



UNIVERSIDADE CATÓLICA PORTUGUESA

Can non-profit organizations boost regional development?

Measuring the impact of Portuguese non-profit sector on criminality, culture and labor market

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Católica Porto Business School

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sector on criminality, culture and labor market

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master's degree in Finance

by

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“Agir, eis a inteligência verdadeira. Serei o que quiser. Mas tenho que querer o que for. O êxito está em ter êxito, e não em ter condições de êxito. Condições de palácio tem qualquer terra larga, mas onde estará o palácio se não o fizerem ali?”

Fernando Pessoa, Livro do Desassossego

Resumo

O objetivo desta tese é estudar o impacto do sector não lucrativo no desenvolvimento regional Português ao nível do município. Este sector representa um papel importante na sociedade ao satisfazer diferentes necessidades, o qual ganhou importância no contexto de recessão económica vivido pelo país nos últimos anos e que levou a uma diminuição do rendimento disponível da generalidade das famílias e, conseqüentemente, a um maior recurso aos serviços disponibilizados por estas entidades. Neste sentido, o trabalho realizado nesta tese procurou medir o impacto deste sector, medido pelo número de estabelecimentos e de empregados, no desenvolvimento regional medido através das dimensões de criminalidade, cultura e mercado de trabalho, durante o período de 2004 a 2012.

No que respeita à dimensão da criminalidade, os resultados sugerem um impacto positivo do número de estabelecimentos e do número de empregados do sector não lucrativo na redução do número dos crimes reportados nos municípios Portugueses. Na vertente da cultura, os resultados obtidos demonstram que o número de estabelecimentos e número de empregados deste sector não apresentam nenhum impacto no consumo cultural dos municípios. Por fim, na vertente do mercado de trabalho, os resultados sugerem um efeito positivo do número de estabelecimentos na redução do número de desempregados registados nos municípios e nenhum impacto relativamente ao número de empregados do sector não lucrativo na redução do desemprego.

Palavras-chave: Sector não lucrativo; Sociedade civil; Criminalidade; Cultura; Mercado de trabalho

Abstract

This master thesis studies the impact of the non-profit sector in the improvement of regional development in Portuguese society at municipality level. This sector plays an important role in supporting different needs and interests in our society, exacerbated by the economic downturn from the past few years, which led to a significant decline in households' wealth and in turn dramatically increased the demand for the services and products provided by those entities. Therefore, the primary concern of this research is to measure the impact of this sector, through the number of establishments and employees, in Portuguese regional development through three dimensions: criminality, culture and labor market, for the period between 2004 and 2012.

Regarding the criminality dimension, the results suggest a positive effect of the number of non-profit establishments and employees in the reduction of the number of crimes reported in Portuguese municipalities. With regard to the culture dimension, the results suggest that no impact exists between the number of non-profit establishments and employees and cultural consumption of Portuguese municipalities. Finally, regarding the labor market dimension, the results shown a positive effect of the number of non-profit establishments in the reduction of the number of unemployed registered in Portuguese municipalities and no impact regarding the number of employees in the non-profit sector.

Keywords: Non-profit sector; Civil society; Criminality; Culture; Labor market

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Introduction

The non-profit sector has deep historical roots and a long-lasting tradition in Portugal, however, after some controversies with well-known non-profit entities, it is being increasingly scrutinized by the Portuguese media, feeding the continuous discussion of the sector impact and importance to the Portuguese society.

In addition, the Portuguese society is recovering from a period of economic turmoil, which exacerbated poverty in the low and middle-class Portuguese families, increasing the pressure in the services and products provided by the entities in this sector.

In the light of the abovementioned context, this thesis aims to respond to the following research question: has the non-profit sector contributed to the Portuguese regional development, measured by criminality, culture and employment dimensions?

In order to answer the abovementioned research question:

- data regarding the number of non-profit entities and the number of employees was collected from “Quadros de Pessoal” database and data regarding municipalities’ development from public statistical databases, for the period between 2004 and 2012 and comprising 278, 36 and 210 municipalities, for criminality, culture and employment dimensions;
- an econometric analysis was conducted through Ordinary Least Squares and fixed effects model in order to test the empirical hypothesis formulated in Chapter 3.

In this sense, regarding the criminality dimensions, the results suggest a positive effect of the number of non-profit establishments and employees on the

reduction of the number of crimes reported in Portuguese municipalities. Regarding the culture dimensions, the results suggest that both the number of non-profit establishments and employees have no impact in cultural consumption of Portuguese municipalities. Finally, with regard to labor market dimension, the results suggest a positive effect of the number of non-profit establishments in the reduction of the number of unemployed registered in Portuguese municipalities and no effect regarding the number of non-profit sector employees.

The structure of this thesis is organized as follows: Chapter 1 presents a brief overview of the non-profit sector; Chapter 2 review the literature on the definition and determinants of criminality, culture and labor market; Chapter 3 presents the proposed theoretical model to answer to the research question formulated above; Chapter 4 introduces the selection of the data used in the estimation and a preliminary analysis; Chapter 5 presents the methodology adopted to answer to the research questions; Chapter 6 presents the empirical results and Chapter 7 presents the main conclusions.

Chapter 1

Non-profit sector overview

1. Definition

The definition of non-profit sector is non-consensual across countries / jurisdictions. Notwithstanding, Campos et al. (2005a) identified five structural-operational features common to the entities of this sector:

- Organized: have formal structure and regularity to their operations;
- Private: are institutionally separated from the government, even though they may receive support from governmental sources;
- Self-governing: have their own mechanisms for internal governance;
- Voluntary: membership, participation or contribution is not legally required or otherwise compulsory or coerced.

2. Reasons for existence

In general, the following three theories are commonly used to justify the origin of the non-profit sector, either individual or collectively:

- Rose-Ackerman (1987) argues that entities in non-profit sector exist due to ideological, ethical and religious principles of their founders and members;
- Weisbrod (1975) defends that the non-profit sector exists to satisfy the unmet needs for public services from the welfare state, once the

government only satisfies the demand of the median voter, providing a level of public goods less than the demand of the citizens;

- Hansmann (1980) argues that market / contract failures, due to information asymmetries between producers and consumers (*e.g.* the usual consumer of nursing care services do not have knowledge to judge its quality, therefore for-profit nursing organizations could have more incentives to produce low quality services), leading to situations in which consumer's utility is higher when dealing with non-profit producers than for-profit producers.

3. The non-profit sector in Portugal

According with Campos (2005b), the Portuguese nonprofit sector has deep historical roots dating back from the Roman Catholic Church heritage, being influenced by a tradition of mutuality and self-help, a long period of authoritarian political control and the transition to a democracy, which has led to a growing collaboration between the state agencies and nonprofit entities.

Currently, the Portuguese nonprofit sector generally comprises, among others, entities with the following legal forms:

- Associations: former under legal frameworks, such as private law, specific sections of the Civil Code or under the Public Utility Statute, (*e.g.* associations of voluntary firefighters);
- Foundations;
- Local development organizations: operating in rural areas to improve undeveloped territories;

- Holy Houses of Mercy: organizations affiliated with the Catholic Church that are among the oldest nonprofit organizations in Portugal and concentrate mainly on social assistance and healthcare;
- Museums: legally recognized as nonprofit organizations even though most of them are public;
- Non-governmental organizations for development: organizations that maintain programs to benefit developing countries, although many operate in Portugal;
- Mutualist associations: provides mutual aid to their members and are mainly financed by membership dues; and
- Cooperatives.

In general, this sector in Portugal is mainly composed by service-providing organizations that supplement or complement public services in areas as health, culture, education and social welfare, as well as organizations offering mechanisms through which individuals can join together to address group cultural interests or participate in the political life.

Chapter 2

Literature review

1. Introduction

As abovementioned, our research question is focused in measuring the impact of non-profit organizations in criminality, culture and in the labor market of Portuguese municipalities. In this sense, this section presents a review of the existing literature regarding these three dimensions, addressing their definition and determinants.

2. Criminality

The study of criminality as result of economic choices made by agents, instead of psychologic illness or inheritance of problematic traits, had its starting point in Becker (1968), following a previous empirical analysis made by Fleischer (1963) who studied the impact of an economic variable (unemployment) in the youth criminality, and remained known as the “economics of crime”.

Becker’s definition of crime includes all violations (not just felonies) and is characterized as “(...) an economically important activity or “industry”(...)” in which the decisions of entry in illegal activities could be explained by the same maximization framework used by economists to explain the entry in legal ones: rational agents compare the expected benefits of entry in illegal activities with the benefits obtained in legal ones, taking into account the perceived risks (or costs), which may range from the loss of social status, payment of fines to being arrested.

In this sense and according to Buonanno (2003), the literature that followed focused on the empirical study of social (*e.g.* cultural characteristics, education, age or sex) and economic variables (*e.g.* unemployment and wage inequality) that may influence the criminality (measured by the number of crimes reported / registered in a given period) maximization problem, which are resumed in Figure 1 and presented in the following subsections.

2.1 Unemployment

Although being one of the most studied variables regarding the influence in criminal activities, the relationship between unemployment and crime remains unclear, as most empirical studies find that most people engaged in criminal activities are employed and therefore, there is not a statically significant correlation between unemployment and criminality.

In theory, unemployment reduces income, increasing inequality and the economic incentives to engage in criminal activities. However, according to Freeman (1994), “(...) unemployment-crime link was statistically looser than the link between measures of deterrence (...) and was more aligned to property crimes than to violent crimes.” The appointed reason underlying this finding is closely related to the effect of crime on future earnings, as Freeman states “The returns of crime depend on: the chance of success, the money (utility) obtained from crime, less the value of time spent at crime (...) change of being caught and convicted, the length of sentence and resultant earnings lost due to imprisonment (...)”, therefore, the author adds that “(...) the crime decision should also depend on the effects of crime on future earnings opportunities (...)” and “(...) incarceration reduces an individual’s economic outcomes in the long run. This implies that the cost to an individual of crime exceed the opportunity costs of devoting less time to legitimate activity today.”.

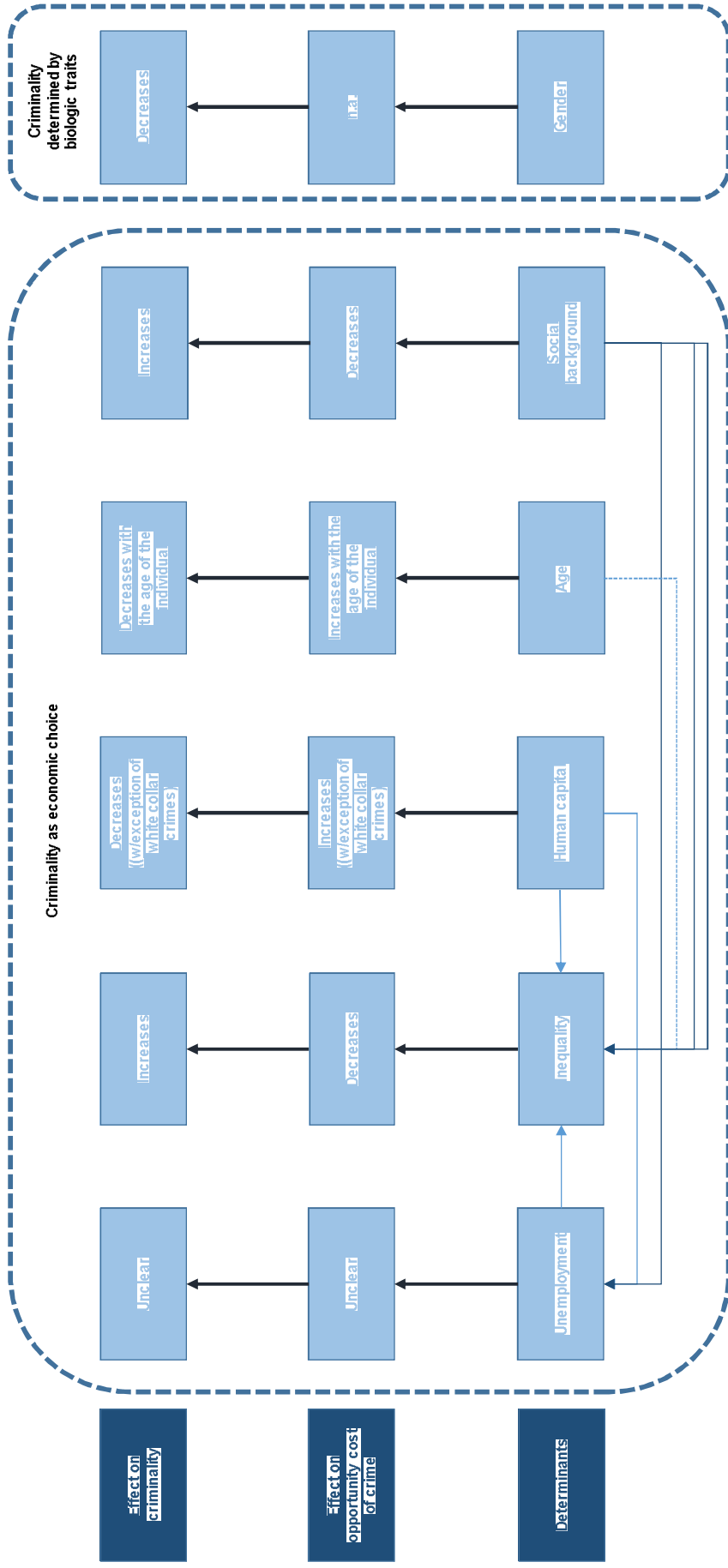


Figure 1: Determinants of criminality

Dahlberg and Gustavsson (2005) reinforced the idea above introducing a distinction between a permanent and a transitory part of income and that “it is rather an individual’s permanent position in society that is the main factor affecting one’s decision to commit crime or not, not the individual’s transitory deviation transitory from the permanent position, implying that it is the inequality in permanent income, and not in transitory income, that is the important determinant for crime.”.

The measures adopted by Dahlberg and Gustavsson (2005) were the criminality rate per capita and used total earning from all jobs (including sickness benefits) earned by an individual in a given year to compute the permanent and transitory part of income.

Therefore, literature seems to suggest that the unemployment may not explain by itself the engagement in criminal activities by an individual, however, conjugated with inequality in the permanent part of income, it might be an important determinant for engage in crime, as presented in the next section.

2.2 Inequality

Merton (1938) analyzed the social structures that may “(...) exert a definite pressure upon certain persons in the society to engage in nonconformity rather than conformist conduct.”, and defined inequality as the mismatch between the social position of an individual and “the culturally defined goals, purposes and interests (...) involving various degrees of prestige and sentiment.”. Merton states that individuals low in social structure (i.e. failing in reaching their goals) become alienated from society and are more prone to commit crimes. Finally, this mismatch may arise from income inequality or from belonging to racial minorities.

Income inequality has been appointed as one of the major causes of engagement in criminal activities. Kelly (2000) states that “(...) in the economics

theory of crime, areas of high inequality place poor individuals who have low returns from market activity next to high-income individuals who have goods worth taking, thereby increasing the returns to time allocated to criminal activity.”

The measure of income inequality adopted by Kelly (2000) was the ratio of mean to median household income, being the log of this measure comparable to a Gini coefficient.

Madden and Chiu (1997) also suggest that the “(...) level of property crime will be influenced in some way by the distribution of income (and wealth)”, also, their theoretical model predicts that “(...) the level of crime may be higher under regressive taxation and in the richer neighborhoods.”, because it increases the relative differential inequality in the permanent part of income and thereby the returns in the economic incentive to undertake criminal activities.

Finally, Juhn, Murphy and Pierce (1993) found that income inequality is exacerbated by lack of education and skills, which lead to lower wages or unemployment, introducing more pressure upon certain individuals to engage in criminal activities.

2.3 Human capital

Lochner (2004) defines human capital as skills “(...) acquired through costly time investment (e.g. education and job training) and those increase the return to work.”.

Criminal choices appear to be strongly influenced by the level education or skills acquired by an individual, however, the effect is not linear in all type of crimes, as explained below.

Following Lochner, education and job training increase wage rates and reduce the probability of unemployment, increasing the opportunity costs of crime and reducing post-school criminality. The increase in the opportunity costs occurs in

two distinctive ways: "First, since crime may requires time to commit that cannot be used for other productive purposes like work (...) second, each crime committed entails an expected period of incarceration, which is more costly for individuals with better labor market opportunities and wages."

To the explanation above, the same Lochner and Moretti (2001) add that "(...) schooling may directly affect the financial or psychic rewards from crime itself (...) may alter preferences in indirect ways (...) for example, education may increase one's patience (...) or risk aversion".

On the other hand, education may also facilitate certain types of crime, as Lochner (2004) states: "This is most likely to true for white collar crimes (...) education may also increase these type of crimes if it increases the rewards from crime more than it increases the legitimate wages."

To measure human capital, Lochner (2004) used the number of years of school / training completed by and individual.

Finally, the effects of education and job training may be more determinant among youth crime, as Lochner (2004) describes " (...) education increases future wage rates, youth who are enrolled in school will be less likely to engage in crime than otherwise similar youth who are not in school.". The relation between age and criminality is presented below.

2.4 Age

Age has been studied as one of most relevant determinants of criminality, being young individuals more likely to engage in criminal activities.

Freeman (1996) when studying the criminality in United States during the 1980s found that unemployment and lack of education have most severe effects amongst young people. As the author explained, this was essentially a consequence of a determination in the labor market, which led to an increase of

the economic rewards of crime relative to those from legal work, and “(...) young men respond significantly to relative rewards.”.

Grogger (1997) explained that young individuals are more prone to engage in criminal activities because they are more wage sensitive, i.e. they face a lower opportunity cost when compared to older ones: “(...) wages largely explain the tendency for crime to decrease with age, a phenomenon widely observed by criminologists. In this context (...) wage represent the opportunity cost of crime, and are well-known to rise with age.”.

2.5 Gender

Women are less likely to engage in criminal activities than men are (Denno, 1994). This is essentially explained by biologic (e.g. lower capacity to perform crimes that require physical strength) and psychologic traits, as well as the position typically assumed by women in society (e.g. more focused in domestic labor).

2.6 Social background

Social background is intrinsically connected with criminality since social factors affect the perceived opportunity costs of crime. Social interactions (e.g. neighborhood or family background) and the availability of means to commit crime, namely the access to guns, are important variables of the maximization problem that may originate criminal acts.

2.6.1 Social interactions

A number of models seek to explain how these social factors interact and influence an individual attitude towards crime in a given area / region. Sah (1991) argues that a cross-section interaction in criminality may exist, i.e. individuals from high criminality areas are more prone to engage in crime than individuals

from low criminality areas. In the first place, police only can arrest a fixed number of criminals, so when there is too much crime, the probability of being arrested decreases, decreasing also the opportunity cost of engaging in criminal activities. Additionally, Murphy, Shleifer and Vishny (1993) suggest that high criminality rates decrease the returns for not being a criminal because criminals “stole” the legal revenues, decreasing the opportunity cost of crime.

Other models explain how criminals and non-criminals interact and influence each other's decisions. Jacobs (1961) explains that non-criminals are involved in the reduction of criminality, both by disciplining criminals and allocating resources to crime prevention. In this sense, if the number of non-criminals falls, the resources allocated to prevent and fight crime falls, decreasing the opportunity costs of engaging in criminal activities. Rasmusen (1996) introduced the concept of stigma as “(...) someone's reluctance to interact with someone else who has a criminal record (...)” and can be economic (*e.g.* difficulty in finding a job or lower wages) or social (*e.g.* difficulty in finding friends or a spouse). According to the author, if the stigma from crimes decreases (which may occur during times / areas with high criminality rates, where the criminal becomes perceived as a normal member of society), the opportunity cost of become a criminal also decreases. On the other hand, stigma also helps to explain why individuals from high criminality areas or backgrounds are more likely to suffer economic and social penalization, even if they not present a criminal record (*e.g.* if they are part of a racial group more connoted with criminality).

In terms of local/micro interactions, Glaeser, Sacerdote and Scheinkman (1995) explain that society is essentially split in two class of agents regarding criminality: (i) agents who influence and are influenced by neighbors and (ii) agents who influence their neighbors, but who are not influenceable (“fixed agents”), which can be interpreted as a strong family background or education attainment, for example. The interaction between those agents can be resumed as

follows: (i) information flows about the returns of crime or about how to be a criminal; (ii) inputs from family members that determine the opportunity costs of crime; (iii) peer group approval; and (iv) monitoring by proximate neighbors (and neighbors do not monitor if they are also criminals). Finally, these interactions across both type of individuals theoretically culminate in the following impacts in criminality rates: (i) Sah's theory, which states that high levels of crime reduce the capacity of additional arrest by the police, increasing the incentives to pursue criminal activities; (ii) Return to legal activities theory, which states that higher levels of crime reduce business activity in the neighborhoods, making difficult to the remaining habitants to find a job, therefore increasing the incentives to criminality (iii) Schooling theory, which states that higher levels of criminality make it harder to other habitants to acquire education and less schooling lead to higher criminality and (iv) the single-parent family theory, which states that criminal background of the parents make children more likely to engage in criminal activities or children raised without parents are more likely to become criminals".

To study the interactions outlined above, Glaeser, Sacerdote and Scheinkman (1995) use as measure in their model the following indicators per city: (i) number of habitants; (ii) population growth rates; (iii) levels of education (measured by years in school / college); (iv) number of females; (v) poverty levels; (vi) unemployment rates; (vii) owner occupied housing; (viii) level of property taxes; (ix) police members per capita; and (x) racial composition of population.

As a conclusion, individuals from neighborhoods with high criminality rates and/or with a family background with criminal records and/or living in times of high criminality are more prone to engage in criminal activities, *ceteris paribus*.

2.6.2 Means to commit crimes

Finally, gun ownership has been discussed as one of the main determinants of criminality rates, once guns represent a mean available to engage in criminal activities. Kleck and Patterson (1993) argue that gun ownership reduce crime rates because they are frequently used in self-defense, increasing the opportunity costs. In contrast, Donohue and Levitt (1998) states that gun ownership reduce the predictability of fight outcomes (e.g. the outcome of a confrontation between an unarmed criminal and the police is predictable, but the outcome with an armed one is not), reducing the opportunity cost of crime. Overall, despite certain empirical studies suggested that gun ownership leads to an increase in crime (Duggan, 2000), the relationship remains unclear.

3. Culture

Katz-Gerro and Falk (2015), when studying cultural consumption determinants across Europe, defined cultural consumption as the decision to visit museums, art galleries, historical monuments and archaeological sites. However, in previous studies a most wide definition was adopted, including out-of-home leisure activities (e.g. cinema, concerts, theatre and leisure groups, among others).

Bourdieu (1984) established social class as the major determinant of cultural taste and consumption, being members from social elites more likely to consume more frequently and more complex culture, as a practice to distinguish them from the members of other classes. However segregating individuals in social classes might be a subjective exercise.

Notwithstanding, further literature introduced less ambiguous social and economic factors that might determine cultural participation, as resumed in Figure 2 and presented in the following subsections.

Finally, Katz-Gerro and Falk (2015) measured cultural consumption by the number of visits to historical monuments, museums, art galleries and archeologic sites.

3.1 Education

Frey and Meier (2003) argue that cultural consumption (e.g. mainly of museums) entails education value, however it requires well-educated individuals to recognize these value. Nash (1990) argue that cultural awareness or capital is transmitted by parents to children, depending, in this sense, of the familiar background and social class of an individual. Additionally, Coulangeon (2005), shown that educational attainment is also an important factor in creating cultural demand, being qualified individuals more prone to consume culture: “(...) in terms of cultural participation, educational policies are perhaps quite essential as cultural policies.”.

Finally, Coulangeon (2005) measure educational attainment by the number of years completed at school.

3.2 Price

Withers (1980) found that demand elasticity (which indicates by how many percent the number of visitors decrease when the price / entrance fee is raised by a given percentage) for performing arts is low, once consumption of these events is more influenced by taste than price.

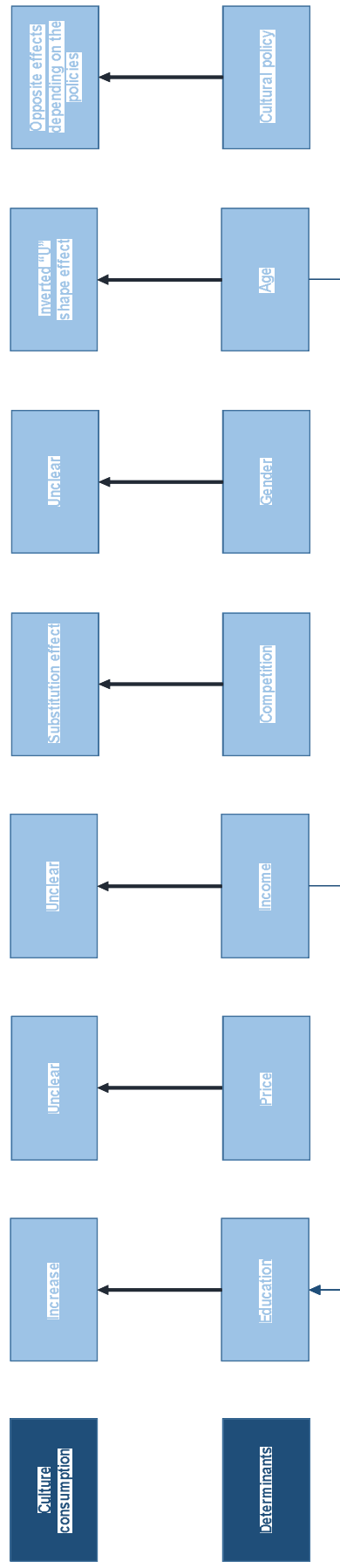


Figure 2: Determinants of culture consumption

Accordingly, Frey and Meier (2003) also found that price elasticity of cultural consumption is estimated to be low, namely in museums (and similar educational activities) and performing arts. In this sense, Luksetich and Partridge (1997), using only adults' general admission price to museums (excluding discounts to children and senior citizens), found that demand for history museums is more inelastic than in other museums and cultural activities (*e.g.* zoos), because of the stronger competition faced by the latter.

3.3 Income

Withers (1980) through an econometric study shown a positive income elastic demand for culture *i.e.* increase in available income leads to an increase in cultural consumption. However, cultural consumption entails an opportunity cost of time, which represents all the additional income that could have been gained during the time dedicated to cultures (Frey and Meier, 2003). For individuals with higher income and self-employed, the opportunity cost of the time dedicated to cultural activities is higher when compared with individuals with lower income and fixed working hours. It is expected that for high-income people this effects offset each other, being empirical research unable to find clear patterns between income and culture consumption.

Finally, Withers (1980) used the personal disposable income per capita as measure to income.

3.4 Competition

Frey and Meier (2003) argue that the price of alternative activities (*e.g.* other leisure activities such as dining out or spent time with friends) determine the demand for culture, "the higher the price of such alternatives is, the higher museum attendance is, *cet. par.* (...)". Additionally, even competition between cultural activities may exist, as stated by Gapinski (1984) when studying the

performance of Shakespeare in theaters of United States, “(...) it heeds an elasticity of substitution that seem to at least approximate unity.”.

3.5 Gender

Women in Europe and United States have been shown to have more leisure time than men (Sullivan and Gershuny, 2001) and to be more prone to consume culture that is more complex (Bennet, Bustamante and Frow, 2013). However several authors conclude that most of this time is more likely to be constrained with childcare or domestic labor (Sullivan and Gershuny, 2001). Therefore, gender seems to be more determinant in type of the culture consumed than the level of consumption (Sullivan and Katz-Gerro, 2010).

3.6 Age

Katz-Gerro and Falk (2015) found that age is only a significant determinant in certain countries and assume a non-linear (inverted U shape) relationship with cultural consumption. The education and income effects might explain this result, since the human capital accumulated by an individual and the income / opportunity cost of cultural participation change with age.

3.7 Cultural policy

According to Katz-Gerro and Falk (2015), influences of cultural policy on cultural participation could be summarized in the following two approaches: (i) State intervention relies in the “(...) provision of art (...)”, breaking barriers mainly related with education and income, in order to a widespread access to culture; and (ii) the State only supports certain cultural activities, heightening the inequality in the access to culture between social elites and the remaining social classes, in a process known as “(...) reproduction of distinction (...)”.

It is expected that a state intervention focused in make culture more accessible to a wide range of population (“provision of art”) lead to higher cultural participation (because in theory it will mitigate some of the barriers which exclude part of society from cultural participation), *ceteris paribus*. On the other hand, state policies that predominantly support cultural activities aimed to social elites (“reproduction of distinction”) are more likely to reduce cultural participation of the remaining social classes, *ceteris paribus*.

Katz-Gerro and Falk (2015) were not able to provide a measure to cultural policy, notwithstanding, in their study about cultural participation in Europe, cultural policy was assumed in their model as a country specific characteristic that justifies differences in cultural participation across countries.

4. Labor market

Studying the determinants of access to labor market implies an analysis of supply of labor determinants that might be found at the individual level (*i.e.* worker related characteristics) and at the overall institutional context (e.g. training programs, labor unions and minimum wage). In addition to the supply side, public and private demand for labor also affect employment dynamics.

Finally, macroeconomic conditions, such as the inflation rate and other less crucial factors (*e.g.* duration dependence) might also influence labor market outcomes.

Unemployment rates across Europe and United States have been adopted as main measure of labor market dynamics.

4.1 Individual and institutional context

The individual background and institutional context determinants of unemployment are resumed in Figure 3.

4.1.1 Individual background

Previous literature identified a group of biological factors, age, gender and health, and social factors, namely education and number of children, which define an individual's background and determine the success in finding a job.

4.1.1.1 Age

Regarding age, literature typically references two different phenomena: youth unemployment (ages between 15 and 24) and older workers unemployment (ages 45 or 50 and over), which exhibit different causes and characteristics (Axelrad, Malul and Luski, 2018).

Youth unemployment in developed countries is essentially caused by the mismatch between the lower increase in the number of qualified jobs when compared to the number of educated workers (Duncan and Hoffman, 1981), leading to a problem of overqualification (i.e. youth workers must accept jobs that require lower qualifications or face the unemployment). Protective measures in the work market also lead to youth unemployment, once they increase the costs associated with dismissal of the employees, discouraging firms to hire less experienced workers (OECD, 1999). Additionally, the introduction or increases in minimum wages may lead to higher youth unemployment, since companies will tend to hire employees that are more experienced and with higher marginal productivity (Pereira, 2003).

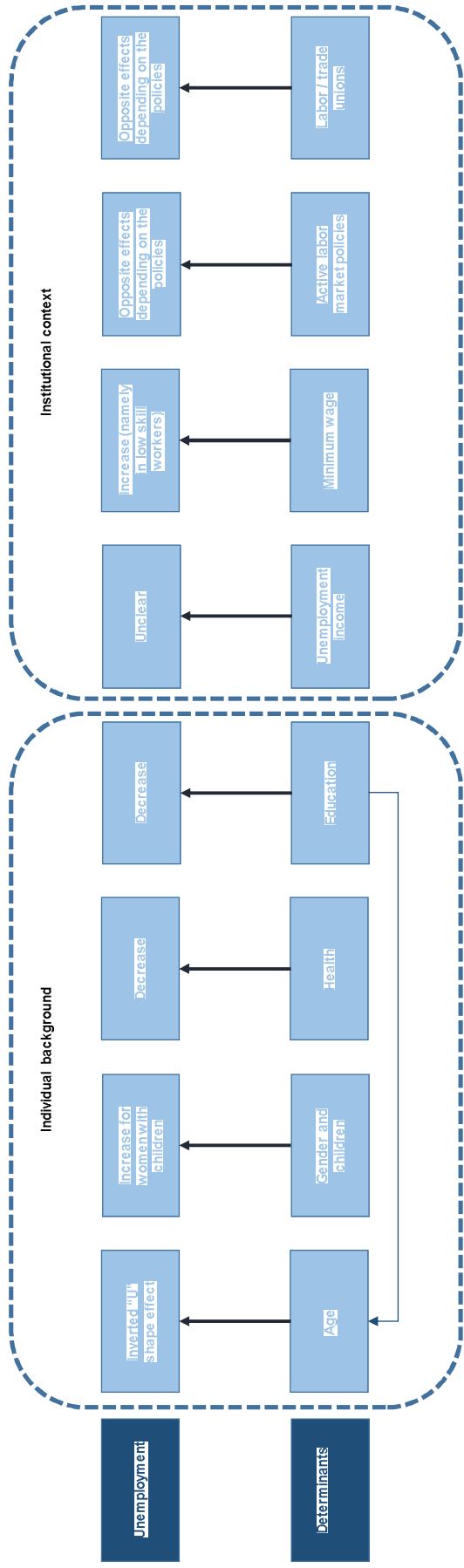


Figure 3: Individual and Institution determinants of unemployment

According to Macgregor and Gray (2002), older workers suffer from stereotypes such as being less productive, less flexible and with outdated skills, namely in what regards computer and other technological skills, despite being perceived as having stronger ethics and experience. Employers also perceive older workers as less willing to train and develop new skills. Even if they are suitable for working, older workers are associated with higher wages, which typically increase with age, and given the policies which reduce the flexibility of dismissal, employers are less prone to hire them (Martin, 2018).

Facing the above, age assumes a non-linear effect in unemployment (U shape), being more difficult for young and older people to find a job.

4.1.1.2 Gender and children

Gender unemployment has been converging since 1970s in the OECD economies, result of an increase in female labor force attachment (Albanesi and Sahin, 2017). However, Bicakova (2012) shown that women with children are more prone to be unemployed when compared to man and women without children. According to this author, women unemployment rates often increase after childbirth and paternity leaves, essentially as a result of: (i) stagnation of human capital accumulation and decrease of productivity; (ii) anticipation of pregnancy and paternity leave may reduce the investment of women in human capital and such anticipation on the employers side may reduce the incentives to hire women; and (iii) long paternity leaves or long unemployment (in countries without legal paternity leaves) reduce the probability of finding a new job and discourage unemployment women.

In short, it is expected that the decision to become pregnant and have children might lead to higher unemployment in women when compared to men or other women without children, *ceteris paribus*.

4.1.1.3 Health

Physical and mental health problems may reduce the probability of finding a job, because workers are perceived to be less productive and less suitable for jobs, as well with higher probability of forced leaves. Dooley, Fielding and Levi (1996) also discuss the opposite impact: forced unemployment increase the probability of health problems, which may reduce the probability of finding another job. Lynch (1986) found evidence of discrimination of young workers with health problems in the United States labor market.

It is expected that health problems reduce the probability of finding a job / increase the probability of unemployment, *ceteris paribus*.

4.1.1.4 Education

When studying the United States labor market, Mince (1991) argue that higher education levels lower the risk of incidence of unemployment. Additionally, on-the-job training increase the attachment between the employer and the employee reducing job turnover of more educated workers when compared to the less educated ones. Finally, educated workers face lower costs on job search activities, are more efficient in acquiring and processing job search information and companies search more intensively to fill vacancies that require more skilled workers.

Riddell and Song (2011) found that levels of education higher than the formal / mandatory, improved the probability of re-employment, making educated individuals more successful in dynamic labor markets.

In this sense, it is expected that higher education levels increase the probability of being employed, *ceteris paribus*.

Riddell and Song (2011) adopted the number of years completed in school as a measure to education levels.

4.1.2 Institution context

Labor market policies such as unemployment income, minimum wage or unemployed training, as well as union trades influence, are important determinants of unemployment levels and duration, as explained below.

4.1.2.1 Unemployment income

Unemployment income or benefits programs are essentially designed to protect workers against loss of income during unemployment times, to encourage workers to accept jobs that are important to the society, despite carrying significant layoffs risks and to enable works to maintain consumption while they search for jobs that match their skills. Moffit (2014) identifies two major effects of unemployment income in unemployment: (i) entitlement effect, with people living in areas of high unemployment benefits are more likely to take jobs that have earnings exceeding the minimum level required for unemployment benefits eligibility; and a (ii) side effect (moral hazard), in which people receiving unemployment benefits are more likely to search less intensively for a new job. Fredriksson and Holmlund (2003) when reviewing the empirical findings regarding the side effects of unemployment income also conclude que that the outflow from unemployment tends to increase around the time when these benefits expire or around the time when work test and job searching supervision is administered.

Overall, the effect of unemployment income in unemployment is not clear and depends of the program structure, namely the eligibility requirements, benefit level and duration, as well as the supervision of the institutions responsible, in order to reduce the moral hazard effects arising from these benefits.

4.1.2.2 Minimum wage

Since it became generally adopted in most developed countries, minimum wage is being studied as a major determinant of unemployment. Castillo-Freeman and Freeman (1992) when studying the imposition of United States minimum wage level in Porto Rico found that employment was substantially reduced, namely at the level of low skilled workers, since the wages increase was not followed by a productivity increase. Notwithstanding, Kruger (1994) when re-investigating this findings conclude that the empirical evidence was fragile. When studying the United States labor market, Neumark, Schweitzer and Wascher (2000) found that workers that initially earn near the minimum wage are most adversely affected by minimum wage increases, because hours worked and employment decrease, overriding the potential income increase. Neumark and Wascher (2006) when reviewing the empirical findings of the studies in this matter conclude that the introduction or increase in minimum wages have adverse or zero-effects in the income and employment of low-skill workers and no impact in terms of employment of workers earning more than the minimum wage. Kim and Lim (2017), using data from 25 OECD countries from 2000 to 2014 and comparing a minimum wage for low-skilled works to a competitive market wage for the remaining workers, found results consistent with the previous literature.

In short, it is expected that the increase in minimum wage will lead to an increase in unemployment, namely of low-skill workers with wages close to the minimum wage, *ceteris paribus*.

4.1.2.3 Active labor market policies

Active labor market policies include subsidized employment, training and job search assistance (Card, Kluve and Weber, 2010) aimed to increase employability of the workers and reduce unemployment duration.

Card, Kluve and Weber (2010) when analyzing 199 programs across a range of countries found that: (i) the majority of programs appear to have positive impact in employment in the long term (after 2 or 3 years), while on-the-job training exhibit more positive effects in short and medium term; (ii) positive effects in employment rates surpass the positive effects on income; and (iii) subsidized public sector jobs programs are typically less successful than other type of active labor market policies.

It is expected that an increase in active labor market policies lead to an increase of employment rates, namely in the long term.

4.1.2.4 Labor / trade unions

Labor unions generally impose minimum wages and ration jobs to ensure that the most senior members are employed, which create incentives to laid-off union members to maintain themselves waiting for labor market conditions to improve, in order to be reintegrated in the same unionized activity sector, instead of looking for a new job elsewhere (Alvarez and Shimmer, 2008).

Jackman (2002), when studying the reasons of higher unemployment rates in Europe when compared to the United States pointed the greater bargain power of labor unions in Europe as a major determinant, since their members do not take into account the negative externalities of trade unions, namely the forced up wages with adverse effects on unemployment and in the overall economy.

Tercek (2014) when studying the determinants of European and United States unemployment found that increases in union trade density, measure by “(...) the ratio of wage & salary earners that are trade union members divided by the total number of wage & salary earners (...)” have a negative impact in employment, because labor union bargains increase costs for the employers by demanding higher wages and lower hours, reducing productivity, which might lead to layoffs or lower opportunities of employment for labor union members.

In this sense, it is expected that higher labor union density and / or bargain power lead to higher unemployment rates, *ceteris paribus*.

4.2 Demand factors

Demand factors mainly refers to microeconomic determinants that influence the employment plans of private and public sector and are resumed in Figure 4.

4.2.1 Private sector

Ross and Zimmermann (1993) using a business survey made to German manufacturing firms regarding the employment policy, found that business conditions, i.e. changes in demand for the products and services offered by the companies, followed by technological evolution and labor costs are major determinants of firms' employment plans. The authors also found that the size of the firm is a major determinant of labor demand, with larger firms presenting higher employee turnover than small firms.

In this sense, it is expected that a decrease in the overall demand for private products and services, improved technological evolution and higher labor costs lead to a reduction in private employment, *ceteris paribus*.

4.2.2 Public sector

Additionally, public sector jobs are also a major determinant of labor demand, representing 8% to 35% of total employment in the OECD countries (Caponi, 2017). Public sector employment is usually adopted as a tool to reduce unemployment in the short term, to create demand in other sectors of the economy and to encourage employment of disadvantaged groups.

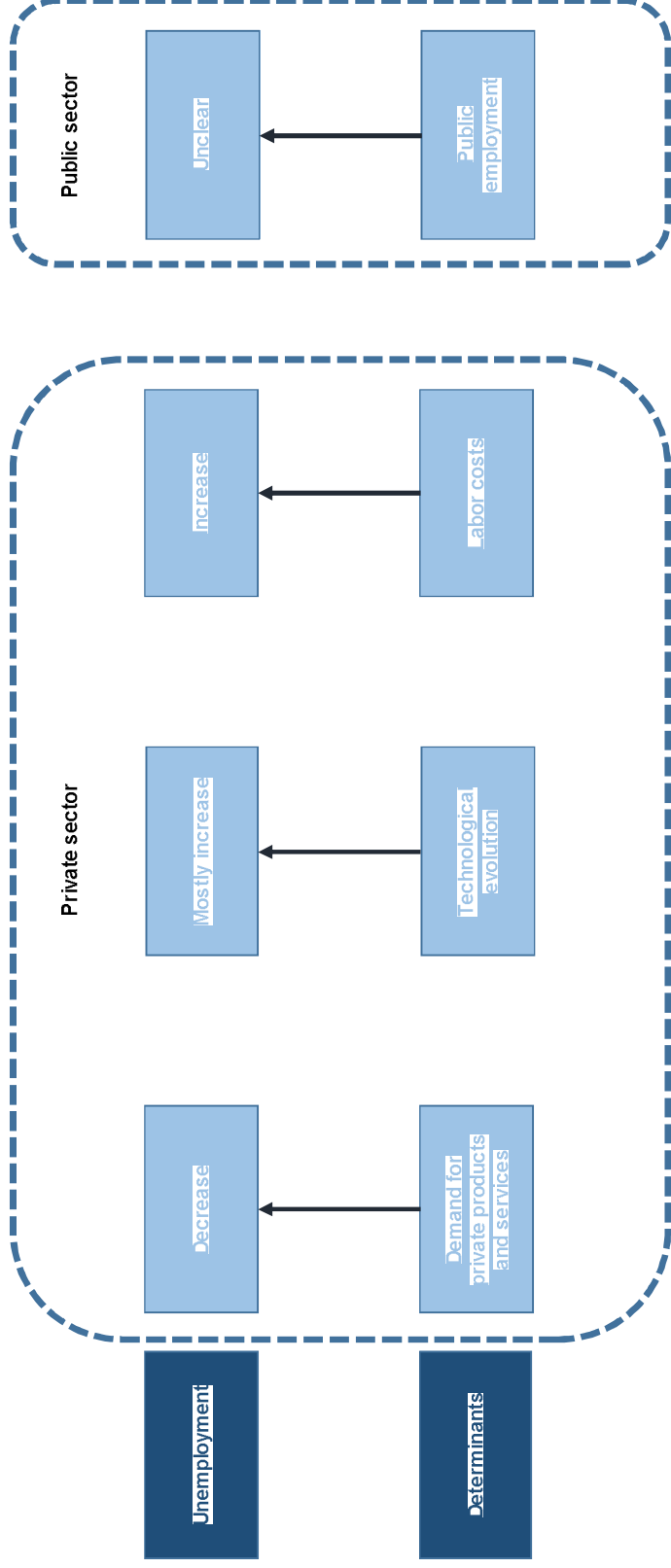


Figure 4: Labor demand determinants and effects on unemployment

However, Algan, Cahuc and Zylberberg (2002) identify the following negative externalities associated with public sector jobs creation: (i) crowding out effect of employees in the private sector to the public sector, because goods produced in the public sector can be substitute to those provided by the private sector; (ii) public jobs wages might increase the reserve wage of unemployed workers, increasing wage pressure and reducing unemployment in private sector; and (iii) increase in public jobs might lead to an increase in public expenditure, being financed by higher taxes on private sector and / or reduced public investment. The authors, using panel data of OCDE public employment rates between 1960 and 2000, conclude that a strong crowding out effect on private employment exists and consequently, an increase in public employment lead to a decrease of overall employment. Notwithstanding, these results depend on the degree of substitutability of private and public activities, as well on the wage premium offered by the public sector.

In short, the impact of policies aiming to increase public employment in the overall unemployment rate is unclear, depending on the country economic profile and type of labor market policies adopted.

4.4 Macroeconomic and other factors

Macroeconomic (*i.e.* inflation rate) and other less relevant determinants are present in Figure 5.

4.4.1 Macroeconomic factors

Phillips (1958) discovered a consistent inverse relationship between the rate of wage inflation and the rate of unemployment in the United Kingdom, which represented a milestone in the development of macroeconomic studies and policies.

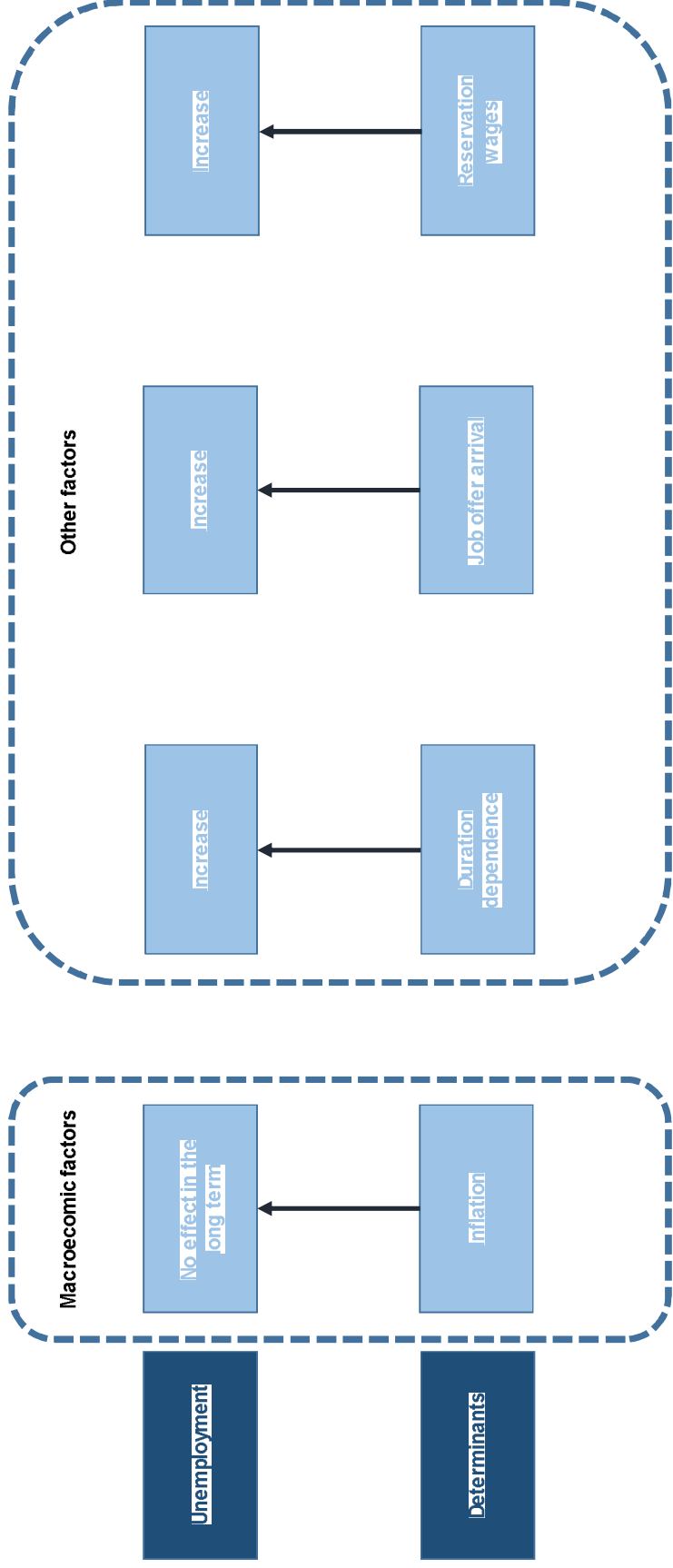


Figure 5: Macroeconomic and other determinants of unemployment

According to Hoover article (2002), Phillips' study shown that "(...) when the unemployment rate was low, the labor market was tight and employers had to offer higher wages to attract scarce labor. At higher rates of employment, there was less pressure to increase wages.". Further studies, namely "Phillips Curves, Expectations of Inflation and Optimal Employment over Time." of Edmund Phelps and "The Role of Monetary Policy." of Milton Friedman, improved Phillips theory, arguing that rational employers and employees only considered real wages (inflation-adjusted purchasing power of money wages) and, in their view, real wages would adjust to make the supply for labor equal to the demand, being the unemployment rate levels dependent of real wage levels.

Facing the above, economist nowadays refer to a "expectations-augmented" Phillips curve, which is composed by a "short-run" Phillips curve, where inflation is inversely related to unemployment, and a "long-run" Phillips curve, where the expectations of price inflation adjust and the employment returns to its natural rate, also known as "nonaccelerating inflation rate of unemployment" (NAIRU), *i.e.* a rate of unemployment compatible with a given constant rate of inflation.

In this sense, although a negative relationship between the rate of inflation and the rate of unemployment is expected in the short term, it should be statistically insignificant due to the "expectation-augmented" curve mechanisms.

4.4.2 Other factors

In this section are presented other factors that might influence an individual's access to the job market, despite being less studied.

4.4.2.1 Duration dependence

Duration dependence occurs when the probability of being re-employed decreases with the duration of employment, because employers recognize that the length of unemployment could be an indicator of low productivity and other characteristics that make the individual less suitable for the job. Kroft, Lange and Notowidigdo (2013) by sending fake resumes, with the length of unemployment ranging from 1 to 36 months, to job postings in the United States found that the likelihood of receiving a call back from employers declines with unemployment duration (being exacerbated after eight months unemployed) and that duration dependence is stronger in tight labor markets.

In this sense, it is expected that the probability of being re-employed decreases with the duration of unemployment, *ceteris paribus*.

4.4.2.2 Job offer arrival

Longhi (2015), using data from United Kingdom's labor force surveys, found that unemployed individuals have higher probabilities of accepting job offers than employed individuals due to the pressure to find a new source of income. Additionally, unemployed individuals typically search during less time and with lower standards, increasing the probability of finding low quality jobs, mainly with lower wages and more unstable.

Therefore, unemployed individuals have higher probabilities of finding low quality jobs, which increases the probability of a return to unemployment, *ceteris paribus*.

4.4.2.3 Reservation wages

Reservation wage is defined as the wage that makes workers indifferent between accepting a job or remaining unemployed (Hogan, 2004). Hogan, using data from the British Household Panel Survey (which contains observations of

individuals' reservation and previous wages), found that previous wages and expected future wages are the major determinants of reservation wage in the short term. When the length of unemployment increases, the importance of previous wages to an individual's reservation wage is reduced, being progressively adjusted to the market wage, leading the economy to the natural unemployment rate.

Facing the above, it is expected that a faster adjustment in reservation wages lead to a decrease in unemployment, *ceteris paribus*.

Chapter 3

Theoretical model

1. Introduction

As discussed above, the non-profit sector has been developed due to the goodwill of their members or to satisfy unmet needs of the society, being expected that its existence contribute in a positive way to the society development. Therefore, this section presents the proposed theoretical model adopted to explain the relationship between the non-profit sector, measured by the number of non-profit entities and employees, and regional development, measured in the following three dimensions: criminality, culture and labor market.

2. Criminality

It is expected that the impact of non-profit sector in a municipality criminality rate to be mostly indirect: (i) a higher number of non-profit entities focused in reducing inequality, promoting education and increasing human capital, as well as other activities that increase the opportunity cost of crime, will lead to a decrease of criminality rates, *ceteris paribus*; and (ii) a higher number of employees in the non-profit sector will lead to a reduction of unemployment and consequently, inequality, contributing to an increase in the opportunity cost of crime and a decrease of criminality rates, *ceteris paribus*.

3. Culture

In contrast with the proposed impact in criminality rates, the existence of the non-profit sector contributes both direct and indirectly to a municipality consumption of culture: (i) a higher number of non-profit entities dedicated to the promotion of culture (e.g. museums), as well to the promotion of the human capital required for cultural awareness, will lead to a higher consumption of culture, *ceteris paribus*; (ii) a higher number of employees in the non-profit sector will contribute to the increase of the disposable income and, consequently, to a higher consumption of culture, *ceteris paribus*.

3. Labor market

Regarding the impact of the non-profit sector in labor market, namely in employment, it is expected that: (i) a higher number of non-profit entities focused in human capital promotion, as well as in providing to their users the skills needed to search for a job and (re)enter in the labor market, will contribute to an increase in employment, *ceteris paribus*; (ii) a higher number of employees in the non-profit sector will contribute directly to an increase in employment and a reduction of unemployment, *ceteris paribus*.

Chapter 4

Data description

1. Data selection

This section presents the data selection process, including the main sources and selection criteria.

1.1 Main explanatory variables

The proposed theoretical model in the previous chapter was based in a set of activities performed by entities operating in the non-profit sector, therefore, for the empirical analysis conducted, the Private Social Security Institutions (IPSS¹) were selected since they perform similar activities in the Portuguese context.

In this sense, according to the Portuguese Decree-Law 172-A/2014 of 14 November, which established the legal framework for the IPSSs activity, these entities should have the following characteristics:

- Non-profit;
- Organized under the initiative of private persons (i.e. not managed by the state or other public entities); and
- Focused on promoting justice, solidarity and the individual rights of the citizens.

Additionally, the Decree-Law also introduce the main activities performed by these entities, which are essentially as below:

¹ Instituições Particulares de Segurança Social.

- Provide support to the youth (namely children at risk), to families, to elderly people and to disable people;
- Promote social integration and live in community;
- Reducing inequality by: (i) providing social protection to the citizens in situations of unemployment, incapacity to work, disease and/or oldness; (ii) promoting and providing healthcare; and (iii) resolution of housing problems faced by the population;
- Promote and provide education and professional training; and
- Other complementary activities.

With regard to data from the non-profit sector, it was retrieved from “Quadros de Pessoal” database, which collects the data collected in a mandatory survey conducted to the Portuguese employers regarding their workforce (*e.g.* number of employees, personal information, qualifications, type of contract, inflows and outflows, among others), from 1985 to 2015².

Since this database is organized by employer location, legal form and activity code, it was possible to retrieve information by municipality, selecting the legal forms adopted by the IPSSs, based on the characteristics set by the abovementioned Decree Law (*e.g.* private associations), as well as the activity codes suitable for the activities that should be performed by this type of entities, namely education and social support to people in need. Please refer to Appendix 1 for further information on the search criteria.

In this sense, the data collected consists in the number of establishments³ of entities within this classification and the number of employees (as well as the number of establishments and employees for the remaining classifications),

² It should be noted that self-employed, certain public administration and other entities not covered by the General Labor Code are excluded from this obligation.

³ Since each entitie could have more than one establishment in the same municipality and/or establishments in more than one municipalities.

aggregated by municipality, per year, being used to the construction of the following explanatory variables:

- (1) Non-profit establishments (NUM) in thousands: in order to directly reflect the impact of the number of entities;
- (2) Non-profit employees (EMP) in thousands: in order to capture the impact of the employment generate by non-profit entities.

In addition, it should be noted that the search criteria explained above might not ensure that all the observations refer to non-profit entities and/or that all the non-profit entities were retrieved. In addition, alternative measures to the non-profit sector (apart from the number of establishments and employees) could be adopted, notwithstanding, take into consideration the information available in the database, it was believed that this measures were the more accurate and reliable.

Finally, using the same database, the control variables ONUM and OEMP were introduced, which measure the number of the remaining establishments and employees (in thousands), respectively.

1.1.1 Results

The use of the presented search criteria on the “Quadros de Pessoal” database resulted in approximately 5.1 thousand IPSS establishments and 114.7 employees as of 2012, the most recent year available.

This is in line with “Carta Social”⁴, which presents a total of 5.2 thousand establishments in 2012, distributed by IPSS and comparable entities, among others.

⁴ The annual publication of the Portuguese Solidarity, Employment and Social Security, which analyze the Portuguese network of social services and equipments.

1.1.2 Evolution (2004-2012)

After an increase of 20% and 16% in the number of establishments and employees, respectively, between 2004 and 2005 (with the major contribution in absolute terms occurring in the municipality of Lisboa), the non-profit sector has remained relatively stable between 2005 and 2012, as presented in Figure 6.

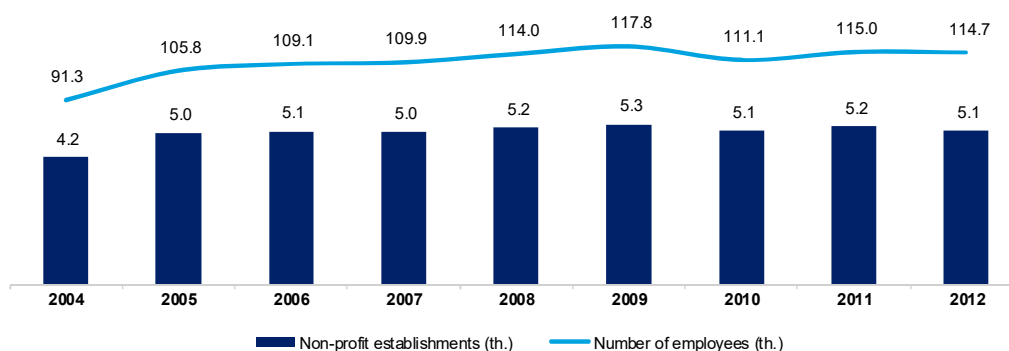


Figure 6: Evolution of the non-profit sector between 2004 e 2012

1.1.3 Relative importance

The number of IPSS establishments accounted for 1.3% of the total establishments in Portugal in 2004 (according to “Quadros de Pessoal” database), a number that increased to 1.6% in 2012.

Lisboa, Coimbra and Porto presented the higher number of IPSS establishments between 2004 and 2012 (606, 184 and 173 in 2012, respectively), notwithstanding the weight of non-profit establishments in total establishments is higher in inland Portugal (an increasing tendency between 2004 and 2012), with Alcoutim, Arronches and Crato recording weights of 14%, 10% and 10% in 2012, respectively.

Figure 7 illustrates the weight of IPSS establishments in total establishments by municipality in 2004 and 2012.

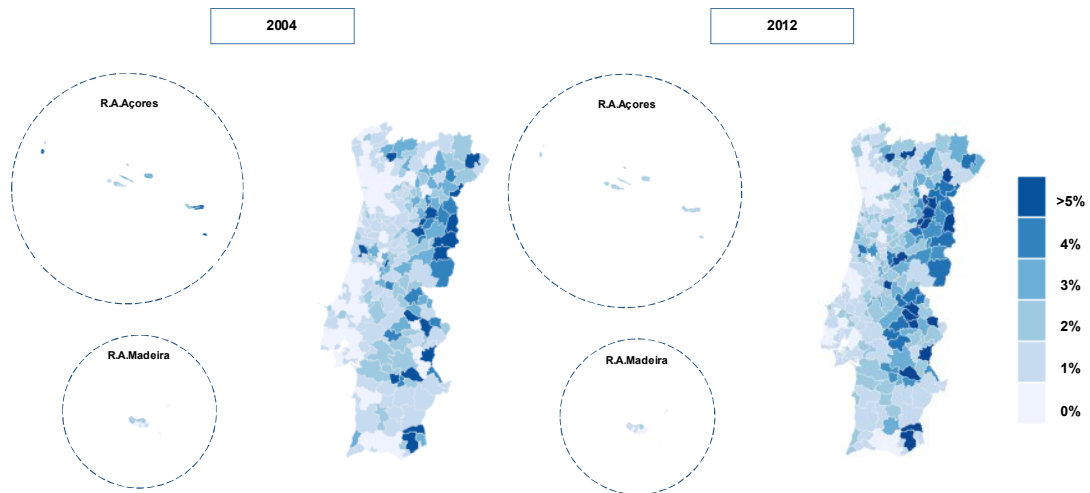


Figure 7: Weight of IPSS establishments in total establishments by municipality

The number of IPSS employees accounted for 3.4% of the total employees in Portugal in 2004 (according to “Quadros de Pessoal” database), a number that increased to 4.4% in 2012.

Such as in the number of establishments, Lisboa, Porto e Coimbra presented the higher number of employees in the non-profit sector (app. 10k, 4k and 3k in 2012, respectively). Accordingly, the weight of non-profit employees in total employees is higher in inland Portugal, with Gavião, Arronches and Alcoutim recording weights of 48%, 42% and 38% in 2012, respectively.

Figure 8 illustrates the weight of IPSS employees in total employees by municipality in 2004 and 2012.

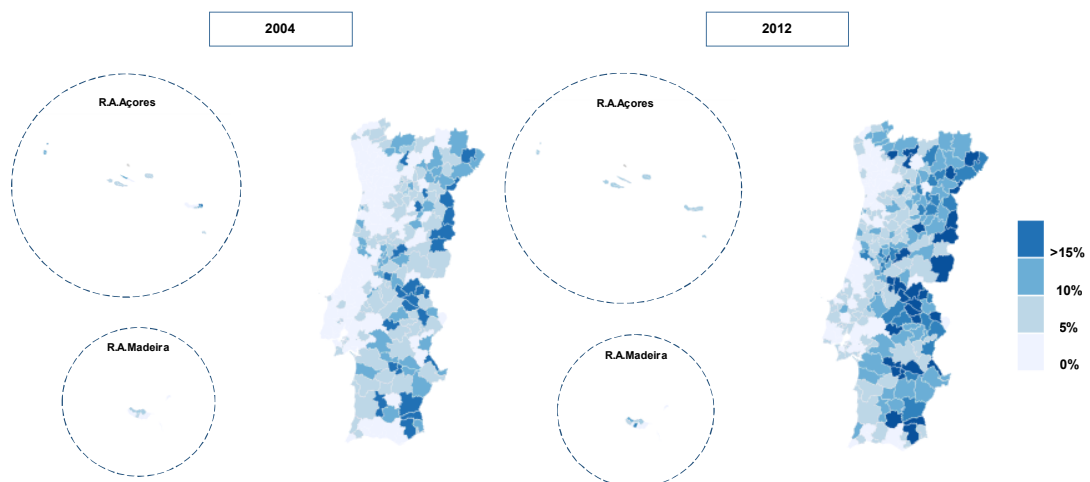


Figure 8: Weight of IPSS employees in total employees by municipality

Finally, the number of IPSS employees accounted for 1.6% of the total Portuguese population in the working age in 2004 (population with ages between 25 and 64 years, according to INE database), a number that increased to 2.0% in 2012.

In 2012, Arroches, Vila do Rei and Gavião recorded the higher weight of non-profit employees in population in the working age, with 13%, 13% and 11%, respectively.

Figure 9 illustrates the weight of IPSS employees in total population in the working age by municipality in 2004 and 2012.

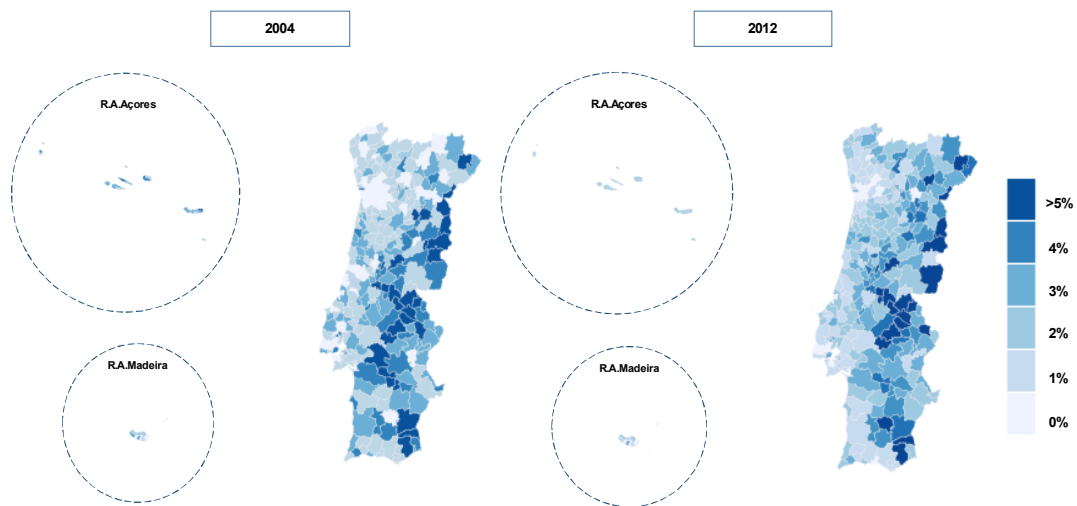


Figure 9: Weight of IPSS employees in population in the working age by municipality

1.2 Other variables

Expained and control variables data was mainly collected from the Portuguese national statistical office (INE), in accordance with the following criteria⁵:

1. Adequacy to the previous literature;

⁵ Instituto Nacional de Estatística.

2. Available at municipal level; and
3. Number of years and municipalities with data available.

Below is presented the dependent and control variables for each dimension (criminality, culture and labor market), as well as the data chosen and its definition. It should be noted that it was not possible to collect data for all the variables identified in the literature review.

1.2.1 Criminality

Table 1 illustrates the data selected for the Criminality dimension.

Variable	Type of variable	Data description
Criminality (CRIME)	Dependent	Crimes detected by or reported to the police forces, per year
Unemployment (UNEM)	Control	Unemployed registered in IEFP ⁶ at year end (thousands)
Inequality (INEQ)	Control	% of the average monthly income (€) in a municipality on the national average monthly income, per year (%)
Human capital (HCAPITAL)	Control	Dropouts in primary education, per year (%)
Age (AGE)	Control	Annual average of population ⁷ with ages between 15 and 24 years (thousands)
Gender (GEND)	Control	Annual average of female population ⁷ (thousands)

Table 1: Data selected for the Criminality dimension

The combination of the data above resulted in a dataset comprising 278 municipalities (please refer to Appendix 2), for a period between the years 2004 and 2012.

⁶ Instituto do Emprego e Formação Profissional. Data gathered by IEFP and available in Pordata.

⁷ Annual estimates of resident population computed by INE through the arithmetic average of two observations in distinct periods of the year.

Table 2 presents the **summary statistics** for the dataset of Criminology dimension.

Variable	Mean	Median	Standard deviation	Minimum	Maximum
CRIME	1,267.34	472.36	2,423.45	21.08	28,514.14
NUM	0.02	0.01	0.04	0.00	0.72
EMP	0.38	0.20	0.85	0.00	13.98
ONUM	1.30	0.49	3.06	0.04	46.60
OEMP	10.02	2.74	35.64	0.16	596.02
UNEM	1.77	0.64	3.12	0.04	33.35
INEQ	0.82	0.79	0.15	0.59	1.74
HCAPITAL	0.10	0.09	0.04	0.00	0.26
AGE	4.10	1.70	6.39	0.16	61.11
GEND	18.77	8.20	30.56	0.93	303.54

Table 2: Summary statistics of Criminology dataset based on 2,502 observations

The median municipality registered, in the median year, *circa* 472 crimes.

The median municipality had, in the median year, *circa* 10 non-profit establishments and *circa* 200 employees in the non-profit sector.

The median municipality had, in the median year, *circa* 490 other establishments which employed *circa* 2,740 individuals, had *circa* 640 unemployed registered in the IEFPP, an average monthly income (€) of *circa* 79% of the national average, registered a dropout rate of 9% in primary education, had on average 1,700 individuals with ages between 15 and 24 years and *circa* 8,200 females.

1.2.2 Culture

Table 3 illustrates the data selected for the Culture dimension.

Variable	Type of variable	Data description
Culture consumption (CULT)	Dependent	Visitors of museums, zoos, botanical gardens, aquariums and spectators of live shows, per year

Variable	Type of variable	Data description
Education (HEDU)	Control	Graduates in higher education, per year (thousands)
Income (INC)	Control	Average monthly income, per year (€ thousands)
Competition (COMP)	Control	Number of museums, zoos, botanical gardens, aquariums, art galleries and other temporary exhibitions, per year
Age (WAGE)	Control	Annual average of population with ages between 25 and 64 years ⁷ (thousands)
Age (RET)	Control	Annual average of population with ages equal or higher than 65 years ⁷ (thousands)
Gender (GEN)	Control	Annual average of female population ⁷ (thousands)
Cultural policy (POL)	Control	Annual expenses in culture and sports of the municipalities, per year (€ thousands)

Table 3: Data selected for the Culture dimension

The combination of the data above resulted in a dataset comprising 36 municipalities (please refer to Appendix 2), for a period between the years 2004 and 2012.

Table 4 presents the **summary statistics** for the dataset of Culture dimension.

Variable	Mean	Median	Standard deviation	Minimum	Maximum
CULT	383,746.60	77,799.00	1,136,401.00	290.00	7,856,805.00
NUM	0.06	0.04	0.11	0.01	0.72
EMP	1.37	0.92	2.06	0.18	13.98
ONUM	4.89	2.79	7.13	0.60	46.60
OEMP	43.03	19.14	89.97	2.49	596.02
HEDU	1.83	0.71	3.92	0.00	23.56
INC	0.98	0.95	0.18	0.66	1.73
COMP	16.39	7.00	36.57	0.00	258.00
WAGE	65.51	39.53	59.19	11.64	292.06
RET	20.79	13.54	23.32	4.91	143.11

Variable	Mean	Median	Standard deviation	Minimum	Maximum
GEN	61.81	36.44	57.62	11.83	303.54
POL	8,189.50	5,274.50	11,985.11	722.00	181,557.00

Table 4: Summary statistics of Culture dataset based on 324 observations

The median municipality registered, in the median year, approximately 78 thousand visitors of museums, zoos, botanical gardens, aquariums and spectators of live shows.

The median municipality had, in the median year, circa 40 non-profit establishments and *circa* 920 employees in the non-profit sector. Since this dataset only refers to 36 major Portuguese municipalities (please refer to Appendix 2), the median of non-profit establishments and employees is higher than the one in criminality and labor market dimensions.

The median municipality had, in the median year, *circa* 2,790 other establishments which employed *circa* 19,140 individuals, had approximately 710 higher education graduates, registered an average monthly income of approximately €951, had 7 museums, zoos, botanical gardens, aquariums, art galleries and other temporary exhibitions facilities, had *circa* 40 thousand individuals with ages between 24 and 65 years, 14 thousand individuals with ages higher than 65 years old, 36 thousands females and spent approximately €5.3 million in culture and sports during the year.

1.2.3 Labor market

Table 5 illustrates the data selected for the Labor market dimension.

Variable	Type of variable	Data description
Unemployment (UNEM)	Dependent	Unemployed registered in IEFP at year end (thousands)

Variable	Type of variable	Data description
Age (Youth unemployment) (AGE)	Control	Annual average of population with ages between 15 and 24 years ⁷ (thousands)
Gender (GEN)	Control	Annual average of female population ⁷ (thousands)
Education (HCAPITAL)	Control	Dropouts in primary education / year (%)
Education (HEDU)	Control	Graduates in higher education, per year (thousands)

Table 5: Data selected for the Labor market dimension

The combination of the data above resulted in a dataset comprising 210 municipalities (please refer to Appendix 2), for a period between the years 2004 and 2012.

Table 6 presents the **summary statistics** for the dataset of Labor market dimension.

Variable	Mean	Median	Standard deviation	Minimum	Maximum
UNEM	2,199.25	1,028.50	3,335.60	37.00	33,349.00
NUM	0.02	0.01	0.05	0.00	0.72
EMP	0.47	0.26	0.96	0.00	13.98
ONUM	1.66	0.74	3.44	0.05	46.60
OEMP	12.95	4.55	40.57	0.18	596.02
AGE	5.20	2.60	7.01	0.18	61.11
GEN	23.73	11.78	33.69	1.39	303.54
HCAPITAL	0.09	0.09	0.03	0.01	0.23
HEDU	0.46	0.10	1.75	0.00	23.56

Table 6: Summary statistics of Labor market dataset based on 1,890 observations

The median municipality had, in the median year, *circa* 1,030 unemployed registered in the IEFP.

The median municipality had, in the median year, *circa* 10 non-profit establishments and *circa* 260 employees in the non-profit sector.

The median municipality had, in the median year, *circa* 740 other establishments, which employed *circa* 4,550 individuals, *circa* 2,600 individuals with ages between 15 and 24 years, approximately 11,780 females, registered a dropout rate of 9% in primary education and had 100 higher education graduates.

Chapter 5

Empirical analysis

1. Methodology

In order to test the empirical hypothesis formulated in the Chapter 2 and since panel data for each dimension exists, the econometric panel data methodology was adopted. Accordingly, these models present a set of advantages when compared with a study conducted only with cross-section or time-series data, namely:

- Allows for a higher number of observations, which were important in a context of lack of data at municipality level for most of the control variables (namely not covering all the 308 Portuguese municipalities or available for short periods of time);
- Allows the use of fixed-effects model, which introduce a municipality and year specific effect into the regression, mitigating any biases that may exist due to individual effects being omitted and / or being correlated with the independent variables (Baltagi, 1995), such as the racial composition of the municipality, labor market policies or business conditions, among others.

In this sense, each dimension includes two initial Ordinary Least Squares (OLS) specifications and two performed by the fixed effects model for each measure of the non-profit sector, as presented below.

1.1 Criminality

Since two measures for the non-profit sector were adopted (number of establishments and employees), two model regression for criminality dimension were computed as follows:

$$(1.1) \quad \text{Ln}(\text{CRIME}_{it}) = \beta_0 + \beta_1 \text{NUM}_{it} + \beta_2 \text{ONUM}_{it} + \beta_3 \text{UNEM}_{it} + \beta_4 \text{INEQ}_{it} + \beta_5 \text{HCAPITAL}_{it} + \beta_6 \text{AGE}_{it} + \beta_7 \text{GEND}_{it} + \mu_i + \lambda_t + \varepsilon_{it}$$

$$(1.2) \quad \text{Ln}(\text{CRIME}_{it}) = \omega_0 + \omega_1 \text{EMP}_{it} + \omega_2 \text{OEMP}_{it} + \omega_3 \text{UNEM}_{it} + \omega_4 \text{INEQ}_{it} + \omega_5 \text{HCAPITAL}_{it} + \omega_6 \text{AGE}_{it} + \omega_7 \text{GEND}_{it} + \mu_i + \lambda_t + \varepsilon_{it}$$

where:

- i denotes the municipalities (1 to 278) and t denotes the years (2004 to 2012);
- $\text{Ln}(\text{CRIME}_{it})$ is the natural logarithm of the number of crimes reported or detected in the municipality i during the year t ;
- μ_i denotes 277 dummy variables that take the value 1 whenever municipality i refers to municipality 1 (...) and municipality 277, respectively, and 0 otherwise. Controls for those omitted variables that are assumed constant for each municipality, but may vary across municipalities;
- λ_t denotes 8 dummy variables that take the value 1 whenever year t refers to year 2004 (...) and year 2011, respectively, and 0 otherwise. Controls for those omitted variables that are assumed constant for each year, but may vary across years; and
- ε_{it} is the random error term.

1.2 Culture

Since two measures for the non-profit sector were adopted (number of establishments and employees), two model regression for culture dimension were computed as follows:

$$(2.1) \quad \text{Ln}(\text{CULT}_{it}) = \beta_0 + \beta_1 \text{NUM}_{it} + \beta_2 \text{ONUM}_{it} + \beta_3 \text{HEDU}_{it} + \beta_4 \text{INC}_{it} + \beta_5 \text{COMP}_{it} \\ + \beta_6 \text{WAGE}_{it} + \beta_7 \text{RET}_{it} + \beta_8 \text{GEN}_{it} + \beta_9 \text{POL}_{it} + \mu_i + \lambda_t + \varepsilon_{it}$$

$$(2.2) \quad \text{Ln}(\text{CULT}_{it}) = \omega_0 + \omega_1 \text{EMP}_{it} + \omega_2 \text{OEMP}_{it} + \omega_3 \text{HEDU}_{it} + \omega_4 \text{INC}_{it} + \\ \omega_5 \text{COMP}_{it} + \omega_6 \text{WAGE}_{it} + \omega_7 \text{RET}_{it} + \omega_8 \text{GEN}_{it} + \omega_9 \text{POL}_{it} + \mu_i + \lambda_t + \varepsilon_{it}$$

where:

- i denotes the municipalities (1 to 36) and t denotes the years (2004 to 2012);
- $\text{Ln}(\text{CULT}_{it})$ is the natural logarithm of the number of visitors of museums, zoos, botanical gardens, aquariums and spectators of live shows in the municipality i during the year t ;
- μ_i denotes 35 dummy variables that take the value 1 whenever municipality i refers to municipality 1 (...) and municipality 35, respectively, and 0 otherwise. Controls for those omitted variables that are assumed constant for each municipality, but may vary across municipalities;
- λ_t denotes 8 dummy variables that take the value 1 whenever year t refers to year 2004 (...) and year 2011, respectively, and 0 otherwise. Controls for those omitted variables that are assumed constant for each year, but may vary across years; and
- ε_{it} is the random error term.

1.3 Labor market

Since two measures for the non-profit sector were adopted (number of establishments and employees), two model regression for labor market dimension were computed as follows:

$$(3.1) \quad \text{Ln}(\text{UNEM}_{it}) = \beta_0 + \beta_1 \text{NUM}_{it} + \beta_2 \text{ONUM}_{it} + \beta_3 \text{AGE}_{it} + \beta_4 \text{GEN}_{it} + \beta_5 \text{HCAPITAL}_{it} + \beta_6 \text{HEDU}_{it} + \mu_i + \lambda_t + \varepsilon_{it}$$

$$(3.2) \quad \text{Ln}(\text{UNEM}_{it}) = \omega_0 + \omega_1 \text{EMP}_{it} + \omega_2 \text{OEMP}_{it} + \omega_3 \text{AGE}_{it} + \omega_4 \text{GEN}_{it} + \omega_5 \text{HCAPITAL}_{it} + \omega_6 \text{HEDU}_{it} + \mu_i + \lambda_t + \varepsilon_{it}$$

where:

- i denotes the municipalities (1 to 210) and t denotes the years (2004 to 2012);
- $\text{Ln}(\text{UNEM}_{it})$ is the natural logarithm of the number of unemployed registered in IEFP in the municipality i during the year t ;
- μ_i denotes 209 dummy variables that take the value 1 whenever municipality i refers to municipality 1 (...) and municipality 209, respectively, and 0 otherwise. Controls for those omitted variables that are assumed constant for each municipality, but may vary across municipalities;
- λ_t denotes 8 dummy variables that take the value 1 whenever year t refers to year 2004 (...) and year 2011, respectively, and 0 otherwise. Controls for those omitted variables that are assumed constant for each year, but may vary across years; and
- ε_{it} is the random error term.

2. Empirical analysis results

In this section are presented the results for each dimension of the models listed above.

2.1 Criminality

Table 7 presents the **results** of the regression analysis.

Variables	(a)	(b)	(c)	(d)
NUM	-9.258*** (1.811)		-1.388** (0.565)	
EMP		-0.032 (0.099)		-0.147*** (0.031)
ONUM	0.061* (0.033)		0.059*** (0.014)	
OEMP		-0.006*** (0.002)	n.a.	0.008*** (0.002)
UNEM	-0.018 (0.017)	-0.016 (0.017)	-0.002 (0.003)	-0.001 (0.003)
INEQ	0.978*** (0.218)	1.068*** (0.211)	0.134 (0.130)	0.137 (0.130)
HCAPITAL	0.632 (0.600)	0.829 (0.599)	0.245 (0.202)	0.229 (0.202)
AGE	0.033 (0.033)	0.103** (0.023)	0.016** (0.007)	0.024*** (0.006)
GEND	-0.017* (0.009)	0.010 (0.009)	-0.023*** (0.004)	-0.021*** (0.004)
Constant	5.051*** (0.174)	4.913*** (0.170)	6.555*** (0.129)	6.508*** (0.131)
Estimation Method	OLS	OLS	Fixed effects	Fixed effects
Overall F-Test	93.19***	168.93***	15.38***	15.36***
R ²	27.9%	27.4%	98.5%	98.5%

Table 7: Regression results for Criminality dimension based on 2,502 observations. Robust standard errors in parenthesis. *** denotes p-values < 0.01; ** denotes p-values < 0.05 and * denotes p-values < 0.10

All the four specifications are statistically significant for a confidence level of 99%, therefore could be concluded that the relationship between the explained and explanatory variables is statistically reliable.

Specifications (a) and (b) results suggest that both the number of non-profit establishments and employees contribute to a reduction of criminality (although only the former was statistically significant). However, these results could be biased by the omission of variables assumed constant by municipality/year, but might change across municipality/year.

In this sense, specifications (c) and (d), which include municipality and year fixed effects, seem to suggest a positive statistically significant contribution of both the number of non-profit establishments and employees to the reduction of criminality in the Portuguese municipalities between 2004 and 2012. The estimate of the NUM coefficient indicates that for each additional non-profit establishment, the number of crimes reported in a given municipality is expected to decrease by *circa* 0.139%, *ceteris paribus*. Accordingly, the estimate of the EMP coefficient indicates that for each additional non-profit employee, the number of crimes reported in a given municipality is expected to decrease by *circa* 0.015%, *ceteris paribus*. These conclusions are in line with the proposed theoretical model in Chapter 3 and the difference in coefficient estimators suggest that specifications (a) and (b) results were biased.

With regard to the remaining control variables, it should be highlighted: (i) the positive relation between the remaining number of establishment and employment and criminality, with coefficients ONUM and OEM indicating an increase of *circa* 0.006% and 0.001% in the crimes reported, for each additional establishment and employee, *ceteris paribus*. These results may indicate that Portuguese municipalities with higher number of firms and employees increase the returns of crime, leading to higher criminality; and (ii) criminality is higher

in municipalities with younger population (between 15 and 24 years) and lower in population with a higher number of females, in accordance with the conclusions of previous literature.

2.2 Culture

Table 8 presents the **results** of the regression analysis.

Variables	(a)	(b)	(c)	(d)
NUM	-4.511*** (1.567)		-0.178 (1.762)	
EMP		-0.098 (0.129)		-0.141 (0.156)
ONUM	-0.024 (0.037)		-0.074 (0.075)	
OEMP		-0.004* (0.002)		0.005 (0.009)
HEDU	0.155*** (0.035)	0.120*** (0.039)	0.025 (0.072)	0.004 (0.073)
INC	0.808*** (0.307)	0.917*** (0.308)	-1.289 (1.757)	-0.841 (1.575)
COMP	0.028*** (0.008)	0.030*** (0.008)	0.001 (0.006)	0.001 (0.005)
WAGE	-0.013 (0.032)	-0.025 (0.031)	-0.008 (0.047)	-0.007 (0.048)
RET	-0.094*** (0.024)	-0.101*** (0.023)	0.019 (0.056)	0.041 (0.055)
GEN	0.057 (0.042)	0.071* (0.039)	0.016 (0.062)	0.005 (0.062)
POL	0.000 (0.002)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Constant	9.637*** (0.285)	9.443*** (0.307)	11.931*** (2.530)	11.225** (2.415)
Estimation Method	OLS	OLS	Fixed effects	Fixed effects
Overall F-Test	124.69***	126.57***	5.96***	5.91***

Variables	(a)	(b)	(c)	(d)
R ²	63.5%	63.4%	85.7%	85.7%

Table 8: Regression results for Culture dimension based on 324 observations. Robust standard errors in parenthesis. *** denotes p-values < 0.01; ** denotes p-values < 0.05 and * denotes p-values < 0.10

All the four specifications are statistically significant for a confidence level of 99%, therefore could be concluded that the relationship between the explained and explanatory variables is statistically reliable.

Specifications (a) and (b) results suggest a negative relationship between the number of non-profit establishments and employees and participation in cultural events (although only the former was statistically significant). However, these results could be biased by the omission of variables assumed constant by municipality/year, but might change across municipality/year.

With the introduction of municipality and year fixed effects, both coefficients became statistically not significant, therefore, it could be concluded that the non-profit sector had no impact in cultural consumption between 2004 and 2012.

In addition, the results of specification (c) and (d) suggest that the control variables adopted also had no impact in cultural consumption during the same period.

The culture dimension is the dimension with less data available for the explained and control variables, which naturally affected the results of the empirical analysis performed.

2.3 Labor market

The table below presents the **results** of the regression analysis.

Variables	(a)	(b)	(c)	(d)
NUM	-0.487 (1.510)		-2.954* (1.544)	

Variables	(a)	(b)	(c)	(d)
EMP		0.401*** (0.112)		-0.024 (0.093)
ONUM	-0.125*** (0.028)		0.136*** (0.052)	
OEMP		-0.014*** (0.002)		0.005 (0.005)
AGE	0.249*** (0.023)	0.226*** (0.027)	0.031 (0.024)	0.073*** (0.021)
GEN	-0.017*** (0.006)	-0.016** (0.007)	-0.022 (0.019)	-0.027 (0.020)
HCAPITAL	-1.447*** (0.003)	-1.083** (0.489)	-0.860** (0.408)	-0.872** (0.409)
HEDU	0.081*** (0.032)	-0.024 (0.037)	-0.006 (0.047)	0.016 (0.044)
Constant	6.430*** (0.058)	6.312*** (0.061)	7.573*** (0.470)	7.567*** (0.477)
Estimation Method	OLS	OLS	Fixed effects	Fixed effects
Overall F-Test	251.29***	265.64***	31.18***	30.36***
R²	60.3%	61.4%	92.4%	92.3%

Table 9: Regression results for Labor market dimension based on 1,890 observations. Robust standard errors in parenthesis. *** denotes p-values < 0.01; ** denotes p-values < 0.05 and * denotes p-values < 0.10

All the four specifications are statistically significant for a confidence level of 99%, therefore could be concluded that the relationship between the explained and explanatory variables is statistically reliable.

Specifications (a) results suggest a positive contribution of the number of non-profit establishments to the reduction of the number of unemployed, although the coefficient estimate is not statistically significant. In contrast, specification (b) results suggest a statistically significant negative contribution of the number of non-profit sector employees and unemployment. However, these results could

be biased by the omission of variables assumed constant by municipality/year, but might change across municipality/year.

In this sense, after controlling for year and municipality fixed effects, estimation results seem to suggest a positive contribution of the number of non-profit establishments to the reduction of unemployment between 2004 and 2012. In this sense, coefficient NUM in specification (c) indicates that for each additional non-profit establishment in a given municipality the number of unemployed registered in IEFPP is expected to decrease by *circa* 0.295%, *ceteris paribus*, in accordance with the proposed theoretical model.

With regard to the number of non-profit employees, the coefficient EMP, after controlling for year and municipality fixed effects, seems to suggest a negative relationship with the number of unemployed registered in IEFPP, notwithstanding, the coefficient is statistically not significant. Since the number of employees and the number of unemployed registered in IEFPP could be described as linear combination (if an unemployed individual starts a new job in a non-profit entity, the number of non-profit employees increase by the same amount of the decrease in the number of unemployed individuals, *ceteris paribus*), therefore the most accurate measure of the impact of non-profit sector in employment dimension is the number of establishments.

The difference in coefficient after the introduction of fixed effects suggests that specifications (a) and (b) results were biased.

Finally, with regard to the remaining control variables, it should be highlighted the positive contribution (d) of the number of individuals with ages between 15 and 24 years (used as a proxy of youth unemployment) and the negative relationship between the primary school dropout rate and unemployment, which might suggest that education attainment is not determinant to be employed. In contrast with the expected, OEMP coefficient

estimate suggests a positive, although immaterial, relationship between the number of other establishments and unemployment.

Chapter 6

Conclusion

The purpose of this thesis was to study the impact of the non-profit sector in the regional development, namely in the criminality, culture and labor market dimensions.

The number of establishments and employees of entities similar to IPSS was selected to measure the impact of the non-profit in criminality, culture and labor market dimensions.

The results obtained suggest a contribution of both the number of establishments and the number of employees in the reduction of criminality recorded in the Portuguese municipalities between 2004 and 2012, an expected result given the educational and social support services provided by these entities, which increase the opportunity cost of crime.

Regarding the labor market dimension, it was shown that the number of non-profit establishments had an important impact in reducing the number of unemployed registered in IEFP between 2004 and 2012. In fact, according to the data obtained in “Quadros de Pessoal” database, non-profit employees increased from 1.6% of the total Portuguese population in the working age in 2004 (population with ages between 25 and 64 years, according to INE database) to 2.0% in 2012, which illustrates the importance of this sector in the overall Portuguese labor market. The number of employees in the non-profit sector had no impact in the unemployment.

Finally, the results for culture dimension suggested that the non-profit had no impact in cultural consumption, however the lack of data disaggregated by municipality to measure this variable limited the analysis, therefore further

studies should be conducted at a more aggregate level (*i.e.* NUTS⁸ 2 or 3) or at least at a level where more and reliable data is available.

⁸ Nomenclatura das Unidades Territoriais Estatísticas (Portuguese Nomenclature of Territorial Units for Statistics).

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Appendix 1

Database code	Description (Portuguese)
11	Associação de Beneficência e Humanitária
12	Associação de Cultura, Recreio e Desporto
16	Casa do Povo
17	Associação de Socorros Mútuos
18	Outras Associações
19	Fundação Nacional
41	Sociedade Cooperativa
61	Pessoa Colectiva Religiosa
72	Associação Estrangeira
73	Fundação Estrangeira
95	Entidade Equiparada a Pessoa Colectiva

Table 10: Legal form types adopted for selection of non-profit entities

CAE ⁹ Rev. 2.1. ¹⁰	Description (Portuguese)
80101	Educação pré-escolar
80102	Ensino básico (1.º ciclo)
80211	Ensino básico (2.º e 3.º ciclos)
85311	Acção social p/a infância e juventude, com alojamento
85312	Acção social p/ pessoas com deficiência, com alojamento
85313	Acção social para pessoas idosas, com alojamento
85314	Acção social com alojamento, n.e.
85321	Acção social p/a infância e juventude, sem alojamento
85322	Acção social p/ pessoas com deficiência, sem alojamento
85323	Acção social para pessoas idosas, sem alojamento
85324	Acção social sem alojamento, n.e.

Table 11: Activity codes adopted for selection of non-profit entities (2002-2005)

⁹ Classificação Portuguesa de Actividades Económicas (Portuguese Classification of Economic Activities).

¹⁰ Codes adopted between 2002 and 2005. 5 digits code (maximum disaggregation).

CAE Rev. 3 ¹¹	Description (Portuguese)
85100	Educação pré escolar
85201	Ensino básico (1.º ciclo)
85202	Ensino básico (2.º e 3.º ciclos)
87901	Atividades de apoio social para crianças e jovens, com alojamento
87302	Atividades de apoio social para pessoas com deficiência, com alojamento
87301	Atividades de apoio social para pessoas idosas, com alojamento
87902	Atividades de apoio social com alojamento, n.e.
88910	Atividades de cuidados para crianças, sem alojamento
88102	Atividades de apoio social para pessoas com deficiência, sem alojamento
88101	Atividades de apoio social para pessoas idosas, sem alojamento
88990	Outras atividades de apoio social, sem alojamento

Table 12: Activity codes adopted for selection of non-profit entities (2007 onwards)

¹¹ Codes adopted after 2007. 5 digits code (maximum desagregation).

Appendix 2

No.	Municipality	No.	Municipality
1	Abrantes	32	Armamar
2	Águeda	33	Arouca
3	Aguiar da Beira	34	Arraiolos
4	Alandroal	35	Arronches
5	Albergaria-a-Velha	36	Arruda dos Vinhos
6	Albufeira	37	Aveiro
7	Alcácer do Sal	38	Avis
8	Alcanena	39	Azambuja
9	Alcobaça	40	Baião
10	Alcochete	41	Barcelos
11	Alcoutim	42	Barrancos
12	Alenquer	43	Barreiro
13	Alfândega da Fé	44	Batalha
14	Alijó	45	Beja
15	Aljezur	46	Belmonte
16	Aljustrel	47	Benavente
17	Almada	48	Bombarral
18	Almeida	49	Borba
19	Almeirim	50	Boticas
20	Almodôvar	51	Braga
21	Alpiarça	52	Bragança
22	Alter do Chão	53	Cabeceiras de Basto
23	Alvaiázere	54	Cadaval
24	Alvito	55	Caldas da Rainha
25	Amadora	56	Caminha
26	Amarante	57	Campo Maior
27	Amares	58	Cantanhede
28	Anadia	59	Carrazeda de Ansiães
29	Ansião	60	Carregal do Sal
30	Arcos de Valdevez	61	Cartaxo
31	Arganil	62	Cascais

No.	Municipality	No.	Municipality
63	Castanheira de Pêra	98	Freixo de Espada à Cinta
64	Castelo Branco	99	Fronteira
65	Castelo de Paiva	100	Fundão
66	Castelo de Vide	101	Gavião
67	Castro Daire	102	Góis
68	Castro Marim	103	Golegã
69	Castro Verde	104	Gondomar
70	Celorico da Beira	105	Gouveia
71	Celorico de Basto	106	Grândola
72	Chamusca	107	Guarda
73	Chaves	108	Guimarães
74	Cinfães	109	Idanha-a-Nova
75	Coimbra	110	Ílhavo
76	Condeixa-a-Nova	111	Lagoa
77	Constância	112	Lagos
78	Coruche	113	Lamego
79	Covilhã	114	Leiria
80	Crato	115	Lisboa
81	Cuba	116	Loulé
82	Elvas	117	Loures
83	Entroncamento	118	Lourinhã
84	Espinho	119	Lousã
85	Esposende	120	Lousada
86	Estarreja	121	Mação
87	Estremoz	122	Macedo de Cavaleiros
88	Évora	123	Mafra
89	Fafe	124	Maia
90	Faro	125	Mangualde
91	Felgueiras	126	Manteigas
92	Ferreira do Alentejo	127	Marco de Canaveses
93	Ferreira do Zêzere	128	Marinha Grande
94	Figueira da Foz	129	Marvão
95	Figueira de Castelo Rodrigo	130	Matosinhos
96	Figueiró dos Vinhos	131	Mealhada
97	Fornos de Algodres	132	Méda

No.	Municipality	No.	Municipality
133	Melgaço	168	Oliveira do Bairro
134	Mértola	169	Oliveira do Hospital
135	Mesão Frio	170	Ourém
136	Mira	171	Ourique
137	Miranda do Corvo	172	Ovar
138	Miranda do Douro	173	Paços de Ferreira
139	Mirandela	174	Palmela
140	Mogadouro	175	Pampilhosa da Serra
141	Moimenta da Beira	176	Paredes
142	Moita	177	Paredes de Coura
143	Monção	178	Pedrógão Grande
144	Monchique	179	Penacova
145	Mondim de Basto	180	Penafiel
146	Monforte	181	Penalva do Castelo
147	Montalegre	182	Penamacor
148	Montemor-o-Novo	183	Penedono
149	Montemor-o-Velho	184	Penela
150	Montijo	185	Peniche
151	Mora	186	Peso da Régua
152	Mortágua	187	Pinhel
153	Moura	188	Pombal
154	Mourão	189	Ponte da Barca
155	Murça	190	Ponte de Lima
156	Murtosa	191	Ponte de Sor
157	Nazaré	192	Portalegre
158	Nelas	193	Portel
159	Nisa	194	Portimão
160	Óbidos	195	Porto
161	Odemira	196	Porto de Mós
162	Odivelas	197	Póvoa de Lanhoso
163	Oeiras	198	Póvoa de Varzim
164	Oleiros	199	Proença-a-Nova
165	Olhão	200	Redondo
166	Oliveira de Azeméis	201	Reguengos de Monsaraz
167	Oliveira de Frades	202	Resende

No.	Municipality	No.	Municipality
203	Ribeira de Pena	238	Terras de Bouro
204	Rio Maior	239	Tomar
205	Sabrosa	240	Tondela
206	Sabugal	241	Torre de Moncorvo
207	Salvaterra de Magos	242	Torres Novas
208	Santa Comba Dão	243	Torres Vedras
209	Santa Maria da Feira	244	Trancoso
210	Santa Marta de Penaguião	245	Trofa
211	Santarém	246	Vagos
212	Santiago do Cacém	247	Vale de Cambra
213	Santo Tirso	248	Valença
214	São Brás de Alportel	249	Valongo
215	São João da Madeira	250	Valpaços
216	São João da Pesqueira	251	Vendas Novas
217	São Pedro do Sul	252	Viana do Alentejo
218	Sardoal	253	Viana do Castelo
219	Sátão	254	Vidigueira
220	Seia	255	Vieira do Minho
221	Seixal	256	Vila de Rei
222	Sernancelhe	257	Vila do Bispo
223	Serpa	258	Vila do Conde
224	Sertã	259	Vila Flor
225	Sesimbra	260	Vila Franca de Xira
226	Setúbal	261	Vila Nova da Barquinha
227	Sever do Vouga	262	Vila Nova de Cerveira
228	Silves	263	Vila Nova de Famalicão
229	Sines	264	Vila Nova de Foz Côa
230	Sintra	265	Vila Nova de Gaia
231	Sobral de Monte Agraço	266	Vila Nova de Paiva
232	Soure	267	Vila Nova de Poiares
233	Sousel	268	Vila Pouca de Aguiar
234	Tábua	269	Vila Real
235	Tabuaço	270	Vila Real de Santo António
236	Tarouca	271	Vila Velha de Ródão
237	Tavira	272	Vila Verde

No.	Municipality	No.	Municipality
273	Vila Viçosa	276	Viseu
274	Vimioso	277	Vizela
275	Vinhais	278	Vouzela

Table 13: Municipalities studied in the Criminality dimension

No.	Municipality	No.	Municipality
1	Alcobaça	19	Lisboa
2	Alenquer	20	Oeiras
3	Almada	21	Ourém
4	Aveiro	22	Palmela
5	Beja	23	Pombal
6	Braga	24	Portalegre
7	Caldas da Rainha	25	Portimão
8	Cascais	26	Porto
9	Coimbra	27	Santa Maria da Feira
10	Elvas	28	Santarém
11	Estarreja	29	Setúbal
12	Évora	30	Sintra
13	Faro	31	Torres Novas
14	Figueira da Foz	32	Viana do Castelo
15	Funchal	33	Vila Franca de Xira
16	Guarda	34	Vila Nova de Gaia
17	Guimarães	35	Vila Real
18	Leiria	36	Viseu

Table 14: Municipalities studied in the Culture dimension

No.	Municipality	No.	Municipality
1	Abrantes	35	Bombarral
2	Águeda	36	Braga
3	Albergaria-a-Velha	37	Bragança
4	Albufeira	38	Cabeceiras de Basto
5	Alcácer do Sal	39	Cadaval
6	Alcanena	40	Caldas da Rainha
7	Alcobaça	41	Caminha
8	Alcochete	42	Campo Maior
9	Alcoutim	43	Cantanhede
10	Alenquer	44	Cartaxo
11	Alfândega da Fé	45	Cascais
12	Alijó	46	Castelo Branco
13	Aljustrel	47	Castelo de Paiva
14	Almada	48	Castelo de Vide
15	Almeirim	49	Castro Daire
16	Alter do Chão	50	Celorico de Basto
17	Alvaiázere	51	Chamusca
18	Amadora	52	Chaves
19	Amarante	53	Cinfães
20	Amares	54	Coimbra
21	Anadia	55	Condeixa-a-Nova
22	Ansião	56	Coruche
23	Arcos de Valdevez	57	Covilhã
24	Arganil	58	Cuba
25	Arouca	59	Elvas
26	Arraiolos	60	Entroncamento
27	Aveiro	61	Espinho
28	Azambuja	62	Esposende
29	Baião	63	Estarreja
30	Barcelos	64	Estremoz
31	Barreiro	65	Évora
32	Batalha	66	Fafe
33	Beja	67	Faro
34	Benavente	68	Felgueiras

No.	Municipality	No.	Municipality
69	Ferreira do Zêzere	104	Mirandela
70	Figueira da Foz	105	Moimenta da Beira
71	Figueiró dos Vinhos	106	Moita
72	Fundão	107	Monção
73	Gondomar	108	Monchique
74	Gouveia	109	Mondim de Basto
75	Grândola	110	Montalegre
76	Guarda	111	Montemor-o-Novo
77	Guimarães	112	Montemor-o-Velho
78	Idanha-a-Nova	113	Montijo
79	Ílhavo	114	Mortágua
80	Lagoa	115	Moura
81	Lagos	116	Murça
82	Lamego	117	Nazaré
83	Leiria	118	Nelas
84	Lisboa	119	Odemira
85	Loulé	120	Odivelas
86	Loures	121	Oeiras
87	Lourinhã	122	Olhão
88	Lousã	123	Oliveira de Azeméis
89	Lousada	124	Oliveira de Frades
90	Mação	125	Oliveira do Bairro
91	Macedo de Cavaleiros	126	Oliveira do Hospital
92	Mafra	127	Ourém
93	Maia	128	Ovar
94	Mangualde	129	Paços de Ferreira
95	Manteigas	130	Palmela
96	Marco de Canaveses	131	Paredes
97	Marinha Grande	132	Paredes de Coura
98	Marvão	133	Penacova
99	Matosinhos	134	Penafiel
100	Mealhada	135	Penalva do Castelo
101	Mértola	136	Peniche
102	Mira	137	Peso da Régua
103	Miranda do Douro	138	Pombal

No.	Municipality	No.	Municipality
139	Ponte de Lima	174	Sousel
140	Ponte de Sor	175	Tábua
141	Portalegre	176	Tabuaço
142	Portel	177	Tarouca
143	Portimão	178	Tavira
144	Porto	179	Tomar
145	Porto de Mós	180	Tondela
146	Póvoa de Lanhoso	181	Torre de Moncorvo
147	Póvoa de Varzim	182	Torres Novas
148	Redondo	183	Torres Vedras
149	Reguengos de Monsaraz	184	Trancoso
150	Resende	185	Trofa
151	Rio Maior	186	Vagos
152	Salvaterra de Magos	187	Vale de Cambra
153	Santa Comba Dão	188	Valença
154	Santa Maria da Feira	189	Valongo
155	Santarém	190	Valpaços
156	Santiago do Cacém	191	Vendas Novas
157	Santo Tirso	192	Viana do Alentejo
158	São Brás de Alportel	193	Viana do Castelo
159	São João da Madeira	194	Vieira do Minho
160	São João da Pesqueira	195	Vila do Conde
161	Sátão	196	Vila Flor
162	Seia	197	Vila Franca de Xira
163	Seixal	198	Vila Nova da Barquinha
164	Serpa	199	Vila Nova de Famalicão
165	Sertã	200	Vila Nova de Foz Côa
166	Sesimbra	201	Vila Nova de Gaia
167	Setúbal	202	Vila Nova de Poiares
168	Sever do Vouga	203	Vila Pouca de Aguiar
169	Silves	204	Vila Real
170	Sines	205	Vila Real de Santo António
171	Sintra	206	Vila Verde
172	Sobral de Monte Agraço	207	Vila Viçosa
173	Soure	208	Vinhais

No.	Municipality	No.	Municipality
209	Viseu	210	Vizela

Table 15: Municipalities studied in the Labor Market dimension