbourhood of Juan XXIII in Bogota, an urban setting located in an area of mixed communities, to test the hypothesis of whether living in a context of social mix improves the quality of life of worse-off residents. Methodologically, the chapter attempts to overcome two restrictions in how neighbourhood effects are investigated. Firstly, the analysis looks at the integration of objective and subjective approaches to human advantage. Although several studies have focused on understanding which objective and subjective variables need to be considered (Powell & Sanguinetti, 2010; Brambilla, Michelangeli, & Peluso, 2013; Najafpour, Bigdeli Rad, Lamit, & Rosley, 2014), studies often analyse them separately and do not consider their associations and effects on the development of aggregated indices of quality of life. On the contrary, this chapter assumes a complementary approach to investigate the existence of possible trade-offs in objective and subjective measures of quality of life in cities (Binder, 2013). To do this, alongside the assessment of capabilities and functionings, the chapter investigates to what extent subjective (hedonic and cognitive) outcomes of well-being are affected by being located in mixed neighbourhoods (Harding, 2003; McDool, 2017).

Secondly, this chapter investigates the effect of heterogeneous neighbourhoods upon capabilities and preferences using the method of propensity score matching (PSM) to overcome the problem associated with selection into neighbourhoods (Harding, 2003; Morgan & Harding, 2006). As most studies of neighbourhood effect rely on observational data, researchers are hampered by the difficulty of determining why people live in different neighbourhoods. The presence of unobserved conditions produces a selection bias that prevents explaining whether differences between neighbourhoods are caused by the neighbourhood context or simply because the people who inhabit them are different. To correct for selection bias, the matching method identifies comparable young adults living in a context of mixed communities, comparing them to a counterfactual (poor neighbourhood) to estimate the causal effect of living in a better-off neighbourhood. The use of matching techniques will allow for the estimation of the effects of urban fragmentation on people's well-being and agency.

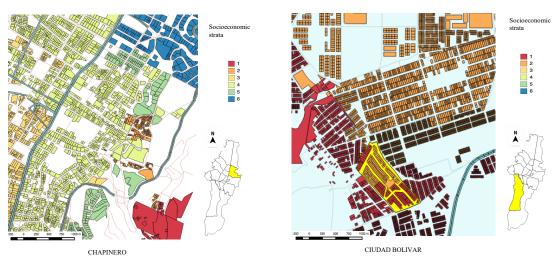
The remainder of this chapter is organised as follows. Section 7.2 'Data' presents the data, study area and variables used. Section 7.3 'Method and Empirical Model' describes the method and the empirical model applied. Section 7.4 'Results' presents the empirical results. Section 7.5 'Discussion' looks at and interprets the findings. And Section 7.6 'Limitations' concludes the chapter by looking at some current restrictions to the interpretation of the findings.

7.2 Data

7.2.1 Study Area

Data for this chapter have been collected from young adults located in Chapinero and Ciudad Bolivar, urban districts of Bogota that show contrasting patterns of residential segregation. Criteria for the selection of these two urban districts are explained in detail in Section 4.3.1 'Selection of Urban Districts and Participants' of Chapter 4 'Quality of Life in Segregated Places: What Does It Mean for Young Adults in Bogota?' of this thesis. In the case of Chapinero, the urban settings of 'Juan XXIII', 'Granada' and 'Olivos' were identified as disadvantaged neighbourhoods in the context of microsegregation based on the socioeconomic stratification system and results from local indicators of spatial association (LISA), which indicated the existence of pockets of capability poverty. (Figure 7.1).

Figure 7-1 Areas of social mix (Chapinero) and social homogeneity (Ciudad Bolivar)



Note: Data using shapefiles from Capital District's Spatial Data Infrastructure (IDECA).

Prioritised urban settings in Chapinero follow a pattern of microsegregation as heterogeneous populations, in terms of socioeconomic conditions, are clustered in the area. Additionally, the urban settings of 'Juan XXIII', 'Granada' and 'Olivos' were prioritised for this study with respect to other similar neighbourhoods (for instance Bosque Calderon) as they are closer to better-off neighbours and they are not isolated on account of the existence of main roads, rivers, large parks or other physical barriers which may result in a distinct separation between groups. Patterns of homogeneity among young adults were located in the urban locality of Ciudad Bolivar. Additionally, and using data from the Cadastre of Bogota, Ciudad Bolivar is composed mainly of strata 1 and 2 residences, suggesting a social and economic homogeneity in the urban setting (Figure 7.1). As the aim of this chapter is to investigate the effects of being exposed to mixed communities in preference and capability outcomes, Ciudad Bolivar district was considered as a suitable urban setting to identify the control group for the analysis.

The selection of the control group (neighbourhood) from Ciudad Bolivar considered a set of spatial and socioeconomic characteristics in order to identify those neighbourhoods which were most similar to Juan XXIII in the urban locality of Chapinero (Table 7.1). Firstly, a total of 21 neighbourhoods matched the socioeconomic criteria. Following a second assessment, and considering exclusively spatial variables (area and distance) and accessibility (security aspects), three neighbourhoods were identified as potential control groups: Primavera I, Perdomo Alto and Quinta del Sur. An active dialogue was established with local organisations and the public offices of the local mayor of Ciudad Bolivar aiming to select a final neighbourhood. After receiving authorisation from local organisations and taking into consideration several security issues, the neighbourhood of Perdomo Alto was selected as the control group to conduct the survey.

Table 7-1 Spatial and socioeconomic criteria for control group selection

Neighbourhood characteristics	Chapinero	Ciudad Bolivar
Neighbourhood characteristics	Juan XXIII	Perdomo Alto
Area (ha)	4.27	5.018
Distance (the closest) (km)		
Main integral transport system	0.7143	0 0.5261
Green area	0.0704	0.0646

Health centre	0.58220	0.8059
Public school	0.35070	0.2097
Bus stop	0.06910	0.1004
Cadastre (no.)		
Lots	353	250
Blocks	30	16
Houses	585	591
Socioeconomic		
Strata	1 and 2	1 and 2
Residential density (houses/ha)	136.82	117.77
Price mt ² (USD)	205.950	213.112

Note: Data from the Capital District's Spatial Data Infrastructure (IDECA).

7.2.2 Questionnaire Design and Sampling Procedure

The process of qualitative research documented in Section 4 'Quality of Life in Segregated Places: What Does It Mean for Young Adults in Bogota?' identified relevant capabilities among young adults in the context of segregation using focus group discussions (FGD) and interviews. Framework analysis was used to aggregate identified capabilities into domains of quality of life, which were then incorporated into a questionnaire through a multiple-question Likert scale. The questionnaire was tested for internal consistency using Cronbach's (α) alpha, ensuring the same directionality of all variables through reversing coding. Results showed a highly reliable α (53 items; $\alpha = 0.806$) for the entire capability section of the questionnaire. In addition to capability-based questions, the questionnaire also collected data regarding hedonic and cognitive subjective well-being (Diener, 1984; Kahneman, Diener, & Schwarz, 1999), and a 10-item personality inventory (TIPI) (Gosling, Rentfrow, & Swann, 2003), measuring personality traits, as well as socioeconomic status (SES) variables.

The final questionnaire¹⁵⁵ was administrated in both urban settings of Juan XXIII (Chapinero) and Perdomo Alto (Ciudad Bolivar) between November 2016 and

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¹⁵³ All items for categorical variables were rated using a five-point Likert-type scale. The questionnaire is not included for the sake of brevity but is available upon request.

¹⁵⁴ Items that were negatively worded were reversed to ensure that high values have the same type of response.

¹⁵⁵ The questionnaire was piloted with a self-selecting sample of 100 students from a private university in Bogota, helping to adapt the structure of the questionnaire, amend the wording of some questions and test the time of application.

June 2017. Before the administration of the survey, a census survey of all households was conducted in order to identify the location and total number of young adults in each urban setting. ¹⁵⁶ In total, 300 young adults were identified in both urban settings of which 231 were surveyed. ¹⁵⁷ The area of the urban settings as well as population density of young adults suggested that the administration of a census survey was preferable to collecting data using a sample survey. ¹⁵⁸

7.2.3 Outcome Variables

The chapter conceptualises quality of life as a multidimensional construct where objective and subjective measurements compose young adults' well-being and agency. In the case of subjective measures, the analysis uses emotional (experience) and cognitive (evaluation) components of well-being (Diener, 1984; P. Dolan, Layard, & Metcalfe, 2011). For the emotional component of well-being, which attempts to make a hedonic assessment of feeling, desires and emotions, the questionnaire included the question: 'Overall, how happy did you feel yesterday?' (HAPP); and for the cognitive component, which assesses people's judgements related to expectations and ideal life (Van Hoorn, 2007) (SATI), the question included was: 'Overall, how satisfied are you with your life in general these days?'

Two additional subjective measures were also included: a variable to measure the level of achievement of well-being (Morrison, 2010) based on quality of life criteria (QoL), and a variable to assess perceptions of available opportunities (OPP). These last two variables enquire directly about how much the place of residence affects well-being achievement and the availability of opportunities, respectively. To be more comprehensive in the proposal of having a multidimensional measure for young adults' advantage, the analysis incorporated two continuous variables. SCALE is a variable that provides a global assessment of young adults' urban life, based on a scale of 0 to 100,

¹⁵⁶ In most cases, the census and questionnaire were conducted at the same time in order to reduce the cost of administration and to ensure the whole young adult population in each urban setting was covered. ¹⁵⁷ In total, 231 young adults were surveyed of which 120 young adults were located in Perdomo Alto (control group) and 111 in Juan XXIII (treatment group). The remaining 69 young adults were either not located or did not give consent to be interviewed.

¹⁵⁸ A non-monetary incentive was used to stimulate participation among young adults and those who participated in the survey were asked to sign a consent form to ensure full awareness regarding potential risks and benefits from their participation in the study. The young adult population census survey was carried out with support of the local neighbourhood association in Juan XXIII and the Community Association 'Cuyeca' in Perdomo Alto, respectively

where 0 represents the worst possible quality of life and 100 represents the best possible quality of life.

A second continuous variable, CAPA, calculates individual scores of capabilities. CAPA is a latent variable based on domains of active functionings identified by young adults. The questionnaire collected data in all relevant domains and calculated a score of capabilities for each individual using principal component analyses. Scores were calculated following the methodology explained in detail in Chapter 4 and 5 of this thesis. For this chapter, domains used to calculate scores of capabilities were those capabilities that were assessed as more influential for them in the context of residential segregation.

Table 7-2 Outcome variables and questionnaire questions

Variable	Code	Question in questionnaire	Туре	Domain of
				evaluation
Happiness	HAPP	How happy or unhappy did you feel	Categorical	Affective
		yesterday?	(ordinal)	well-being
Satisfaction	SATI	All things considered, how satisfied	Categorical	Cognitive
		are you with your life in general	(ordinal)	well-being
		these days?		
Urban quality of life	QoL	What would you say that overall	Categorical	Achievement
		your quality of life is?	(ordinal)	well-being
Available opportunities	OPP	Overall, what do you think your	Categorical	Opportunities
		opportunities for living here are?	(ordinal)	
Evaluation satisfaction	SCALE	Write a number from 0 to 100 that	Continuous	Life
		best describes your quality of life in		satisfaction
		your neighbourhood		
Capabilities/functionings	CAPA	Calculated using PCM	Continuous	Capabilities
			(Capability	
			index)	

Source: HAPP and SATI (P. Dolan et al., 2011), QoL (Morrison, 2011)

7.2.4 Independent Variables

Table 7.3 presents a summary of the descriptive statistics for outcome and covariance variables. Independent variables were divided into three different models. A first model corresponds to socioeconomic variables. Here, socioeconomic variables included young adults' age, gender (male), ethnic group (white), income and spending

level, educational attainment and household tenure. A second model included neighbourhood conditions. In this model, variables included number of people living at home, time living in neighbourhood and commuting time. A third model included young adults' personality traits, which included five personality dimensions ('big five'): extraversion, openness, conscientiousness, neuroticism and agreeableness (Gosling et al., 2003).

Table 7-3 Descriptive statistics of outcome and covariance variables

Variable	Treatment	Control	Total	
	(n = 110)	(n = 120)		
Outcome variables				
HAPP (5 ordered outcomes)	4.17	3.86		
	(0.855)	(0.888)	(-2.892)**	
OPP (5 ordered outcomes)	3.92	3.91		
	(0.65)	(0.44)	(-0.260)	
QoL (5 ordered outcomes)	3.94	3.38		
	(0.865)	(0.801)	(-5.122)***	
SATI (7 ordered outcomes)	5.97	5.71		
	1.12	(1.33)	(-1.283)	
SCALE	79.36	65.29		
	(13.77)***	$(18.01)^{***}$		
CAPA	31.75	58.79		
	$(0.164)^{***}$	$(0.181)^{***}$		
Independent variables				
Age	24.2	21.86		
	(3.13)***	(3.06)***		
Male (%)	48.18	63.33		
	$(0.50)^*$	$(0.48)^*$		
Ethnicity (white) (%)	10.0	14.16		
	(0.30)	(0.35)		
Time living in urban setting	208.49	163.18		
	(125.96)**	(95.63)**		
Educational attainment				
Primary education (%)	4.54	20.83		
	$(0.20)^{***}$	$(0.40)^{***}$		
Secondary education (%)	42.39	51.66		
	(0.49)	(0.50)		
Vocational education (%)	34.54	23.33		
	(0.47)	(0.42)		

University education (%)	16.36	4.16	
	(0.37)***	(0.20)***	
Postgraduate education (%)	1.81	0	
	(0.13)	(0)	
Total net income	3.64	2.49	
	$(1.15)^{***}$	$(1.41)^{***}$	
Tenure (%)	64.54	52.5	
	(0.48)	(0.50)	
TIPI (dimensions of personality)			
Extraversion	4.43	4.28	
	(1.10	(1.27)	
Agreeableness	4.24	4.45	
	(1.11)	(1.20)	
Conscientiousness	4.25	4.43	
	(1.12)	(1.14)	
Emotional stability	4.5	4.43	
	(1.02)	(1.34)	
Open to new experiences	4.32	4.09	
	(1.13)	(1.40)	
Violent assault	0.02	0.14	
	$(0.16)^{**}$	$(0.35)^{**}$	
Commuting time (min.)	36.72	60.47	
	(25.36)***	(39.75)***	
Neighbourhood inclusion	0.93	0.85	
	(0.24)	(0.35)	
House adaptability	0.81	0.55	
	$(0.38)^{***}$	(0.49)***	

Note: Standard deviations in parentheses. t-test for continuous variables, and Fisher's exact test and Mann-Whitney U Test for categorical variables; *, **, and *** indicate significance levels of 5%, 1% and 0.1%, respectively.

7.3 Method and Empirical Model

7.3.1 The Counterfactual Framework for Estimation of Treatment Effects

The aim to assess the effects of residential segregation on capability scores and subjective measurements of well-being comes with the challenge to overcome the problem of selection bias. In the context of neighbourhood effect literature, the selection problem is considered one of the main difficulties in identifying causal effects on

deprived neighbourhoods as individuals do not randomly choose where they live; personal and family conditions might affect where people choose to live (Jencks & Mayer, 1990; Clampet-Lundquist & Massey, 2008).

The result is that it is very difficult to know whether being located in a deprived neighbourhood negatively affects people's life trajectories, or whether the correlation between spatial poverty and lower individual outcomes is a pattern of residential selection, where disadvantaged individuals self-select into or out of neighbourhoods (Clampet-Lundquist & Massey, 2008; Hedman & Ham, 2012). From the perspective of evaluation standards and policy evidence, the simple correlation of mechanisms of residential mobility (observed and unobserved individual characteristics) and deprived conditions can be wrongly assumed to be true neighbourhood effects (Hedman & Ham, 2012). Therefore, the lack of random assignment in observational studies forces researchers to control for self-selection mechanisms and individual characteristics in order to estimate valid treatment effects.

Additionally, to calculate the effects that microsegregation has on young adults' capabilities and preferences it is necessary to know the difference between the outcomes of young adults who are living in the context of microsegregation and those who are not. As it is not possible to look at the difference in outcomes of the same young adults in both urban settings at the same time – a fundamental problem of causal inference – a possible approach is to find a separate group of young adults (control group) who have similar characteristics of those who are living in the context of microsegregation (McDool, 2017). The existence of a control group allows the possibility of assessing what would have occurred if those young adults living in the context of microsegregation did not live there (counter-factual).

In statistical literature, the approach to finding a group other than the treatment group is known as propensity score matching (PSM) (P. R. Rosenbaum & Rubin, 1983) and relies on observational data to pair treatment and control groups on similar pretreatment characteristics. PSM has been used to address the problem of causal inference when data have not been collected following an experimental design, as estimates of causal effects in non-experimental studies can be biased because of the problem of self-selection or researcher criteria when individuals are assigned to interventions (Dehejia & Wahba, 1998). Rooted in the Neyman-Rubin counterfactual framework of causality,

matching techniques allow researchers to obtain an unbiased treatment effect¹⁵⁹ as long as comparative covariates between treatment and control groups affect the decision to participate and the outcome. In the context of this study, PSM can replicate a randomised control trial by using observational data on capabilities by first estimating the probability of a young adult being located in a mixed neighbourhood (heterogeneous neighbourhood), and then matching young adults who live in heterogeneous neighbourhoods with those young adults who live in homogeneous neighbourhoods but had similar probabilities of being located in a heterogeneous neighbourhood.¹⁶⁰

7.3.2 Model Specification and Matching Variables

Matching techniques appeal to researchers because of their capacity to produce estimates with potential for causal interpretation (Angrist & Pischke, 2009). In this section, the central proposal is to investigate whether being located in a heterogeneous urban setting has an effect on how capabilities are perceived by young adults. By using matching as a strategy to determine causation, the research aim consists of determining the average effect of treatment on the treated (ATT).

$$ATT \equiv E[y_i^1 - y_i^0 | X, D_i = 1] = E[y_i^1 | X, D_i = 1] - E[y_i^0 | X, D = 1]$$
(7.1)

Following Heckman et al (1997) and Wendimu, Henningsen and Gibbon (2016), ATT is the average treatment effect of capability scores of being located in a heterogeneous neighbourhood, y_i^1 denotes the capability outcome for a young adult located in a heterogeneous neighbourhood and y_i^0 the outcome for the same young adult if they were not located in a heterogeneous neighbourhood; X is a vector of observed individual characteristics which may affect the probability of being located in a heterogeneous neighbourhood; and D indicates participation in the programme or in this

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¹⁵⁹ The treatment effect is an average effect that is denoted as a parameter of interest. The average impact of treatment on the treated (ATT) indicates the average gain from the programme for those who were treated.

¹⁶⁰ A central aspect of PSM is the assumption of conditional independence or the fact that, once controlling by observable and same characteristics, systematic differences in outcome variables between treatment and control groups are attributable to treatment (Caliendo & Kopeinig, 2008, p. 35). This assumption can be satisfied only if, a) the selection into the treatment is based on observable variables, and b) treatment and control group populations overlap substantially in terms of the variables used for matching both groups. The matching variables are also used as covariates for controlling potential confounding that can threaten the internal validity in the measured relationship (Guo & Fraser, 2014).

case, whether a young adult is located in the treatment area (D = 1) or in the control group area (D = 0).

As the term $E[y_i^0|X, P=1]$ cannot be inferred from observational data, it is necessary to substitute it (the expected capability value of young adults of not being located in a heterogeneous neighbourhood) for the expected capability value of young adults who are not located in heterogeneous neighbourhoods: $E[y_i^0|X, P=0]$. This means that unobserved outcomes from the treatment population ($E[y_i^0|X, P=0]$) can be obtained from observed distribution for the matched nonparticipant group that is under the counterfactual condition (J. Smith & Todd, 2005). In this analysis, young adults from heterogeneous (Juan XXIII) and non-heterogeneous (Perdomo Alto) neighbourhoods are matched using observational characteristics that influence capability scores (outcome variable). The average difference in capability scores from both groups, after controlling by aspects that might yield differences between groups, can be inferred as the effect of location (microsegregation) on the production of capabilities.

Therefore, the causal effect of being located in mixed neighbourhoods on capability scores for young adults can be denoted as:

$$ATT = E[y_i^1 - y_i^0 | X, P = 1] = E[y_i^1 | X, P = 1] - E[y_i^0 | X, P = 0]$$
(7.2)

Rosenbaum and Rubin (1983) suggest that in order to identify ATT it is necessary to assume a strong ignorability (unconfoundedness), so independence between the treatment assignment and the outcome variable can hold. In this study, the matching strategy consisted in adjusting for differences in a set of pre-treatment observable characteristics X, so assignment to any of the two conditions is independent of the potential outcomes once covariates, proposed theoretically, are kept constant (Guo & Fraser, 2014).

In particular, those variables in the survey that affect both the decision to participate and the outcome variable simultaneously were considered to carry out the matching process (Caliendo & Kopeinig, 2008). Bernal and Peña (2011) suggest that researchers can be guided by econometric models or studies that have been used previously to understand a particular phenomenon. To the best of the author's knowledge, there is no previous study that researches the effect of mixed communities

in Bogota. More importantly, the case study under investigation here does not constitute an example of the deliberate policy of moving well-off households to areas of heterogeneous conditions, ¹⁶¹ as it does in studies which normally investigate the phenomenon of mixed communities.

Residential self-selection for the treatment and control groups can be controlled by socioeconomic conditions such as housing, and preferences are likely to be similar between them. Thus, one potential way to deal with this is to assume exclusively sociodemographic and economic variables to control for them in the matching process, as they are likely to simultaneously affect the participation of a mixed community project and the outcome variable under investigation. It is important to recall that these matching variables were at play in conjunction with the spatial and socioeconomic criteria for selecting the control group to ensure that the matched controlled group could provide an unbiased treatment effect estimate (Heinrich, Maffioli, & Vázquez, 2010). Therefore, once differences between the treatment and the control group are controlled, both groups are considered homogeneous, so the fact of being located in a mixed neighbourhood can be regarded as a random event.

7.4 Results

7.4.1 Propensity Score Estimation

To estimate propensity scores, a binary logistic regression equation was calculated as the treatment can only have two possible values (i.e. D = 1, D = 0). A probit function was selected to indicate the probability of being located in a heterogeneous neighbourhood, regardless of whether a given young adult was or not. Earlier *t*-test results showed some variables do not approach significance level, suggesting that differences between the treatment and the control group might not be necessarily be accounted for by matching techniques. It is important to highlight that differences between groups are produced by the multiplicative effects between independent variables towards the outcome variable of interest, and not just for the

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During the administration of Gustavo Petro (2012–2016), the construction of affordable housing in mixed neighbourhoods was part of the urban strategy to tackle levels of residential segregation in the city. The political agenda of 'Bogota Humana' consisted of reducing spatial inequalities through building integration spaces of different parts of the city. After Petro's administration, public policy in this regard was abandoned, or at least public debate on the subject has been reduced (Hernandez & Becerra, 2017).

bivariate relation between them (S. L. James et al., 2017). Therefore, it is still relevant to use matching techniques to account for possible differences in outcome variables between treatment and controls once a set of possible covariances is at play.

Results of the probability of participation on heterogeneous neighbourhoods reveal that young adults with a higher level of education tend to be more likely to live in heterogeneous neighbourhoods. Older young adults with higher incomes and shorter commuting times are also more likely to live in a heterogeneous neighbourhood. Young adults who have lived in the neighbourhoods for longer, with a white ethnicity background and who are renting are also more likely to receive the treatment.

Personality trait results were not significant in the probit regression; however, the sign of the coefficients indicates that young adults who are more self-confident, assertive and who seek a high level of external stimulation (extraversion), as well as those who are more intellectually curious and more unconventional (openness), are more likely to receive the treatment. Conversely, those young adults who display behaviours towards control and self-regulation (conscientiousness) tend to be less likely to participate. The estimated results from the probit regression are presented in Table 7.4.

Table 7-4 Probit regression for propensity score matching

Dependent variable	Heterogeneous neighbour				
Independent variable	Coef.	Std. err.	Z	P > z	95% conf. interval
Age	0.072	0.034	2.11	0.035*	0.005, 0.140
Male	-0.293	0.213	-1.37	0.169	-0.711, 0.124
Ethnicity (white)	0.003	0.003	1.01	0.314	-0.003, 0.011
Time living in the urban setting	0.001	0.001	1.79	0.074	0.4269, 0.142
Education attainment	0.426	0.142	3.00	0.003^{**}	0.147, 0.706
Income level	0.285	0.086	3.30	0.001***	0.115, 0.454
Tenure (rent)	0.504	0.233	2.16	0.031^{*}	0.046, 0.962
Extraversion	0.088	0.090	0.98	0.327	-0.088, 0.265
Agreeableness	-0.031	0.101	-0.31	0.755	-0.229, 0.166
Conscientiousness	-0.206	0.105	-1.96	0.050^*	-0.412, 0.000
Emotional stability	-0.064	0.107	-0.60	0.545	-0.275, 0.145
Open to new experiences	0.099	0.100	0.99	0.545	0975, 0.295
Cons	-3.709	1.322	-2.80	0.005	-6.302, -1.116

Note: *, **, and *** indicate significance levels of 5%, 1% and 0.1%, respectively.

The analysis then progressed to calculate a propensity score which estimated the probability that each young adult would be exposed to a heterogeneous urban setting,

given the control variable determined earlier. For each matching strategy, all confounding variables displayed better balancing after matching since all covariants obtained a much lower level of bias. Standardised differences in means for matched variables were less than 0.25 as is recommended by Stuart and Rubin (2008).

The analysis was restricted to the region of common support, which indicated that for each treated observation there is a comparison observation with a close propensity score, so an optimal overlap can be ensured. The 'trimming level' was calculated following Smith and Todd's (2005) suggestion of defining the region of common support by including only those values where there is a positive density. Finally, different matching strategies were performed to estimate the average effect of treatment (ATT). Table 7.5 presents unmatched and matched values for outcome variables using nearest-neighbour (N1) matching. ATT is positive and statistically significant for SCALE and OPP, and negative and statistically significant for CAPA. This result suggests that young adults living in heterogeneous neighbourhoods on average feel more satisfied with life than those who inhabit homogeneous settings. Young adults in mixed communities tend to have a higher level of affective well-being (HAPP) than young adults located in homogeneous settings. However, the effects for QoL and HAPP do not reach statistical significance.

Table 7-5 Average treatment effect among the treated based on nearest-neighbour matching (1-NN)

Variable	Sample	Treated	Control	Difference	Std. err.	T-stat
HAPP	Unmatched	4.150	3.840	0.309***	0.123	2.51
	ATT	4.154	3.976	0.178	0.202	0.88
OPP	Unmatched	3.935	3.353	0.581***	0.117	4.95
	ATT	3.940	3.428	0.511***	0.193	2.64
SATI	Unmatched	5.967	5.672	0.294	0.178	1.65
	ATT	6.000	5.841	0.158	0.264	0.60
QoL	Unmatched	3.892	3.902	-0.010	0.077	-0.13
	ATT	3.892	4.035	-0.142	1.119	-1.20
SCALE	Unmatched	79.032	64.65	14.377***	2.278	6.31
	ATT	79.059	62.76	16.297***	4.194	3.89
CAPA (%)	Unmatched	0.319	0.590	-0.271***	0.023	-11.33
	ATT	0.311	0.490	-0.179***	0.035	-5.06

Note: *, **, and *** indicate significance levels of 5%, 1% and 0.1%, respectively.

1.0

¹⁶² The standard errors of ATT estimators were obtained by bootstrapping based on 1,000 replications.

Other matching techniques were used to test for robustness of findings. Caliper and radius matching were used to improve the risk of potential bad matches if neighbours are far away between treated and controls.¹⁶³

Table 7.6 reports the results of all different matching strategies employed. Estimated ATTs in each matching strategy show the positive effect of heterogeneous neighbourhoods on young adults' subjective well-being measured by the level of satisfaction and the level of opportunities perceived in the urban environment. Equally, there is a negative effect of living in heterogeneous settings on the level of capabilities. Results show that CAPA has a much lower sensitive response among the different matching methods in comparison to OPP and SCALE. Nevertheless, the effects of heterogeneous settings on CAPA, OPP and SCALE remain significant and robust in each matching strategy.

Table 7-6 Average treatment effect among the treated on subjective and objective measures of well-being. Results from different matching methods

Estimation method	HAPP	OPP	SATI	QoL	SCALE (%)	CAPA (%)
t-test	0.30**	0.56***	0.26	0.01	14.07***	-0.27***
Regression with dummy	0.08	0.54***	0.32	-0.06	14.73***	-0.23***
Nearest-neighbour (NN =	0.18	0.51***	0.16	-0.14	16.29***	-0.18***
1)						
Caliper	0.06	0.50^{**}	0.33	-0.10	13.29**	-0.20***
Kernel	0.08	0.53**	0.35**	-0.10	14.40***	-0.19***
Stratification	0.16	0.50***	0.41**	-0.04	14.30***	-0.19***

Note: Regression models for categorical variables used ordered probit regressions to consider the order of integers rather than the distance. *, **, and *** indicate significance levels of 5%, 1% and 0.1%, respectively.

Affective (HAPP) and cognitive (SATI) measurements of well-being have a positive relationship with the fact of being located in a heterogeneous setting, however the effect is not statistically significant. The significant correlational claim arising from

set of intervals and calculate the effects within each interval by looking at the mean difference between treated and controls (Caliendo & Kopeinig, 2008, p. 42).

¹⁶³ A caliper is set to impose a maximum propensity score distance, so bad matches are not taken into consideration in the analysis. A possible drawback of this matching technique is that treated individuals are excluded from the analysis if no matches can be found within the caliper (J. Smith & Todd, 2005). Kernel matching was also employed in the analysis. In this type of matching, weighted averages of all untreated individuals are used within the bandwidth (0.01) ensuring a lower level of variance, as much information is considered in the analysis (Caliendo & Kopeinig, 2008; C. L. Reynolds & DesJardins, 2009). The analysis also used stratification matching to allow the common support to be partitioned in a

HAPP and treatment does not survive the test of causal effects. Similarly, there is no evidence that living in heterogeneous neighbourhoods has an effect on perceptions of quality of life, however it raises the question of whether the relationship between quality of life and heterogeneous settings can produce detrimental effects.

If there are unobservable factors that were correlated to the treatment variable, it is recommended to use instrumental variables to replace them. As variables used in the analysis come from primary data, there are no additional variables that can serve as instrumental variables or that have the property to be uncorrelated to unobserved factors and that can be informative about the process of microsegregation. An alternative option to test for effects of unobserved variables is to carry out a sensitivity analysis to account for some of the covariance that the analysis was not able to identify. 164

The sensitivity parameter Γ measures the magnitude of the hidden bias through identifying whether two individuals with the same observed characteristic have different probabilities of being selected by the treatment (S. O. Becker & Caliendo, 2007). If there are either no differences in unobserved covariates or there is no influence of unobserved covariates on the changes of participating, the sensitivity parameter Γ will be equal to 1, meaning the absence of hidden bias. Results indicate that for continuous variables of SCALE and CAPA, when $\Gamma = 1$, significance levels are still significant and would constitute strong evidence that heterogeneous neighbourhoods cause an increase in cognitive subjective well-being and detriments in normative categories of well-being based on capabilities and functionings. For the case of SCALE, the negative bounds on significance level for Γ are 1 = 0.0001, 2 = 0.004 and 3 = 0.098. For the case of CAPA, positive bounds on significance level for Γ are 1 = 0.0001, 2 = 0.0004, 3 = 0.019 and 4 = 0.10. Therefore, SCALE is insensitive to a bias that would be double the odds of heterogeneous settings in comparison to homogeneous settings, but sensitive to bias when odds reach a factor of three. For the case of CAPA, the ATT estimate is still significant even if the odds of the matched sample are modified by a factor of three. To put it differently, ATT estimates for SCALE and CAPA are insensitive to unobserved

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¹⁶⁴ Sensitivity analysis assesses the extent to which matching estimates are robust to the presence of unobserved variables that simultaneously have an effect on treatment assignment and outcome variables (P. R. Rosenbaum, 2002).

variables if the odds of matched samples of being located in heterogeneous settings differ by the same factor of two and three, respectively (Wendimu et al., 2016)

7.5 Discussion

The aim of this chapter was twofold. First, the analysis attempts to extend the literature on neighbourhood effects by looking at how divergent dynamics of residential segregation in Bogota produce effects on young adults' well-being and agency. The second aim was to use matching techniques with primary data to compare results of subjective and objective measures of well-being. This method allowed us to investigate the causal effect of mixed neighbourhoods on quality of life, by controlling for factors affecting both residential segregation and objective and subjective domains of quality of life.

Overall, the findings suggest conflicting results between objective and subjective measurements of well-being. On the side of subjective measures of well-being, results show that there is no evidence that living within diverse communities has an effect on emotional well-being. Results show a positive effect on HAPP but effects do not reach statistical significance, meaning that it is not possible to hold the thesis that being located or living in diverse communities explains young adults' happiness. This result suggests that more research is needed to collect better variables to account for 'geographies of subjective well-being'. On the side of cognitive measures of well-being, results are significant. Young adults in heterogeneous settings report a positive level of satisfaction on measurements of SCALE and SATI. For the case of SCALE, statistically significant differences were found. Young adults in Juan XXIII (microsegregated) report themselves 16% more satisfied with their life than their peers in Perdomo Alto (macrosegregated). Conversely, normative measures of well-being based on capabilities and functionings report an opposite result. Here, a statistically significant decrease of 18 to 20 perceptual points of CAPA is reported for young adults living in heterogeneous neighbourhoods compared with their peers in homogeneous settings.

This contradictory result can be interpreted as a case of adaptive preferences as an individual might have increased their ability to adapt to adverse circumstances that segregation causes in their everyday lives. 165 Indeed, the problem of adaptive preferences is one of the central arguments to justify the use of objective measures in the evaluation of quality of life as an open criticism to the utilitarian perspective on how well-being and public choice is assessed. Nevertheless, and assuming the existence of adaptive preferences at the moment of assessing satisfaction among treated and control groups, the question arises over why those who are located in heterogeneous neighbourhoods register a better level of satisfaction than their peers in a homogeneous neighbourhood, taking into account that both groups have similar conditions of marginalisation and economic deprivation.

A possible interpretation to this difference lies in the qualitative results of this thesis. Young adults in heterogeneous settings are more exposed to different lifestyles which can highlight conflicts between their aspirations and their feasible options. They have a better perception in terms of quality of life but with reservations that real improvement of well-being is not equal as most of the opportunities are not targeted at them but at well-off residents. Feelings of habituation and resignation in the context of mixed neighbourhoods might produce a sense of being more adaptive in young adults, so expectation and aspirations in the short-term are more likely to be reassessed and modified according to feasible possibilities compared with young adults in homogeneous settings. The 'keeping up with the Joneses' phenomenon is also an interpretative framework to understand subjective differences between heterogeneous and homogeneous neighbourhoods. Here, young adults' subjective well-being in Juan XXIII might have been evaluated relative to neighbours' well-being, producing a much greater adaptation effect than the one reported in the homogeneous neighbourhood (Perdomo Alto). 166 Qualitative results hypothesised that young adults in Juan XXIII tend to feel more segregated and excluded than young adults in periphery areas. They considered themselves a minority group whose individual choices are co-opted by local interests, so preferences are in most cases guided or manipulated. Therefore, and based

¹⁶⁵ The problem of adaptive preferences has been raised by Sen (1985a, 1987) and Nussbaum (2001) as conflicting, because it can overstate the overall level of well-being experienced by deprived people. Sen argues that people who have been in a context of deprivation for a long time are more likely to report high levels of subjective well-being due to distortion in how they identify the range of choices that are available for them.

¹⁶⁶ Descriptive statistics show that young adults in Juan XXIII are more extrovert and more open to new experiences. This could have led them to be more sensitive to rewards that are present in the context, and which make them obtain a longer positive effect of subjective well-being.

on the quantitative results of this chapter, the restriction of choices to young adults in mixed communities can be confirmed using both research methods.

The differences of subjective well-being between treatment and control groups also lead us to scrutinise the sort of preferences identified in both groups. In his criticism of utilitarian theory, Elster (1982) introduces the idea that preferences cannot be assessed as a given set of wants as they have a temporal and hierarchical dimension which affects how we critically analyse them. In the temporal dimension, a backwardlooking and a forward-looking formation suggests that preferences are affected by the history of actual preferences and by the dynamics of how expectation evolves. In this latter idea, Techl and Comim (2005) call attention to how processes of expectation formation and evolution of aspiration intrinsically affect how people will adapt in situations of inaccessibility of options. This point is important because young adults in heterogeneous neighbourhoods can be more prone to adapt due to the fact that living in diverse communities makes them more aspirational and allows them to develop additional expectations that in many cases they are not able to satisfy or achieve. Indeed, young adults in Juan XXIII show greater levels of optimism and perceived control that their peers in Perdomo alto. This could have led to higher levels of subjective well-being as they believe they are able to change the economic situation. An urban context that produces an 'excess of expectations' might be a cause that explains the different levels of subjective well-being between treated and control populations.

Indeed, the greater adaptation of young adults in Juan XXIII may be a sign of the lack of autonomy and the difficulty in defining substantive freedoms compared with their peers in Perdomo Alto. Adaptability formation is linked to ways of coping with the frustration of not having the material resources to enhance their quality of life at the same rate as their well-off neighbours. Therefore, the constant process of catching up with peers in social and economic domains, and the fact that, as a minority, they are less targeted by public policy due to dispersal, young adults from heterogeneous neighbourhoods tend to accept the given order and adapt their perceptions and social arrangements more easily than young adults in homogeneous settings. The fact that people adapt preferences when they face uneven situations makes them "implicit accomplices" as they legitimise unequal orders (Watts, 2009, p. 430). This serves to explain why young adults in Juan XXIII show a rather lower level of political engagement and social participation than their peers in Perdomo Alto. Based on the

qualitative results of this thesis, worse-off young adults from Juan XXIII described themselves as more apathetic and indifferent towards change, showing their preference for assuming an adaptive position that is represented by their behaviour of following the status quo prevailing in the urban setting in which they are located. In comparison, young adults from Perdomo Alto tend to adapt their preferences at a lower rate. For them, contestation and struggle are mechanisms to preserve autonomy, so they are able to ask for and demand the fulfilment of basic rights, which represents less acceptance of the context of inequality they live in and less adjustment of young adults' aspirations to a feasible level.

The acceptance by young adults in Juan XXIII of downgrading inaccessible options is also represented by the high level that they reported of their perception of availability of opportunities. Treated individuals reported a positive effect on the variable OPP which measures to what extent opportunities are more available to them by the fact of being located in heterogeneous neighbourhoods. The significant level of this variable might indicate that restrictions to identifying certain choices can be at play since opportunities are in most cases provisional or do not provide long-term solutions. Living close to better-off neighbours does not represent a real case for upgrading opportunities but a deliberative manipulation of wants where accessibility to alternatives and options are mainly conditioned by the ability to pay and the existence of influential social relations.

With regard to the objective measure of well-being, results show a detrimental effect of heterogeneous neighbourhoods on capabilities and functionings. Assuming that people's self-evaluation can be distorted by the existence of adaptive preference formation, results on capabilities end up being more consequent and foreseeable. The analysis of capabilities instead of preferences suggests that a normative assessment of well-being can improve the identification of people's wants. The CAPA variable is a normative measure of the relevant wants of young adults which, to the best knowledge of the author, is the first attempt to objectively assess young adults' well-being in specialised neighbourhoods. The size of the effect on capabilities and functionings is

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¹⁶⁷ For instance, young adults in Juan XXIII identify that living close to better-off families has increased access to job options such as domestic work, dog walking, babysitting, home maintenance and so on, but they are not durable solutions to unemployment these types of occupations tend to exacerbate informality and job insecurity.

meaningful. ATT results on CAPA show that young adults from heterogeneous neighbourhoods reduce their central capabilities by 18% compared with young adults from homogeneous settings. This result indicates that, after controlling for selection bias, there is strong evidence to support the argument that mixed urban settings cause the reduction of well-being outcomes in terms of capabilities for worse-off young adults.

This finding extends the current literature on neighbourhood effects in two directions. Firstly, the use of capabilities as an informational space to assess well-being allows us to deviate from paternalistic approaches in the analysis of urban public policies that take for granted predefined domains to quantify urban life. The fact that the analysis included an outcome variable (CAPA), the scores of which reflect achievement outcomes in those domains that young adults have reasons to value, supposes an enlargement of the evaluative space with which quality of life is assessed. Secondly, in methodological terms, the analysis presented here contributes to strengthening the quantitative evidence on the effects of social mix policies, as results are based on causal inference rather than correlational analysis.

This chapter shows the detrimental impact of segregation on capabilities at a micro scale. This is in line with previous research, which arrives at similar conclusions using different well-being information spaces (Luttmer, 2004; Morrison, 2010). The chapter also complements findings that argue that heterogeneous neighbourhoods have a modest effect on the amount of social mixing and social integration that they promise to achieve (Brophy & Smith, 1997; Joseph et al., 2007; Chaskin et al., 2012; Tach, 2014), or have achieved. From an evidence-based policy perspective, the findings presented here allow an advancement in the task of investigating whether place has a causal effect on how urban life is shaped. More importantly, the finding of adverse effects of heterogeneous neighbourhoods provides a clear rationale to assess mixed neighbourhood initiatives critically from the perspective of capabilities. If an integrative approach of objective and subjective measurements of well-being is taken into account, specialised neighbourhoods can be considered as a potential cause of detrimental impact on young adults' opportunities and autonomy. Bearing in mind that the analysis and method employed here do not allow us to completely claim causal effects in the results, detrimental effects of heterogeneous neighbourhoods on capabilities compared to homogeneous settings raise doubts concerning arguments that residential segregation

exclusively reflects social and economic inequality rather than causing it (Ostendorf et al., 2001; Cheshire, 2012). Specialised neighbourhoods in Bogota are far from being harmless in producing additional disadvantages to worse-off young adults. However, this conclusion does not preclude the idea that urban poverty and social exclusion are strongly influenced by other structural and agency factors that also produce inequality.

7.6 Limitations

The analysis presented here is subject to some limitations. First, the reliability of findings depends heavily on the fact that the assignment of living in a heterogeneous setting is produced by a set of observed variables. Personal traits and socioeconomic variables were included as observed covariates, however there might be explicative variables that can be correlated with the treatment that were not considered during the analysis, which can cause bias in the reported estimates. The sensitivity analysis was employed to correct for hidden bias but there is still room for potential bias in the estimates. Second, the study uses cross-sectional data which leave out temporal dynamics on how people sort between neighbourhoods. It would be of interest to test the same hypothesis using panel data, so that the association between quality of life and place of residence can be measured at different moments of the life span. Third, the analysis is carried out on worse-off young adults, and other cases are not reviewed, for example the effects of mixed communities on well-off peers. Additionally, the analysis uses extreme cases of residential segregation to make the case of microsegregation and macrosegregation sorting. Other cases, in which the socioeconomic distance between city dwellers is less predominant, need to be investigated to compare the results presented here. Fourth, the analysis controls for selection bias using matching techniques, nevertheless more research is needed to understand the reasons why people choose certain deprived areas and not others. Neighbourhood sorting is critical to understanding patterns of urban segregation, as selective mobility will end up shaping how neighbourhoods are produced. In the context of microsegregation, worse-off households will choose between different deprived neighbours based on decisions of location and other factors, which will intrinsically produce selection bias in the models. The importance of better understanding residential mobility in Bogota is relevant, not just because it can explain contemporary patterns of urban segregation in the city, but it can also advance towards understanding whether neighbourhood effects are constant

among deprived neighbours or whether the transmission of low capability scores is neighbourhood-specific (Hedman & Ham, 2012).

Chapter 8 Conclusions

8.1 Introduction

This thesis aimed to understand the relationship between socio-spatial inequalities in urban settings and measurements of individual well-being and agency. In doing so, the thesis has contributed to two relatively unrelated research streams. Research on urban inequality is extended by embracing a normative approach to well-being that aspires to alter the path-dependency of looking at urban development exclusively from the lens of resources and income. Human development and evaluation assessment of an individual's well-being is strengthened by looking at young adults' inequalities in the urban context and disregarding a space-neutral approach to how we understand the production of capabilities. The intersection of the two research streams has led to a stimulating research journey that has attempted to wanted to shine a light on global south realities of spatial inequality using the case of Bogota.

From a comprehensive perspective, this thesis can be seen as an attempt to operationalise the capability approach (CA) through the direct identification of urban quality of life (QoL) preferences with beneficiaries, ruling out the adoption of lists created a priori and recognising the importance of further specification of universal criteria by invoking the principle of multiple realisability. This research stance has been fruitful, although it has encountered significant challenges in analysing, interpreting and concluding effects on the study variables. In this regard, the thesis provides two major research products. First, it delivers an ad hoc list of capabilities and functionings for the least advantaged young adults in the context of residential segregation in Bogota. The hope is that the list will alert policymakers to domains of QoL that are essential to living a meaningful urban life in Bogota. Second, the thesis develops a capability index (CI) which serves as an example of how to operationalise the CA based on young adults' data in Bogota. These two products have been instrumental in characterising levels of spatial differentiation in the city and in understanding and measuring the effect residential segregation has on the achievement of those domains. Alongside these two research products, methodological contributions have been presented, aiming to locate capability-led studies in the context of regional and spatial differences.

Thus, this section attempts to draw together major conclusions to provide an overview of how socio-spatial differentiation in cities is having an impact on people's lives. Section 8.2 'Contribution to Literature: Linking Urban Studies with the Human Development Perspective' outlines how research interaction between urban studies and the human development perspective can lead to major gaps in the literature, as identified. Reflecting on the application of mixed-methods research, Section 8.3 'Reflection on the Methodology' leads to some comments regarding major bottlenecks in the application of qualitative and quantitative methods to operationalise the CA in urban settings. Section 8.4 'Answers to Research Questions' discusses research results in light of proposed research questions, intertwining the narrative of key findings with the gaps identified in the literature, as well as pointing out their significance to the debate on residential segregation in contemporary cities. Lessons and recommendations for policy intervention are framed in Section 8.5 'Policy Recommendations', exhorting the importance of creating urban agendas committed to reducing spatial inequalities in cities. And finally, Section 8.6 'Future Research' presents some possibilities for further research that are in need of conceptual and methodological development.

8.2 Contribution to Literature: Linking Urban Studies with the Human Development Perspective

The analysis carried out during this thesis has identified a number of conceptual gaps, both in the discipline of urban studies and the CA. The need to bring urban studies into dialogue with approaches to well-being, such as the CA, emerged almost immediately when the discipline of development studies was considered. The rise of development effectiveness and the need to adopt evidence-based policies in the subject of development studies gave a theoretical and methodological motivation to explore the field of evaluation of QoL in cities. Assuming a comprehensive vision, the analysis found that the thematic intersection between the research fields of urban studies and the CA offered an interesting emergent property: the combination of place and peoplecentred approaches in both disciplines can overcome analytical gaps and might serve as alternative frameworks to understand and assess inequality in urban settings.

As underlined in the introduction, in urban studies, evaluation criteria have been dominated by the liberal and utilitarian perspective of well-being, whose assessment frameworks have given little space for other approaches to emerge. The literature

review found that although approaches to urban evaluation of QoL have made some progress, it is still limited in the use of broader informational spaces of well-being. Within the context of urban poverty and social inequality, which is placing unprecedented burdens on how contemporary cities are being administered, resourceintensive development strategies need to be enhanced with more inclusive approaches. The thesis has illustrated that evaluation methodologies that apply people-focused perspectives are better equipped to identify and inform policymakers about how inequalities are generated, transformed and potentially dissipated. Here, QoL studies have led to measuring and modelling aspects of urban life by looking at objective, subjective and behavioural indicators (Marans & Stimson, 2011) in an attempt to measure aspects such as well-being, satisfaction and happiness. However, they have often left out other approaches more interested in critically assessing aspects associated with human agency and autonomy as well as identifying and measuring constraints for achieving valued preferences, as the CA does. Indeed, bringing people-centred approaches to current normative frameworks to assess well-being in urban settings will help to raise awareness of different aspects of development that need to be addressed and that otherwise would not be open to debate in the ongoing urban political agenda.

On the side of the CA, this thesis has showed that the interpretation of freedom has largely been aspatial, as analyses rarely visualise the spatiality and distribution of capabilities and opportunities, and the effects that place has on these constructs. The thesis has argued that the CA can be enriched by using a place-based approach which helps us to make sense of the spatial context where capabilities are contained. In practical terms, Chapter 2 'Placing Capabilities in Urban Spaces: The Capability Approach of Urban Segregation' sets out a place-based framework for capabilities, which attempts to contribute to the ongoing debate about the role of place in shaping well-being. The framework serves as an instrument of thought to look at the spatial context as an independent vector that determines people's choices. By allocating placebased meanings to 'traditional' concepts of the CA, the framework has aimed at unpacking spatial narratives to explain the production of capabilities in an alternative way. Introduced as such, the framework is an attempt to channel capability-led evaluations to assess QoL in cities. In Chapter 4 'Quality of Life in Segregated Places: What Does It Mean for Young Adults in Bogota?' the place-based framework for capabilities shows that the effects of place, seen as residential segregation (macro and

micro), tend to produce different outcomes in young adults in Bogota. Qualitative results suggest the existence of differences in terms of equality, opportunities and agency when spatial inequalities are taken into account. The framework also provided theoretical inputs to the analysis carried out in Chapter 6 'Marginal Youth: Mapping Spatial Capability Exclusion in Bogota'. Therein, the quantitative analysis served to detect the spatial distribution of capabilities and describe the socio-spatial context of Bogota using secondary data. Results in this chapter suggest that spatial capabilities provide new information about how socio-spatial differentiation in cities works. This indicates that after adding a spatial perspective to the CA, we can not only understand better how the spatial context determines components' association with freedom, but also to inform policymakers about the status of spatial inequalities in cities based on broader informational spaces of human advantage.

The dialogue between urban studies and the human development perspective is put into practice in this thesis when considering the issue of social inequality in relation to specific population groups. The simple inspection of the difficult socioeconomic conditions faced daily by young adults in contemporary cities gave way to thinking about how to improve our understanding of how urban inequities operate using pluralistic frameworks of development. On the operationalisation of the CA, much has been discussed about the relevance of which method is more appropriate or in determining which core concept should be critically assessed. Far less attention is given to the importance of identifying specific subgroups of the population to apply the approach. This thesis illustrated this point with the selection of the young adult category as a demographic group candidate to empirically test how we can model the CA into the studies of QoL in cities. This aspect proved to be critical not only for the obvious reason of having a specific group within the population to operationalise the approach, but because it was a demographic group neglected theoretically and pragmatically by capability-led studies. Additionally, ongoing policy interventions often treat young adults in a paternalistic fashion, which fails to see them as subjects of development. From the results of the empirical work in Bogota, the use of the young adult category to enquire about these issues has shed light on two critical aspects. First, worse-off young adults in contemporary cities experience a range of inequalities simultaneously: socioeconomic inequalities, demographic inequalities (age category) and spatial inequalities (segregation and location). Second, the deferral of seeing young adults as

adults, as they are merely in a transitional stage to adulthood, has led to the omission of providing them with suitable freedoms and rights.

8.3 Reflection on the Methodology

8.3.1 On Qualitative Research

This research has been designed to challenge ideas associated with the difficulties of operationalising the CA. One particular aspect focuses on appropriate methodology and methods for developing and agreeing a list of opportunities and freedoms that can be used as an evaluative framework of well-being.

The identification of relevant domains of QoL, as illustrated in Chapter 4, was based on four sequential stages. It was important to avoid the development of a final or fixed list of central domains of well-being, rather the intention was to provide an adaptable and suitable list for young adults in Bogota living in the context of concentrated poverty. The identification of relevant capabilities and functionings prioritised the use of focus group discussions as a suitable qualitative research method to allow an open and democratic deliberative process for selecting capabilities. The results showed that focus group discussions were critical to legitimatising the entire scrutiny process of identification of capabilities and functionings. The democratic deliberation process, alongside the public reasoning between young adults, expert opinions and policymakers contributed to validating the list of central domains and to ensuring that policy interventions, which might be derived from the identified domains, are constitutive reflections of individual preferences. The application of focus group discussions as a research tool to define well-being domains also allowed the enhancement of transparency protocols between actors, particularly how interests and expectations are presented. This aspect indicates that focus group discussions, but in general participatory research methods that stimulate bottom-up perspectives, are useful in ensuring public reasoning and democratic deliberation, as required by the CA.

Framing questions and participatory techniques to code emergent categories of well-being were used during the focus group discussions. The difficulty in identifying capabilities was overcome with direct questions, which were related to the research context of spatial poverty. Patient and supportive moderation also produced positive

results as a tool to achieve consensus among young adults in the identified domains. In this last aspect, the moderation served to adapt framework analysis as the stages of ordering and reduction of data were combined during the focus group discussions.

There are practical reasons to conclude that the participatory tools of qualitative research are in tune with the postulates of deliberative democracy that the non-universalist vision demands in the identification of substantive capabilities. This suggests that for those researchers interested in identifying capabilities that do not derive from a given or pure theory, participatory qualitative methods are strongly recommended. The use of qualitative participatory tools is essential and can be considered as *sine qua non* if identified domains are treated as authentic reflections of the context in which they have been collected.

The qualitative element of the research was not without challenges. The configuration of focus group discussions was supported by official local authorities who were interested in identifying potential areas of policy intervention for young adults. They agreed to identify and contact key actors interested in participating in the sessions. Despite the fact that the participation of local entities is valued as highly positive, the inclusion of institutional actors, inhibited the participation of some of the sectors of the young adult population. From a retrospective perspective, it is recommended to first consider the relationship between actors before advancing to the implementation of methodological strategies.

On a more procedural level, budgetary constraints as well as difficulties in accessing certain locations prioritised in the research (risks associated with security), led to a reduction in both the number of focus groups carried out and, consequently, in the number of participants. The reduced number of experts on young adults' subjects, in addition to the lack of reliable data and public policy oriented to this segment of the population, limited the feedback process within which the list of substantive freedoms was to be developed.

With regard to the list of capabilities, the external validity of the identified domains is subject to comparability with lists of capabilities in other contexts. Exercises that have developed lists of capabilities for similar population groups (for instance children) have benefited from the similarity of identified capabilities across a large of

pool of studies, allowing researchers to develop universal lists. For the specific case of young adults, potential lists of capabilities need to be identified in other contexts, in order to infer a certain degree of external validity. As an additional discussion point, the final list of capabilities presented in Chapter 4 has some consistency with other lists of capabilities that were created for other population groups. This might indicate that the list of 'central human capabilities' proposed by Nussbaum as endorsed by a wide variety of cultures (2001, 2003), is enough to advance the identification of general capabilities of young adults. The lack of variation of domains between different lists raises doubts about whether specific exercises are necessary, where the context is taken into account. Empirical work in Chapter 4 confirms that urban specificity can be extrapolated from more general definitions of human well-being. Moreover, emergent domains from different segregated urban settings (Chapinero and Ciudad Bolivar) also show a general proneness to be relatively similar. However, the fact there is no difference between capabilities in different lists should be analysed, looking at the meanings of capabilities instead of looking merely at the normative name of the domain. Indeed, capabilities are normative forms of different freedoms that, despite having the same nomination form, have different meanings, uses and applications depending on the population group that is under examination. This means that for the case of young adults, it could be convenient to use normative capabilities (identified previously in universal lists) but meanings have to include those aspects that they considered relevant and valuable.

8.3.2 On Quantitative Research

The thesis dedicated three chapters to testing objective theories by examining the relationship between different variables. In Chapter 5 'Before Entering Adulthood: Developing an Index of Capabilities for Young Adults in Bogota', secondary data were used to create a composite CI. The analysis used the J14 survey to extract the list of capabilities identified using the qualitative research tools in Chapter 4. The J14 survey is the only one of its kind that measures states of QoL on young adults' in Bogota. Although the survey attempts to measure young adults' rights to development in the city, it does not include all the domains identified during the qualitative research, which creates limitations in how we can operationalise the CA. This aspect brings up a sort of incompleteness in the use of secondary data, as many constructs in the J14 attempt to

measure an individual's choices rather than capabilities. Yet, and assuming these sorts of restrictions, the use of secondary data has provided an opportunity to test the operationalisation of the CA on demographic groups that would otherwise be hidden in political agendas. Thus, the use of secondary data has proved to be useful in identifying priorities for policy development as well as reducing research costs. In further research, the use of secondary data to operationalise the CA may be useful to identify priorities in policy intervention in other sectors and using other populations.

In Chapter 6, quantitative analysis was used to merge different research questions. The use of Exploratory Data Analysis (EDA) and segregation indexes for measuring residential segregation provided a more comprehensive picture about how capabilities are distributed in the space. As analysis was conducted using secondary data, some variables had to be ruled out since there was no geocode information available. This aspect poses significant challenges to researchers as empirical studies will need to rely on available spatial data, which in most cases are not available for developing countries. Another contribution of this thesis is in the use of quantitative research in Chapter 7 'The Influence of the 'Fragmented City' on Well-being: Do Heterogeneous Neighbourhoods Affect Young Adults' Trajectories in Bogota?'. First, the limitation of incompleteness of secondary data was corrected in this chapter after using primary data collected by a new ad hoc dataset in two urban settings of Bogota. Second, the application of the counterfactual framework for estimating the causal effects of place on capabilities is new within the neighbourhood effect literature, as it uses capabilities as outcomes and takes a step forward in investigating the case of mixed communities as examples of fragmentation in contemporary cities.

This study used an exploratory sequential approach as qualitative research was used to inform quantitative research (Creswell, 2013). The qualitative research carried out in Chapter 4 collected and analysed focus group data relating to domains of QoL in young adults. Data were used to develop an instrument that demonstrates psychometric properties and that can be administered to larger populations during the quantitative stage. The results of Chapter 7 build on the results of the qualitative phase of the research. This sequential use of mixed methods proved to be suitable for testing hypotheses derived from the qualitative research. Counterintuitive results of Chapter 7 would have been difficult to interpret if there had not been a mixed-methods design involved in the research. More importantly, the internal and external validity of this

thesis needs to be considered in relation to how data were used during the implementation of the mixed-methods design. In the case of internal validity, identified domains were tested using reliability tests. Results were positive, showing that the survey measures the phenomena that it aims to measure. Here, pilot exercises and retests with stakeholders were highly beneficial for calibrating the constructs. In the case of external validity, it has been suggested that results should be analysed with caution. The generalisation of results is to a large extent determined by the normative list identified in the qualitative process. This means that even though the sampling instruments were conducted according to the research protocols (for Chapter 7, instead of sample survey a census survey was administered), the identified domains of wellbeing are context-specific or normative, invalidating the achievement of an ecological validity in the results. In other words, in the operationalisation of the CA, when there is a direct consultation with the stakeholder about what they consider as their real QoL preferences QoL, generalisation is not possible. A similar rationale applies for testing external validity using secondary data. For the case of the index of capabilities (Chapter 5) and its spatialisation (Chapter 6), results are also based on the normative list identified through the qualitative tools. Here, external validity does not satisfy ecological validity, however results can be extended to other young adults in Bogota (population validity), as satisfactory sampling protocols are performed in the survey.

8.3.3 On Operationalisation

This thesis is an empirical exercise aimed at operationalising the CA in the context of spatial inequalities in cities. From an exclusively operational perspective, the use of the CA has indicated that the advantages of the approach are observable when it is applied to specific groups, under modelled circumstances and given contexts. The operationalisation of the approach reaffirms advantages of its instrumental characteristics, but not its theory. It is important to note that scaling up the democratic process involved to identify relevant freedoms in young adults is likely to be affected by the coexistence of unequal power structures through which the democratic process itself is structured. The difficulty in operating the democratic process by using bottom-up perspectives, that naively neglect or ignore the presence of vested interests in the process through which people express what they have reason to value, validates the concerns of those who share a sceptical position about whether Sen's framework is fully

operational (Sugden, 1993; Srinivasan, 1994). Despite tackling this issue, the empirical operationalisation of the CA in this thesis shows that deterministic applications of the approach are feasible as the identification of functionings and capabilities, mediated by how young adults operate their choices and autonomy in urban settings, is achievable.

The thesis concludes that the operationalisation of the CA is feasible in assessing particular demographic groups at identified socioeconomic conjunctures as has been explored extensively in the empirical chapters. The thesis has demonstrated that information about functionings can in practice be complemented by qualitative information that helps to provide evidence about how young adults operate agency and autonomy. Nevertheless, it is striking that the measurement of singular aspects of well-being continue to have an operational restriction. In effect, the lack of reliable secondary data means that obtaining quality information that allows for correct measurement remains a challenge. This aspect was critical when integrating the results of the qualitative methodology with the secondary data as the analysis was limited to the quality of the available data. Therefore, a summary conclusion in this regard is that the approach is truly operable in the identification of relevant capability sets, however it is its evaluative capability that remains a challenge as this depends on the quality of available data and in the methods applied on its collection.

8.4 Answers to Research Questions

This thesis has gravitated around three main research questions. Each question is independent in its own right, as answers are drawn from different research designs, data and research methods. Answers contribute to the general interrogation of how and to what extent socio-spatial segregation in urban spaces affects people's QoL.

What does urban well-being mean to young adults in spatially segregated areas of Bogota?

This question was answered using qualitative research in Chapter 3 'Extended Transitions: Exploring the Human Development Perspective on Spatially Disadvantaged Young Adults' and Chapter 4. The answer is based on the place-based framework for capabilities presented in the introduction to this thesis. Young adults in segregated places in Bogota identified 15 domains that represent their vision of what

constitutes a valued urban life in the city. These domains are normative representations of the well-being of young adults in areas comprising the highest level (Ciudad Bolivar) and the lowest level (Chapinero urban district) of multidimensional urban segregation in Bogota. These two urban areas also represent spaces of polarisation (macrosegregation) and fragmentation (microsegregation) insofar as in the first urban area the economic and social mix is relatively low (homogeneous urban setting), while in the second it is high (heterogeneous urban setting).

These 15 domains of urban QoL emerged after carrying out a democratic process rooted in public scrutiny and open debate with young adults, policymakers and experts. Identified domains constitute the list of valuable functionings and capabilities for young adults in spatially segregated areas of Bogota. The list is a practical exercise to operationalise the CA, with the objective of evaluating the effect of residential segregation in the domains that constitute it. Thus, the list serves two main purposes: first, it provides an exhaustive and non-reductive list of domains of QoL that are essential for living a good life in Bogota, and second, it serves as an instrument of evaluation of QoL, presenting an opportunity for current policymakers to prioritise policy interventions involving young adults'.

Regarding the meaning of QoL in both urban settings, domains and rankings of preference tend to be similar. Most domains tend to display a convergence pattern as ordinal distances are relatively close among them. The similarity of domains between groups indicates a moderate degree of external validity or generalisation of the domains of capabilities associated with urban life, taking into account that both urban settlements encompass the extremes of the distribution of residential segregation. Domains which show convergence patterns between both urban settings are education and work. Other domains that tend to refer to similar topics in both areas but that do not have the same weight and, therefore, do not obtain the same ranking, are friendship and family, feeding, inclusion, tolerance, culture, security, health, leisure, and ability to dream. These domains speak to the issues that are important for both areas in relation to what quality of urban life should contribute to, and therefore should be included by policymakers when designing public policy. Domains that are independent between both urban areas speak to the specificity of each urban environment. Thus, for young adults from homogeneous settings, issues related to mobility, access to public space and receiving social support are important for achieving a better urban life. In contrast,

young people in heterogeneous neighbourhoods consider issues related to political control, social participation and the ability to pay as central elements that QoL must include. The definition of QoL infers that QoL for worse-off young adults in mixed communities is perceived more in terms of accessibility and the need to operate more openly in the city. For young people in segregated environments on a macro scale, the conception of QoL has a clear political background, where well-being is attainable insofar as there are channels of popular and civic expression to demand the fulfilment of their rights.

How does spatial segregation affect people's urban quality of life?

The list of functionings and capabilities for young adults in spatially segregated areas of Bogota was used to evaluate differences of distinct patterns of segregation in Bogota. The assessment operated the place-based framework of capabilities by combining Lynch's performance criteria (1960) of what constitutes a good life in cities (vitality, sense, fit, access and control) with the analytical tool of equality, opportunities and agency provided by the CA.

Findings suggest that different kinds of residential segregation tend to produce differences in young adults' QoL domains. This allows us to conclude that, even without knowing the direction of the effect, residential segregation impacts people's capability sets. This conclusion is informative in its own right as it poses great challenges to urban practitioners since patterns of polarisation and fragmentation seem to be increasingly consolidated in contemporary urban areas, thus inferring the need to pay more attention to the effects of spatial inequalities in cities on people's lives.

In a qualitative assessment of how domains of QoL are achieved by young adults, microsegregation was found to improve domains such as health, environment and security aspects. The critical domains of work and education as well as availability of local public goods are provided for, which potentially gives young adults the opportunity to access them. Conversely, young adults living in the context of macrosegregation have seen their vulnerability related to security issues and environmental hazards increase. Exposure to water and air pollution in concentrated poverty areas is a significant hindrance to QoL, which additionally exacerbates violence and tension among residents. These differentials of QoL in each of the groups tend to be

modified if aspects such as equity, level of opportunities and how agency is operated are taken into account. By looking at these aspects, the place-based framework of capabilities found that young adults located in the context of microsegregation tend to have significantly reduced levels of QoL as opportunities are income-oriented, whereas better-off young adults tend to get the most out of them, and agency is subordinate to local norms as power and dominance relations exercised by better-off residents constrain and restrict the achievement of value domains of QoL.

The findings in Chapter 4, on the negative effects of equity, opportunity level and agency that are reported by young adults in the context of microsegregation, can be seen as a discouraging story. Attempts to bring together people from different socioeconomic backgrounds within a single urban setting can be counterproductive in terms of enhancing the worse-off population's capability sets. This conclusion is in line with studies that question the validity of policies designed to created 'mixed communities' in cities (Luttmer, 2004; Cheshire, 2012), not in the sense that the effects are elusive, but that there are intrinsic factors in urban settings in the way in which capabilities are structured. The concluding remarks of Chapter 6 and Chapter 7 comment on this aspect, given inputs regarding the existence and direction of causation upon the relationship between residential segregation and capabilities.

Is there an effect of spatial segregation on people's quality of life?

This question was answered by looking at different approaches and using different methodological tools. The sequence of the analysis proceeded as follows: First, the concept of spatial segregation was contextualised within the case of microsegregation in Bogota. Second, identified domains of young adults' well-being were used to develop a CI to quantify young adults' capability sets. This exercise used secondary data to extrapolate qualitative findings onto a larger population of young adults. Results of this analysis are reported in Chapter 5. Third, the CI is spatialised to describe processes of socio-spatial differentiation based on capabilities in Bogota. Chapter 6 performed this analysis by testing the presence of spatial autocorrelation and measuring indexes of segregation using scores of the CI. Fourth, by using the counterfactual framework to investigate causality, the analysis is diverted to investigate the relationship between residential segregation and QoL in a case study. Here, Chapter 7 uses primary data to quantify the degree and direction the effect of spatial segregation

has upon young adults' capability scores. This sequence of research brought about the following conclusions.

It came as no surprise that the results of Chapter 5 showed that worse-off young adults in Bogota tend to score lower levels on the CI for the variables of socioeconomic strata and income. The results showed that young adults with better socioeconomic strata double their capability scores compared to other groups. Less familiar were the results that indicate that male young adults have a slightly better score on the CI than female young adults. The fact that women obtained better capability scores than men when they were grouped by age category suggests that women arrive at young adulthood more capable from childhood and adolescence, but they rapidly undergo a marked process of de-capitalisation of capabilities during their transition to adulthood. As an age category, it is in this developmental stage when capabilities tend to be reduced substantially. For instance, their ability to practise an economic activity, demand actions by local government (civil participation) and access quality education correlate negatively when young adults grow up or enter adulthood. This chapter shed light on the research question of whether there are potential effects of place on shaping capabilities for young adults. In this regard, the evidence indicates that when capabilities are mapped to strata (as a proxy of location), those young adults located in more advantaged areas of the city have a higher probability of obtaining a high level of capability achievement.

Chapter 6 takes up the analysis and hypothesis raised in Chapter 5 and finds evidence that urban poverty and inequalities manifest spatially. After using the CI as a spatial analytical framework to understand the role of space in creating urban poverty and inequality, the analysis found that the information that is needed to make an evaluative judgement can be conceptualised from a spatial perspective. This means that the informational space that the CA offers could be expanded even further if, in addition to the current people-centred perspective, a place-based perspective is embraced. More precisely, the chapter detects a spatial distribution of capabilities confirming the hypothesis that capability scores among young adults in Bogota exhibit a spatial dependency. This means that the production of capabilities depends highly on the scores observed at neighbourhood locations, showing a clear socio-spatial differentiation across urban districts in Bogota. From a more methodological point of view, this chapter served to describe the socio-spatial fragmentation trend that Bogota has in terms

of capabilities. The results here showed that geographic distance in terms of income is also reproduced in how young adults achieve capabilities. More specifically, results showed that young adults with high capability scores tend to be located close to well-off young adults, and places with low capability scores tend to be located close to other disadvantaged areas. This leads to the conclusion that young adults are spatially differentiated in terms of how capabilities are achieved in Bogota.

In terms of theoretical contributions, these findings provide a new impetus for the need to introduce strategic spatial thinking (Soja, 2010) when social justice is under scrutiny. In the case of a human development perspective, results indicated that opportunities young adults have reason to value tend to be determined by the conditions that the place exerts. In other words, the place of residence has an intrinsic value when young adults choose and achieve the set of opportunities that are available for them. These findings suggest that the conjunction of normative theories of well-being with place-based approaches to development are highly recommended to assess socio-spatial inequalities.

Chapter 6 also shed some light on the processes of microsegregation in Bogota. Indeed, the analysis tested capabilities using different geographical scales in order to evaluate whether cases of separation or integration could be identified. Here, two main conclusions can be drawn. First, geographic scale is important to understand new patterns of urban segregation in Bogota. The use of block scale data suggests the presence of processes of interaction, measured by capabilities, in determined areas of the city. It is important to highlight that this patterning of microsegregation at block level is not observed in larger spatial units. This means that microsegregation based on capabilities is a reality in the urban structure of Bogota as the level of interaction between dissimilar groups has become more real. The neighbourhood of Juan XXIII emerged as one of the areas in Bogota affected by the process of microsegregation (as poverty pockets and isolated oases). This conclusion needs to be understood in relation to scale as this will affect how results are interpreted. Indeed, the unit of scale used to conduct interpretations of degrees of spatial disparities needs to be clarified openly by researchers in order not to arrive at overvalued conclusions. For instance, the lack of census tract data needs to be addressed responsibly by researchers, stating beforehand the limitations that the research will have if there are no multiple scale data in the analysis.

Second, in terms of segregation indicators, results showed that the most segregated capability groups are those young adults with lower scores in the CI followed by the most advantaged young adults. In the case of young adults with low capability scores, a clear process of hyper-segregation is under way as they obtained the highest scores on segregation on all the different indicators used. Equally important, the fact that young adults with average capabilities belong to the group with a lower level of segregation indicates a possible trend of upward mobility in the city; nevertheless, this hypothesis needs further research. These results are evidence of the spatial form that inequality takes in the urban space. We conclude that inequality has a spatial narrative in how capabilities are distributed in the urban space, showing a strong polarisation of how young adults use opportunities.

Thirdly, the spatialised CI shows that alternative city structures can be mapped to understand urban poverty. Metrics informed by normative theories such as the CA present a less polarised city than those presented by income measures exclusively. By using spatial patterning based on capabilities it is difficult to hold the hypothesis that Bogota is a city divided by the classic differentiation between rich and poor city dwellers. Capabilities are more equally distributed, showing the existence of large buffer zones of young adults who are in a better situation to confront the effects of poverty. To sum up all the aspects outlined in this section, the thesis concludes that after using different scales of analysis and employing different methodological research strategies, there are multiple processes of segregation when spatial differentiation is based on capabilities.

The last chapter of the thesis uses an alternative research design to investigate to what extent place shapes capability formation and other informational spaces of well-being. Chapter 7 framed the discussion under the research umbrella of neighbourhood effects. In general terms, this chapter takes up the hypotheses formulated in Chapter 4 and tests the direction and size of the effect of place on the production of capabilities. The chapter concludes that processes of microsegregation, seen from the perspective of mixed communities in Bogota, may be at odds with achieving better scores of QoL based on capabilities. After controlling for selection bias using matching techniques, results showed that young adults from heterogeneous neighbourhoods reduced their central capabilities by 18% compared with young adults from homogeneous settings. This evidence shows that, after controlling for income and other personal

characteristics, young adults living in the context of microsegregation face greater difficulties in achieving a better capability set than their peers in homogeneous settings. The differences observed between groups are likely the basis of possible differences in terms of social integration, urban accessibility and social capital which might be at risk when worse-off young adults are located in mixed urban settings. The fact that in mixed community areas urban infrastructure is better established hides nuances related to the way in which its inhabitants relate to it. Based on qualitative results, worse-off young adults in the context of microsegregation reported the presence of urban vitality in the area, however they also expressed concerns about their inability to exercise control and access within the territory. Worse-off young adults try to catch up with better-off neighbour peers through the use of social mechanisms of social mobility, such as work and education, but results are poor and discouraging for many of them. Based on these qualitative results, the negative effect of place on capabilities comes as no surprise.

As urban amenities in mixed community areas are of a better quality and more numerous, the effects reported in this thesis seem to suggest that improvement in physical infrastructure does not necessarily mean normative improvement in QoL. An influx of resources, improvement in physical conditions or specific development projects to improve young adults' accessibility to a wider range of opportunities may not be sufficient to tackle the negative causal effect between the place of residence and the QoL of the most disadvantaged. These aspects make it much more complex to tackle the problem of spatial poverty than previously thought, since it requires that public policy design take into account the existence of counterintuitive effects. As discussed in Section 8.5 'Policy Recommendations', urban policies aimed at the production of mixed neighbourhoods require advancing towards the creation of *quasi*-homogenous neighbourhoods, where socioeconomic distances between city dwellers are small, as well as the strengthening of urban programmes such as neighbourhood upgrading strategies since they can better focus on disadvantaged populations.

Considering the above reflections, this thesis concludes the following. First, place configuration, and particularly the concentration of poverty in the form of heterogeneous neighbourhoods, might cause negative effects in the level of capability achievement. Large socioeconomic distances between better-off and worse-off populations tend to be counterproductive for the latter. Second, having more young adults less segregated in terms of capabilities indicates that the city is experiencing a

trend of upward mobility in terms of capabilities. Further research is needed in this aspect using panel data to provide crucial information about trends. Third, the process of capturing the effects of segregation on QoL by using capabilities indicates in its own right that other diffusion mechanisms of the neighbourhood effect can be understood by using the CA. Regarding the counter-intuitive effects obtained, it is possible to conclude that the fact that young adults in Juan XXIII have become accustomed to deprivation and the inequality of the place has made them not appear to be badly off in terms of desires and subjective well-being. This means that the advanced level of spatial inequality that is perceived in the context of Juan XXIII may not reveal that they are deprived in terms of utility measures. However, findings do point to the fact that they are unable to function adequately across a wide range of domains of quality of life.

8.5 Policy Recommendations

The research findings in this thesis may be useful to both policymakers and researchers who are interested not just in the operationalisation of the CA to understand concentrated poverty in contemporary cities, but also in enabling appropriate development conditions for groups that have traditionally been excluded in decision-making agendas, as is the case for young adults. Findings discussed earlier open the space to rethink ongoing policies that are designed to tackle urban inequality, as well as to reconsider the normative approaches currently used to determine what quality of urban life means in contemporary cities. For the first aspect, evidence in this thesis has shown that the deficit in capabilities of young adults who are located in the context of microsegregation is not so much associated with socioeconomic level or personal characteristics but rather with the territorial marginality and social discrimination that is contained at the micro level.

Social integration through improving social transition. Policies aimed at the creation of mixed communities must take into account the design of transitional areas so the social mix can operate more effectively. The thesis concludes that ongoing social mix processes between groups of very different socioeconomic strata in Bogota end up exacerbating segregation in the city and reducing the capability level of worse-off young adults. A social mix that allows the closeness of compatible socioeconomic strata, for instance between strata 3 and 4, can enable transition between dissimilar strata, for instance between strata 1 and 2 with strata 5 and 6. This means that public

policy can enhance the social mix by reflecting a strategy of urban cohabitation where there is not an imbalanced representation of strata, as the existence of both majorities and minorities discourages social mix. This recommendation does not intend to discourage public policies aimed at social mixing in the cities, but rather to provide public policy with options to model alternative configurations to enhance social integration. In fact, these sorts of strategies look at discarding entrenched political and cultural visions which proclaim that social integration is incompatible in the context of cities, and specifically in residential mobility, as socio-spatial differences are considered consequential representations of other modes of social inequality. Cultural patterns that favour separation between groups advocate that social propinquity among equals occurs in the spatial proximity. As long as similar groups are close to each other, social propinquity can incorporate dissimilar groups. Thus, urban spaces can contain greater diversity on a smaller scale, which means that separation and integration can cohabit. Sabatini (2003) had already warned about this aspect with the concept of microneighbourhoods, where the desire to live among similar populations becomes compatible with social diversity. In the case of Juan XXIII, results have shown that proximity between contrasting groups leads to greater capability deprivation which does not mean that we should not move towards social integration, but enable alternative forms of integration to facilitate a smooth process of cohabitation that improves the access to opportunities for worse-off young adults.

Concentrated poverty overshadows enclaves of poverty. Regarding improving capability outcomes, the aim to enhance social propinquity needs independently to reinforce the focalisation and coordination of the provision of social services. The analysis carried out here shows that capability segregation is at the highest level for the cases of both worse-off and advantaged young adults. For the large majority of young adults in Bogota, the obtained score on capability achievement does not tend to produce inequalities as they do not reproduce segregative tactics among them. This fact shows that segregation becomes an issue at the extremes of the capability distribution, which ends up being overshadowed by the better-off capability situation of the large majority. The invisibility of negative effects on capabilities produced by residential segregation should indicate the risks of having less targeted policies when poverty is deconcentrated. The fact that segregation at micro level is produced by market forces and not by deliberative public policy exacerbates the negative effects on worse-off residents

in those areas as they are less likely to be targeted by policymakers due to dispersal. Therefore, policymakers need to address 'hidden' segregation by implementing territorially based policies which first, give an account of the problem, and second, deliver coordinated social services that help the least advantaged to reach vital minimums to enhance social cohabitation. These social packages can be mainly summarised as territorialisation in the implementation of neighbourhood upgrading programmes to tackle urban informality and residential marginalisation (brown agenda and modernisation of houses) alongside strategies to deal in a more comprehensive manner with multi-dimensional deprivation in capability formation.

Public policy debate: considering counterintuitive and threshold effects in the design of public policy. The balance between spatial social integration and its effects on capabilities also challenges the design and implementation of urban strategies. Here, public policy needs to embrace the idea that place effects might display a non-linear distribution (Galster et al., 2000; Galster, 2014) as the availability of means to achieve reaches a critical value. For instance, agency at neighbourhood level can have a threshold-like process as the demographic composition is modified: If there was a greater number of less-well-off young adults in Chapinero, could we expect the same reported level of agency? Demographic composition can affect how people behave and develop their preferences, therefore a change in the social mixture might balance the negative effects that were identified in young adults' capabilities in the urban setting of Chapinero. These hypotheses can be taken into account for further research investigating how capability sets can be subject to threshold effects.

Refocusing and strengthening the role of a human development perspective as a core element of urban well-being. For the case of operational approaches to QoL in cities, policy recommendations are aimed at the integration of approaches oriented to the spatiality of urban poverty and applying more systematically the human development approach in the implementation of policies that aim at reducing urban marginality. Based on the empirical evidence reported in this thesis, urban poverty and inequality have a spatial representation, which indicates that the way place is configured, ordered and administered has direct implications for how people model and achieve their QoL. This draws attention to the design of urban policies to embrace more decisively a place-based perspective, for creating more equal spaces, and to integrate a people-based approach, in order to understand how place works as a mechanism in

shaping people's lives. The way the analysis was carried out here suggests that a capability place-based approach might be a good candidate to put forward in this double integration. The lack of integration of these approaches when designing urban policies can lead to misleading interpretations about how urban marginality operates in cities. Therefore, policy implementation at the urban level requires synchronising development agendas of growth and private investment with strategies that look at reducing social inequality through enabling place-based approaches highly contingent on context. This means that policymakers should strive to create enabling environments to look at the intersection between social inclusion and development agendas if the ultimate goal of the policy is one that seeks the right to the city for all individuals, regardless of the social class to which they belong. Additionally, the conceptual ideas and practical elements discussed in this thesis also help policymakers redirect current debates on the need to adapt spatially blind policies at national and regional level to the spatial context of cities and, more specifically, to particular phenomena that occur within urban settlements. Finally, the integration of these approaches demands the collection of new data and the use of alternative methods that need further analysis by policymakers in terms of cost and relevance.

From the rural—urban dichotomy to intra-urban dichotomies. Differences in development are present not only by looking at the rural—urban relationship but also in the intra-urban context. The identification of intra-urban development differences cannot be effective if space neutral policies continue to prevail. Thus, it is recommended that policymakers produce multi-urban policy interventions that take into account intra-urban differences on how capabilities are produced. This means that policymakers can make use of the spatialised version of the CI to identify cold and hot spots for policy interventions. Urban policies on specific areas in which local governments could provide specific bundles of public goods include, for example, direct investment in 'clusters of low capabilities scores' and 'pockets of poverty' of capabilities. A more even distribution of capabilities is ideologically and programmatically desirable; this means that tackling prioritised capabilities might have a direct effect on the perception of QoL among young adults.

Socio-economic stratification based on capabilities. Another consequence of embracing an integration of place-based policies and people-based approaches to development is that poverty reduction strategies need to recalibrate their evaluative

criteria on how urban marginality operates. The use of capability deprivation as an alternative measure of human poverty has indicated in this thesis that the social stratification system in Bogota may be focusing social intervention erroneously. The integration of approaches allows us to operate a social stratification in terms of informational spaces of well-being instead of one based exclusively on the characteristics of the built environment. This means that focalisation policies can be expanded to multidimensional areas that have been identified and valued directly by individuals.

8.6 Future Research

In terms of future research, this thesis has found certain limitations that can be overcome if research design is modified and data availability is enhanced. Some relevant aspects are outlined below.

The young adult population was chosen as an instrumental population to operationalise the CA in the context of residential segregation. Due to the relevance of young adults as vectors of change in contemporary cities, they were selected as critical agents to investigate how urban dynamics shape their QoL. However, there is much to be learned about how urban capabilities operate in specific subculture groups of young people or other urban populations, as both are potentially rich topics of research to apply normative approaches to well-being. The emergence of street art and the way young people articulate social demands and popular resistance by using graffiti art and musical expression is one such topic. Another topic is the worrying increase in the number of young adults 'Not in Education, Employment, or Training' (NEETs) as employment prospects and educational opportunities tend to be narrow for many of them. A third and very promising topic deals with understanding domains of QoL of better-off young adults. This research has focused exclusively on the least advantaged young adults; however, and in order to better understand the dynamics of social integration, further research could investigate complementary actors to map comprehensively young adults' well-being in cities.

The use of primary data in this thesis had as its main goal the development of an ad hoc dataset to understand QoL preferences among young adults in Bogota. This dataset allows for the tracking domains in different urban settings based on capabilities.

This direct collection of data was a first attempt at capturing capabilities for young adults in the context of microsegregation, however more detailed information is needed if the aim is to generalise findings to other areas with similar urban situations.

Additionally, further research could identify more directly domains of QoL and their effects on the social marginalisation of young adults in cities. For instance, research could focus on measuring the impact of microsegregation on labour market segmentation or educational outcomes.

Equally, this thesis also used secondary data to describe general capability trends for young adults. Despite the potential uses of a capability index for the young adult population in Bogota, results should be treated with care. The J14 survey has limitations in its characterisation of all identified capabilities, as variables contained in the questionnaire also assess other constructs of interest. The use of secondary data restricts the assessment of capability categories as variables in surveys are designed to measure specific constructs, reducing the ability to identify capabilities. Discriminant and convergent validity of the composite index of capabilities have been reasonably established by using face validity and testing correlations within and between components. However, it has become clear in this thesis that the improvement on hypothesis testing of young adults' quality of life in Bogotá, and therefore in enhancing construct validity of instruments, requires primary data. The incompleteness produced by using secondary data that were not designed to measure capabilities highlights the need for new survey instruments or the development of indicators that contribute to a more comprehensive assessment of the state of young adults' capabilities. Finally, although the use of secondary data brings some clear advantages for research (use of large-scale surveys, available data for specific groups and reduction of data collection costs), its use is not without drawbacks. One major limitation was that some domains identified by young adults in the FGDs were not identifiable with the data available. These results, therefore, need to be interpreted with caution.

Given the contra intuitive effects of heterogeneous neighbourhoods on capabilities, further research could be carried out to test effects in similar urban settings. Although cross sectional data seem to perform well by using the employed econometric specification in the analysis in Chapter 7, it is strongly recommended to conduct further research using longitudinal data. As propensity score matching (PSM) relies exclusively on observational data captured by questionnaires, it was not possible to control for all

factors. This means that estimations cannot be considered as strictly causal and caution should be taken when interpreting results. Longitudinal data would also benefit the analysis carried out in Chapter 6 as capability scores can be compared based on different periods of time, so patterns of spatial autocorrelation and residential segregation could indicate the trend direction. The conclusion reported that having more young adults less segregated in terms of capabilities indicates a possible hypothesis that the city is experiencing a trend of upward mobility in terms of capability well-being, but without panel data available it is not possible to describe the trend of this pattern. In the same vein, the CI can render more insights into the trends of capabilities if periodic measurements are taken. In general terms, some research questions can be focused to assess whether capabilities have had an upwards or downwards trend or whether there are processes of well-being catching up across different urban scales.

The research in Chapter 6 tried to avoid the ecological fallacy pitfall (Openshaw, 1984) by looking at fine-grained geographical level data. Nevertheless, secondary data were originally in the form of poorly defined geocodes which implied manually identifying addresses or discarding data. Further research needs to take into consideration this aspect and evaluate critically the time and cost of handling poor quality secondary data. As a conclusive remark on the application of spatial analysis, there is no doubt that the investigation of spatial inequalities is important in its own right, however the use of methodologies and methods in the field of normative well-being needs further justification. This means that there is still work to be done to intertwine social development problems using spatial interpretations. In such contexts, the use of geographical information analysis in researching capabilities suggests promising avenues to pursue. Aspects such as mapping urban agency or tracking daily activities to investigate how time—space relations affect capability-preference formation serve as some examples where researchers can investigate how people's trajectories are affected by local environments.

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