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Inclusive Development and Democracy:
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Institutional Perspective

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von: M.Sc. Christoph Dörffel

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Gutachter

1. Prof. Dr. Andreas Freytag, Friedrich-Schiller-Universität Jena
2. Prof. Dr. Stefan Voigt, Universität Hamburg

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List of Acronyms

AR Acemoglu and Robinson

ATET average treatment effect on the treated

FDI foreign direct investment

GMM generalized method of moments

GNI gross national income

G20 Group of 20

HDI Human Development Index

IHDI Inequality-adjusted Human Development Index

IV instrumental variable

LDC Least Developed Country

MDI Multidimensional Inclusiveness Index

OECD Organisation for Economic Co-operation and Development

OVB omitted variable bias

p.c. per capita

PC principal component

PCA principal component analysis

SDG Sustainable Development Goal

UNDP United Nations Development Programme

TWFE two-way fixed effects

WDI World Development Indicators

WEF World Economic Forum

WTO World Trade Organization

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Statement of Co-Authorship

This thesis is a publication-based – cumulative – dissertation. Chapters 2, 3, 5 and 6 rest on four individual research papers.

Chapter 2 is based on a paper titled ‘What is Inclusive Development? Introducing the Multidimensional Inclusiveness Index’ (*JERP Working Paper 2020-015*). It is now in the revise and resubmit process at the Journal *Social Indicators Research*. This paper is joint work together with Sebastian Schuhmann (Friedrich Schiller University Jena). While I initiated the research question, compiled the data and predominantly implemented the empirical analysis, the writing of the paper was about equal and literature research was predominately conducted by Sebastian Schuhmann.

Chapter 3 builds on a published paper titled ‘Trade, Inclusiveness and the Global Order’ (*Global Summitry* 4(1), 30-49) and a working paper ‘Drivers of Inclusive Development: An Empirical Investigation’ (*JERP Working Paper 2021-015*). Both are co-authored work together with Peter Draper (University of Adelaide), Andreas Freytag (University of Jena; CESifo) and Sebastian Schuhmann (University of Jena). For the former, Peter Draper and Andreas Freytag mainly developed the research question and wrote the paper, Sebastian Schuhmann and I contributed to the mining of the data and the empirical analysis. For the latter, my responsibility lied the implementation of the empirical analysis, while Sebastian Schuhmann and I prepared the data and drafted the manuscript, Peter Draper and Andres Freytag identified the research question, contributed to the literature review, the policy perspectives of the paper and revisions to the manuscript.

Chapter 5 builds on a working paper titled ‘The Povert Effect of Democratization’ (*JERP Working Paper 2021-017*) which is co-authored work together with Andreas Freytag (University of Jena; CESifo). Andreas Freytag mainly developed the research question and the motivation of the paper, we about equally contributed in literature review and drafting the manuscript while I prepared of the data and conducted the empirical analysis.

Chapter 6 rests on a single authored paper. It is titled ‘The Poverty Effect of Democratizations: Disaggregating Democratic Institutions’ (*JERP Working Paper 2021-018*) and is not yet published.

German Summary

Die vorliegende Dissertation befasst sich mit der Beziehung zwischen Institutionen und deren Auswirkungen auf Entwicklungsprozesse. Unter Institutionen werden formelle und informelle Regeln verstanden, die menschliches Handeln und Interaktionen strukturieren. Da diese formellen und informellen Regeln alltägliches Handeln, aber insbesondere auch jegliche wirtschaftliche Tätigkeit beeinflussen, haben sie großen Einfluss auf Entwicklungsprozesse und sind daher ein wichtiger Forschungsgegenstand. Die Dissertation stellt zwei Themen genauer in den Vordergrund, nämlich Inklusiver Entwicklung, d.h. ob Entwicklungserfolge der gesamten Gesellschaft zugutekommen oder nur einen kleinen Teil, und die Beziehung zwischen Demokratisierung und Armut. Die Forschung zu diesen Themen wird in vier Hauptkapiteln vorgestellt: Kapitel 2 stellt ein neues Maß für Inklusiver Entwicklung vor, und Kapitel 3 verwendet dieses Maß, um Einflussfaktoren von Inklusiver Entwicklung zu untersuchen. In Kapitel 5 wird untersucht, ob sich Demokratisierung auf die Armutsquote auswirkt, und in Kapitel 6 wird erarbeitet, welche institutionellen Merkmale von Demokratien zur Armutsbekämpfung beitragen.

Trotz des Rückgangs der weltweiten Armut in den letzten Jahrzehnten entstand gleichzeitig wachsende Unzufriedenheit mit den Ergebnissen von Entwicklungsprozessen, da nicht alle an ihnen Teilhaben konnten. Eine Inklusiver Entwicklung, die größeren Teilen der Gesellschaft zugutekommt, wird als legitimer empfunden. Es herrscht jedoch weder Einigung darüber, was Inklusiver Entwicklung ausmacht, noch gibt es ein geeignetes Messinstrument dafür. In der Praxis ist es schwieriger, Institutionen zu messen als die Ergebnisse von Entwicklungsprozessen, da Institutionen ein wesentlich subtileres Konzept sind als Ergebnisse. Daher wird in Kapitel 2 ein Maß vorgestellt, das das Ergebnis von Entwicklung, das durch Inklusiver Institutionen verursacht wird, misst, anstatt einem allgemeineren Konzept von Institutionen. Dies definiert das Ergebnis Inklusiver Entwicklung, weil es Ergebnisse von Entwicklungsprozessen (nicht nur Einkommen), sowie deren Verteilung innerhalb der Gesellschaft erfasst. Letztlich kann mit diesem Maß beurteilt werden, ob Entwick-

lungserfolge (d. h. Verbesserungen des Wohlergehens) der gesamten Gesellschaft zugutekommen oder nur einem kleinen Teil.

Obwohl es in der Literatur ähnliche Maße gibt (z. B. den Human Development Index (HDI)), stellt der Forschungsbeitrag in Kapitel 2 einen neues Maß (den Multidimensional Inclusiveness Index (MDI)) vor, der auf der Theorie zur Inklusivität beruht, einige Nachteile etablierter Maße adressiert und im Vergleich zu etablierten Maßen für eine sehr viel größere Stichprobe verfügbar ist. Der genutzte Begriff von Inklusiver Entwicklung ist auf dem Menschen zentriert ist und berücksichtigt alle Faktoren, die für das Wohlergehen (well-being) wichtig sind. Mit der Einführung des MDI wird auf die konzeptionellen Nachteile etablierter Maße wie des HDI, des Inequality-Adjusted Human Development Index (IHDI) und des Inclusive Development Index (IDI) eingegangen und die verfügbare Stichprobe (um 50 % im Vergleich zum HDI) erweitert. Der MDI besteht aus zwei Teilindizes - einem zur Entwicklungsgleichheit und einem zu Entwicklungserfolgen - und wird in drei Versionen für bis zu 171 Länder und für die Jahre 1960-2018 berechnet. Durch Anwendung der Hauptkomponentenanalyse (Principal Component Analysis) wird die Struktur der zugrunde liegenden Daten zur Aggregation der 14 Variablen zu den Teilindizes genutzt. Die beiden Teilindizes werden anschließend mit einem geometrischen Mittelwert aggregiert.

In Kapitel 2 wird gezeigt, dass der MDI regionale Entwicklungsmuster erfassen kann und sich wichtige politische Ereignisse in den MDI-Ländertrends widerspiegeln. Trotz der teilweise hohen Korrelationen zu Maßen wie HDI, IDI und pro Kopf Bruttoinlandsprodukt (BIP), die sich aus der Ähnlichkeit der Daten ergeben, liefert der MDI neue Erkenntnisse. Alle drei MDI-Versionen zeigen im Laufe der Zeit steigende globale Durchschnittswerte. Diese positiven Trends sind vor allem auf Verbesserungen in den Entwicklungserfolgen zurückzuführen. Trotz der optimistischen Tendenzen der letzten Jahre verdienen Gerechtigkeitsüberlegungen eine stärkere Betonung in Entwicklungskonzepten.

Insbesondere die Erweiterung der Stichprobengröße eröffnet neue Möglichkeiten für die angewandte Forschung im Bereich der Inklusiven Entwicklung. In Kapitel 3

wird eine solche angewandte Analyse mit dem MDI durchgeführt. Der MDI wird als Maß für Inklusiver Entwicklung verwendet und mögliche Einflussfaktoren von Inklusiver Entwicklung untersucht, um die wichtigsten wirtschaftspolitischen Maßnahmen (z. B. Inflation, Staatsausgaben) und wirtschaftlichen Faktoren (z. B. Strukturwandel, soziale Stabilität) zu ermitteln, die eine Inklusiver Entwicklung erleichtern könnten. Da der Index eine größere Datenverfügbarkeit als andere Indizes aufweist, kann Inklusiver Entwicklung in Regressionen für eine Stichprobe von 171 Ländern und einen Zeitraum von 1980 bis 2018 analysiert werden. Dies ist ein erster Versuch, die Treiber von Inklusiver Entwicklung in Panel-OLS-Regressionen mit Two-Way Fixed-Effects (TWFE) und dem GMM-Schätzer empirisch zu schätzen. In TWFE-Regressionen zeigen robuste Assoziationen mit Inflation sowie dem Ausbau des Finanzsektors (auf kurze sowie lange Sicht) und Handel (auf lange Sicht). Die GMM-Ergebnisse weisen nur auf Inflation und Handel als signifikante Treiber auf lange Sicht und Investitionen auf kurze Sicht hin. Diese Ergebnisse deuten darauf hin, dass zugängliche und gut funktionierende Finanzmärkte, gepaart mit niedrigen Inflationsraten und hoher Handelsoffenheit, eine wichtigere Rolle spielen als die Höhe der Staatsausgaben. Unsere Ergebnisse legen nahe, dass die Grundelemente des Washington Consensus immer noch als Leitprinzipien dienen könnten, auch für die Förderung von Inklusiver Entwicklung.

In den Kapiteln [5](#) und [6](#) werden zwei Literaturstränge miteinander verbunden. Der erste Strang erforscht den Einfluss von Institutionen auf eine Vielzahl wirtschaftlicher Ergebnisse, der zweite Strang untersucht die Auswirkungen von Demokratisierung auf menschliches Wohlergehen. Im Rahmen des ersten Strangs werden in der Literatur die Ergebnisse von Entwicklungsprozessen größtenteils anhand des Einkommensniveaus von Ländern erfasst. Es gibt eine umfangreiche Literatur, in der die Auswirkungen von Institutionen auf das BIP geschätzt werden (in der Literatur werden Einkommensniveau, BIP und Wachstum oft als Synonyme verwendet). Da Institutionen ein recht umfassendes Konzept sind, werden in der Literatur oft Variablen verwendet, die einige institutionelle Aspekte erfassen, um Institutionen zu messen. Häufig wird Demokratie

als Maßstab für Institutionen genommen, d.h. es werden hauptsächlich Institutionen der elektoralen Demokratie oder andere institutionelle Aspekte erfasst, die mit Demokratie in Verbindung gebracht werden, wie z.B. der Schutz von bürgerlichen Freiheiten oder Rechtsstaatlichkeit. Diesem Ansatz wird auch in den Kapiteln [5](#) und [6](#) gefolgt.

Der zweite Literaturstrang untersucht die Auswirkungen von Demokratisierung auf menschliches Wohlergehen. In diesem Literaturstrang wird menschliches Wohlergehen anhand einer Vielzahl von empirischen Maßen untersucht. So wurden unter anderem die Auswirkungen der Demokratisierung auf Schulbildung, der Bereitstellung von Öffentlichen Gütern, soziale Unruhen, Kindersterblichkeit, Kalorienverbrauch, öffentliche Bildungsausgaben untersucht. Vernachlässigt wurde in der Literatur jedoch die Armutsquote (der Anteil der Bevölkerung, der unter der Armutsgrenze von 1,90 Dollar pro Tag lebt), ein Maß, das in direktem Zusammenhang mit dem menschlichen Wohlergehen steht und auch für politische Entscheidungsträger unmittelbar relevant ist. Die Kapitel [5](#) und [6](#) befassen sich mit dieser Forschungslücke.

In Kapitel [5](#) werden die Auswirkungen der Demokratisierung auf die Armutsquote mit mehreren empirischen Methoden geschätzt und so die Beziehung zwischen den Regimetypen Demokratie/Nicht-Demokratie und Armutsreduzierung untersucht. Die Relevanz wird daran deutlich, dass Armutsbekämpfung ein zentrales Ziel der globalen Entwicklungsagenda und der Ziele für nachhaltige Entwicklung (Sustainable Development Goals) ist. Demokratien könnten die Armutsbekämpfung fördern, indem sie die Umverteilung stärken, Hindernisse für arme Menschen beseitigen oder Bürger*innen den Zugang zu den Institutionen der Gesellschaft ermöglichen. Demokratien können die Armutsbekämpfung behindern, wenn sie von den Eliten eingenommen werden oder generell dysfunktional sind. Unsere empirische Analyse deckt rund 140 Länder und einen Zeitraum von 1980-2018 ab. Verschiedene Methoden werden angewandt, um Endogenitätsprobleme zu lösen. In dynamischen Panelschätzungen, die für vorangegangene Einflüsse von Armut, BIP und Ungleichheit kontrollieren, zeigen keine signifikanten Auswirkungen von Demokratisierung auf die Armutsraten. Bei flexi-

bleren und kausalen Schätzungen von Behandlungseffekten (treatment effects) wird festgestellt, dass die Demokratisierung die Armutsquoten in den ersten fünf Jahren nach der Demokratisierung auf einem Signifikanzniveau von 95% um etwa 11-14% reduziert. 10-14 Jahre nach der Demokratisierung kann die Armutsrate um etwa 20% reduziert werden (auf 90%-Signifikanzniveau). Obwohl die Ergebnisse nicht eindeutig sind, kann dennoch verdeutlicht werden, dass demokratische politische Institutionen von großer Bedeutung sind und es für Gesellschaften besser ist, wenn politische Systeme inklusiver sind. Die Tatsache, dass unsere Ergebnisse dies nicht eindeutig belegen, deutet darauf hin, dass selbst Demokratien allzu oft nicht inklusiv sind.

Schließlich werden in Kapitel 6 demokratische Institutionen in ihre Teilkomponenten unterteilt, um zu analysieren, welche institutionellen Merkmale zur Armutsreduzierung beitragen, wenn Länder sich demokratisieren. Zu diesem Zweck werden Theorien und Daten verwendet, die zwischen verschiedenen Aspekten demokratischer Institutionen unterscheiden, nämlich elektoralen, liberalen, partizipativen, deliberativen und egalitären demokratischen Institutionen. Die Datenanalyse verwendet semi-parametrische Schätzungen von Behandlungseffekten, um die durchschnittlichen Behandlungseffekte (average treatment effects) von Demokratisierung auf die Armutsreduzierung zu schätzen. Dies wird getrennt für Länder relativ mit schwachen und starken Institutionen zum Zeitpunkt der Demokratisierung durchgeführt. Die Schätzungen lassen kein klares Muster erkennen, wonach die Stärke eines bestimmten Aspektes demokratischer Institutionen für die Armutsreduktion von besonderer Bedeutung ist. In jedem Aspekt demokratischer Institutionen tragen manche der Merkmale zur Armutsreduzierung bei und andere nicht. Insbesondere die Hypothese, dass stärkere Institutionen zu einer Verringerung der Armut führen, kann nicht bestätigt werden. Dies kann darauf zurückzuführen sein, dass Demokratien von Eliten eingenommen werden, was zum Fortbestand extraktiver Institutionen führt, sowie auf den relativ geringen Stichprobenumfang. Lediglich für die institutionellen Merkmale 'Wahl von Staatsoberhäuptern und des Parlaments' sowie der 'gerichtlichen Kontrolle der Exekutive' führen stärkere Institutionen zu einer signifikanten Verringerung der

Armut. Bei den meisten anderen signifikanten Schätzungen führen schwächere Institutionen zu einer Verringerung der Armut. Dies kann darauf zurückgeführt werden, dass Demokratisierungen Institutionelle Veränderungen auslösen, die nur dann eintreten, wenn die Institutionen noch relativ schwach sind. Es kann ausgeschlossen werden, dass dieses Muster auf Veränderungen bei Wachstum oder Ungleichheit nach der Demokratisierung zurückzuführen ist. In den Fällen, in denen der Effekt von Demokratisierung auf die Armutsreduzierung signifikant ist, ist er ebenfalls von substantiellem Ausmaß (zwischen 12 und 25 Prozent in den ersten fünf Jahren nach der Demokratisierung, je nach spezifischer Institution). Dieses Muster ist für die institutionellen Aspekte von deliberativer, partizipativer und egalitärer demokratischer Institutionen am deutlichsten erkennbar und weniger deutlich für elektorale und liberale Demokratien. Dies verdeutlicht, dass Institutionen, die erfassen, wie empfänglich Politikgestaltung für die Menschen ist, wichtiger für die Armutsreduktion sind als Institutionen, die formale Aspekte von Demokratie erfassen.

Der im Rahmen dieser Dissertation entwickelte Index MDI stellte ein hilfreiches Tool dar, um Inklusiv Entwicklung zu analysieren und zu überprüfen, ob Fortschritte im Hinblick der Inklusivität von Entwicklungsprozessen gemacht werden gemacht wurden. Es konnte ebenfalls gezeigt werden, dass Demokratie nicht ausreichend ist, um bestimmte gesellschaftliche Herausforderungen wie etwa wie Armut zu bewältigen. Zwar konnten wir zeigen, dass Inklusive Institutionen menschliches Verhalten und wirtschaftliche Anreize für Individuen beeinflussen können und dass Demokratien Anliegen aus der Gesellschaft stärker berücksichtigen als Nicht-Demokratien, und so zur Armutsreduzierung und Verbesserung des menschlichen Wohlergehens beitragen können. Jedoch stehen sie unter konstantem Druck, sodass sich Menschen fortwährend engagieren müssen, um die Demokratie aufrechtzuerhalten und den Einfluss von machtvollen Gruppen, die die Regeln zu ihrem Vorteil beeinflussen wollen, möglichst klein zu halten.

1 Introduction

This dissertation approaches the relationship between institutions and their impacts on development outcomes. Institutions describe formal and informal rules which structure human behavior and interactions. Because these formal and informal rules influence not only everyday actions but especially economic activity, they are a major influence on development processes and therefore present a salient research subject. The dissertation highlights two aspects; namely inclusive development – i.e. whether the entire society or only a small part can benefit from development achievements – and the relationship between democratization and poverty. The research on these topics is presented in the following four main chapters: chapter 2 presents a new index measure for inclusive development, and chapter 3 uses this index to look at drivers of inclusive development. Chapter 5 investigates whether democratization has an impact on poverty rates and chapter 6 gauges how institutional features of democracies contribute to poverty reduction. In each chapter, the specific research gaps will be explained, the relevant theory elaborated, and empirical strategy and results will be presented. Chapter 4 will give an interim conclusion for chapters 2 & 3 and chapter 7 concludes the whole dissertation.

This introduction has two goals. Firstly, to introduce the definitions and theories of institutions, inclusive institutions and development, and outline how they relate to each other. Secondly, the research gaps and the adjacent literature will be outlined broadly to provide the context and motivation for the analyses conducted in the four main chapters of this dissertation.

What are Institutions?

Institutions are an abstract concept. At their core, institutions conceptualize how behavior of people, groups and organizations in society is shaped. This is illustrated by two the following classical definitions of institutions:

“Institutions are humanly devised constraints that structure political, eco-

conomic and social interactions. They consist of both informal constraints (sanctions, taboos, customs, traditions, and codes of conduct), and formal rules (constitutions, laws, property rights). Throughout history, institutions have been devised by human beings to create order and reduce uncertainty in exchange. Together with the standard constraints of economics they define the choice set and therefore determine transaction and production costs and hence the profitability and feasibility of engaging in economic activity.” (North, 1991, p. 97)

“Institutions are sets of common habits, routines, established practices, rules, or laws that regulate the relations and interactions between individuals, groups and organisations.” (Edquist, 1997, p. 46)

These definitions indicate that institutions shape human behavior and are also important determinants for economic activity. Theories of institutions acknowledge transaction costs, information costs, bounded rationality of economic agents, which cause problems of moral hazard, adverse selection among others and make standard economic assumptions of costless market exchange implausible (Williamson, 2000).

Williamson (2000) shows that institutions involve rules that are “embedded” into society. Rules such as customs, traditions and religions, which are sluggish, and change extremely slowly and rather unconsciously. Formal “rules of the game” (North, 1990, p.3) such as property rights and how the polity, judiciary and bureaucracy are set-up can change with generations. Rules that structure interactions and contractual relations themselves (the “play of the game”) which are determined by governance structures can change rather quickly. Lastly, are rules that determine optimal prices and quantities on the market as well as the incentive alignment of agents. This illustrates the varieties of institutions and their impacts. For example, embedded institutions such as religion determine much of our belief systems and norms which influence things such as which sorts of economic activities we are willing to do (morally). Protection of property rights determines which goods, services and ideas count as individual property and if they can be protected by the judiciary if rights are violated. The play of the game can involve

the rules for contracts (e.g. if contracts can be oral or must be in writing, notarized or similar).

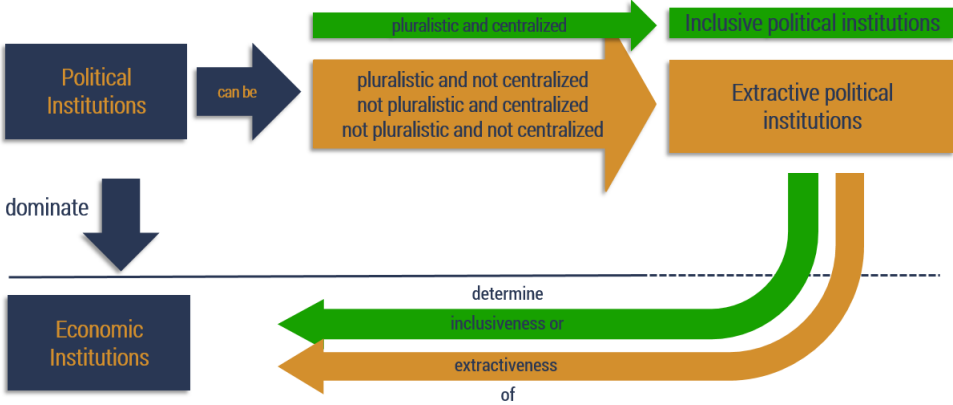
Beyond this general understanding of institutions and how they influence economic activity, the next section addresses the concept of inclusive institutions and outline how they are connected to the concept of democracy, and how they affect development and human well-being.

Inclusive Institutions

While the economic theory of institutions goes as far back as Thorstein Veblen in the 19th century and Coase (1937)'s "Nature of the firm", there are many prominent researchers who formulated institutions' concepts, such as Eucken (2004), Olson (1982), and most prominently North (1990) and most recently North et al. (2009). While none of these are better or worse than the other, the formulation of Acemoglu and Robinson (2013) was chosen to outline institutions concept because they emphasize the aspect of the *inclusiveness* of institutions which is closely linked to the topics of inclusive development in chapters 2 & 3 and democracy in chapters 5 & 6.

The Acemoglu and Robinson (2013) institutions' theory can be explained along the lines of distinguishing between political and economic institutions, and between inclusive and extractive institutions. This will be explained below and is illustrated in Figure 1.

Figure 1: Schematic Depiction of the Relationship Between Inclusive and Extractive Institutions



Source: Own illustration of Acemoglu and Robinson (2013).

Political and Economic Institutions

Acemoglu and Robinson (AR)’s general understanding of institutions originates from North’s notion of institutions, being “rules that govern incentives” (Acemoglu and Robinson, 2013; North, 1991, p. 79 and p. 97, resp.). However, AR make the distinction between economic institutions that govern economic incentives and political institutions governing political incentives.

“The political institutions of a society . . . determine how the government is chosen and which part of the government has the right to do what. Political institutions determine who has power in society and to what ends that power can be used.” (Acemoglu and Robinson, 2013, p. 79f.). In an absolutist monarchy, for example, the crown has the power to determine the rules, to instate a government or subsequently dismiss it if it does not behave in a way wished by the crown. On the other hand, in an ideal liberal democracy, everyone (of age) can engage in the political process, either directly or more indirectly by voting. The government is shaped by a majority of society which reflects a wide range of different groups and opinions coming together and forming a consensus to govern. The rules enforced and set by such a government then is backed by the majority of a society. If the elected government officials do not abide by the promises they made to voters they decrease their re-election probabilities.

On the other hand, economic institutions are those that relate to economic incentives. The most important ones according to AR are secure private property rights, the law and public services such as roads and transport networks (Acemoglu and Robinson, 2013, p. 74-6). In broad terms, economic institutions determine the possibility and incentives to participate in “economic activities that make the best use of their talents and skills and that enable individuals to make the choices they wish” (Acemoglu and Robinson, 2013, p. 74).¹

One very important aspect regarding the distinction between political and economic institutions is that political institutions come to dominate economic institutions since the political process is how a society chooses its rules; including the rules that apply to economic activity (Acemoglu and Robinson, 2013, p. 79). AR argue that “all economic institutions are created by society” (Acemoglu and Robinson, 2013, p. 81) and “politics is the process by which a society chooses the rules that will govern it” (ibid.). Thus, there is a dominance of political institutions over economic ones because the political institutions determine the political process which in turn determines the economic institutions (as depicted in Figure 1). Because of this dominance of political institutions, they cannot be disregarded even when the ultimate interest is in economic institutions.

Inclusive and Extractive Institutions:

AR refine the concept of institutions by adding the distinction between inclusive and extractive institutions. The definition for inclusive and extractive *political* institutions is straightforward: “We will refer to political institutions that are sufficiently centralized and pluralistic as inclusive political institutions. When either of these conditions fails, we will refer to the institutions as extractive political institutions.” (Acemoglu and Robinson, 2013, p. 81). Thus, pluralism and centralization are both conditions for political institutions to be inclusive. Pluralism means that the political process is able to generate a consensus that represents broader society to ensure that there is not

¹Which is closely related to the Sen’ian capability approach (e.g. see Sen, 1992, 1997).

one group (an elite) that shapes the rules in a way to only benefit itself.² The meaning of centralization is derived from Max Weber’s “monopoly of legitimate violence” (Acemoglu and Robinson, 2013, p. 80), meaning that the state is a body that holds legitimate power given by the people and that this body is the only one which can use power legitimately to enforce the rules it was given (ibid.). This second element of centralization ensures that rules can be enforced effectively if they exist.³ According to AR’s theory, institutions must be centralized and pluralistic to be inclusive, otherwise, they are extractive (see the two arrows at the top of Figure 1). It follows that institutions cannot be inclusive according to the definition above if either condition fails. On the one hand, if political institutions are not pluralistic, some individual or a small group (elite) has considerably more power and can set up institutions to their benefit. If power is centralized or not at the same time does not matter. On the other hand, if power is not centralized, the institutions or rules are not and cannot be enforced throughout the whole society; therefore, some part of society, be it small or large, is bypassed in the political process that sets rules.⁴

Turning to economic institutions once again, AR define inclusive economic institutions as institutions that give incentives for participation in economic activities to “the

²“If the distribution of power is narrow and unconstrained, then the political institutions are absolutist . . . Under absolutist political institutions . . . those who can wield this power will be able to set up economic institutions to enrich themselves and augment their power at the expense of society. In contrast, political institutions that distribute power broadly in society and subject it to constraints are pluralistic. Instead of being vested in a single individual or a narrow group, political power rests with a broad coalition or plurality of groups.” (Acemoglu and Robinson, 2013, p. 79f.).

³“identifying it [the state] with the “monopoly of legitimate power” in society. Without such a monopoly and the degree of centralization that it entails, the state cannot play its role as enforcer of law and order, let alone provide public services and encourage and regulate economic activity. When the state fails to achieve almost any political centralization, society sooner or later descends into chaos”. (Acemoglu and Robinson, 2013, p. 80f.). This reflects in some sense the basic idea of a social contract where people give their power to an artificial body (the state or a “leviathan”) to enforce self-given rules for everyone to avoid arbitrariness of rules and instability as people act in their immediate short-term self-interest.

⁴Also, (naturally) political and economic institutions influence each other. They are co-dependent and synergistic (Acemoglu and Robinson, 2013, p. 81). Synergistic because e.g. if there is a narrow political elite that has power concentrated on themselves they are very likely to set rules (economic institutions) that extract incomes from society and diverts it to them (Acemoglu and Robinson, 2013, p. 81). They are co-dependent in that, e.g. a rich and powerful elite naturally has more resources to stay in power (p 81). According to AR, synergies and co-dependencies make combinations of extractive and inclusive institutions likely to be unstable (Acemoglu and Robinson, 2013, p. 82). Although exceptions might be observed.

great mass of people” (Acemoglu and Robinson, 2013, p. 74, own emph.)⁵ They argue that there are some elements that are necessary for economic institutions to be inclusive. Specifically, “secure property rights, an unbiased system of law, provision of public services that provide a level playing field in which people can exchange and contract” (Acemoglu and Robinson, 2013, p. 74f.) must be given, as well as the free entry of new businesses and free choice of careers by individuals are further preconditions (ibid.)⁶ And, on the opposite end: “We call such institutions, which have opposite properties to those we call inclusive institutions, extractive economic institutions - extractive because they are designed to extract incomes and wealth from one subset of society to benefit a different subset.” (Acemoglu and Robinson, 2013, p. 76).

The distinction between inclusive and extractive institutions is a central part of ARs theory. Their claim is that only countries with inclusive institutions can generate sustained growth that in turn enables a country to develop in the long-term. They argue that institutions must be inclusive in the sense that they subject the whole of society to them in order to have an effect on development. For example, property rights will not affect development if they are only protected for the elite in a country. In contrast, extractive institutions can lead to development in a country only for a limited time. They provide a theory of why large income differences in the world exist today based on historical accounts of why institutions develop in an inclusive or extractive way, i.e., why countries have different institutions and how these affect their development. Economic outcomes, i.e., whether a country can develop (sustainably) is dependent on economic institutions. Those are the rules that give people incentives for economic activity, i.e., to produce, buy, sell, save, invest or innovate. However, the rules under which people are economically active are subject to the political sphere and therefore to political institutions. If the political institutions emerge through a process that is largely consensual, they will be favorable to development because, consequently, the rules for economic activity will also be set in a way that gives individuals the incentive

⁵In other passages of the book they use the phrases “majority of people in society” (e.g. Acemoglu and Robinson, 2013, p. 75) or “a broad cross-section of society” (ibid.).

⁶Note that from this follows quite an extensive catalog of basic rights and liberties that the state must guarantee.

to engage in productive economic activities. In short, political institutions dominate economic institutions, and therefore, economic outcomes are subject to the political system. Pluralism in institutions is the distinctive aspect that allows sustainable development of countries. Conversely, the lack of pluralism prevents development; it makes institutions, and development with them, inclusive. In the same manner, sufficient centralization of institutions is another precondition for sustainable economic development. If the state has the power to enforce the rules given by the political process considering everyone in society, no-one can effortlessly divert from these institutions and introduce rules to benefit only themselves or a narrow group.

This institutions concept is the theoretical backbone of the topics of inclusive development and democratization and poverty which are addressed in the main chapters of this dissertation.

What is development?

“For Sen, human “well-being” means being well, in the basic sense of being healthy, well-nourished, well-clothed, literate, and long-lived, and, more broadly, being able to take part in the life of the community, being mobile, being physically secure, and having freedom of choice in what one can become and can do.” (Todaro and Smith, 2021, p. 13)

The underlying interest in the topic of economic development is in human well-being. However, development has no canonical definition. Traditionally, in economics, development is often equated with a country having high average levels of incomes. I follow many scholars such as Amartya Sen and Todaro and Smith who argue for a more multifaceted concept of development (Sen, 1992; Todaro and Smith, 2021). From this perspective, incomes are a good approximation of development as they highly correlate with many outcomes that are associated with important aspects of the well-being of individuals (Todaro and Smith, 2021, p. 10ff.). For example, average incomes in countries highly correlate with life expectancy, literacy rates, infant mortality, population growth and labor force in agriculture. Although development is multifaceted, average income

levels can be a meaningful measure. However, when focusing only on incomes, this leads to (development) policies that predominantly target income growth while disregarding other policies that are important for human well-being. Firstly, it disregards the distribution of incomes. Having high average incomes can include situations where incomes are very unequally distributed, and many people live in poverty. Secondly, it disregards the fact that incomes are only a means to an end (which is well-being). When aiming to improve peoples' lives, increasing their incomes can only partly achieve this. Thus, if economic development aims only at growth to increase incomes, this can and probably will increase the well-being of peoples' lives. However, income is only a means to an end and many other non-monetary factors also contribute to well-being, too.

A concept that illustrates this well is the capability approach from Amartya Sen. He introduces two important terms to capture a concept of human well-being: Functionings and capabilities. Functionings are what a person does or can do (e.g. with the commodities they have). The freedom to choose what to do with commodities is part of it. Having a good is different from deriving happiness from it (Todaro and Smith, 2021, p. 11 citing Sen, 1999a). A functioning is a thing or an activity that people value in some way. The most basic functionings are being healthy, being nourished but also having self-esteem and participating in the life of the community. Functionings can differ significantly in rich and poor countries. E.g. in rich countries it will be difficult to socially function without an e-mail address while this might not be very relevant in poorer countries. This illustrates the inadequacy of monetary income as a measure of human well-being (Todaro and Smith, 2021, p. 11).

Capabilities are defined as the "freedom that a person has in terms of the choice of functionings, given his or her personal features (conversion of characteristics into functionings) and his or her command over commodities" (Sen, 1999a). This illustrates the importance of other outcomes such as health and education because those are needed to convert incomes and commodities into happiness or well-being. Thus, development that raises incomes but does not contribute to better health and education falls short in improving the well-being of people as much as possible.

Thus, the concept of development from the perspective of the capability approach concentrates on human well-being as a multifaceted concept and relates physical goods as well as the state of mind of individuals to their quality of life (Todaro and Smith, 2021, p. 13). Political and economic institutions relate to capabilities because they determine the freedom of choice over the functionings by restricting or allowing people to choose their functioning. More specifically, inclusive institutions allow (ideally) everyone a say in what the rules are, i.e., the possibility to choose certain functionings but not others. Contrarily, extractive institutions, by definition, exclude parts of society from participating in economic or political activities. Even if they would in some cases not want to participate even if they could (i.e. their functionings are the same) they are deprived of the capability to choose. Thus, inclusive development does not only focus on the improvement of development outcomes in terms of goods or commodities but also improving the distribution of possibilities to access these goods.

Chapters 2 and 3 build on this understanding of development as a multifaceted concept that is centered on human well-being when proposing a new measure for inclusive development. Chapters 5 and 6 relate to this concept of inclusive development since poverty is an indicator that is connected to the well-being of the poorest.

The Current State of Research and Research Gaps

The theoretical frameworks of inclusive institutions and development introduced above are situated on a high level of abstraction. They also highlight that phenomena of interest (institutions, polity, economic incentives, inclusiveness, freedoms or human well-being) are often very interdependent. Because of this, most research (including the research presented in the main chapters of this dissertation) focuses on more specific aspects within these broader contexts to gain relevant insights for the research community and policy-makers.

The following paragraphs outline the literature which provides the broader context of the research gaps of the subsequent chapters of this dissertation. The research gaps will be outlined in more detail in the individual chapters.

Chapters 2 and 3: Inclusive Development

The first block of research in chapters 2 and 3 investigates inclusive development. Therefore, it is beneficial to clarify how inclusive *institutions* are related to inclusive *development*. Conceptually, this can be divided into cause and result, where institutions are the cause and development is the result.

The theory from Acemoglu and Robinson (2013) described above argues that inclusive institutions are needed for development. Their theory highlights distributional arguments, i.e., that marginalized groups must be included in political processes so rules of society are determined in ways that these groups can benefit from the resulting development.

However, from a practical point of view, it is difficult to directly measure institutions because they are a very subtle concept. It is more feasible to measure development outcomes instead. Thus, the research in chapter 2 attempts to measure the outcome of development that is caused by inclusive institutions. This chapter coins this outcome “inclusive development” because it captures aspects of the multifaceted development achievements and how they are distributed in society. Ultimately, with this measure, we can assess whether development achievements (i.e. improvements in well-being) are benefiting society at large or just a narrow part of it.

Although similar measures exist in the literature (such as the Human Development Index (HDI)), the research presented in chapter 2 proposes a new measure (the Multidimensional Inclusiveness Index (MDI)) that is grounded in inclusiveness theory, addresses some drawbacks of established measures and is available for a much larger sample compared to more established measures. The latter in particular allows for new possibilities of applied research in the field of inclusive development.

In chapter 3 we conduct an applied analysis with this new measure. We use the MDI as the measure for inclusive development and investigate possible drivers of inclusive development to identify the most important economic policies (e.g. inflation, government consumption) and economic factors (e.g. structural change, social stability) that might facilitate inclusive development. Because the MDI has greater data availability

than other comparable indices, we can analyze inclusive development outcomes in regressions for a sample of 178 countries and a time frame of 1980 to 2018.

Chapters 5 and 6: The Effect of Institutions on Development Outcomes

The second block of research in chapters 5 and 6 investigates the relationship between democratic institutions and poverty rates. Therefore, the literature that investigates how institutions and democracy affect growth and human well-being will be summarized briefly.

There is a large literature that investigates the influence of institutions on development outcomes. Much of the literature measures development in terms of average income levels (often the terms income levels, GDP and growth are used synonymously). Institutions are often captured by a proxy measure because they are difficult to grasp. Prominent papers are from Mauro (1995), who proxies institutions by corruption and finds it negatively impacts growth; Hall and Jones (1999), who capture institutions by an index of social infrastructure and find it positively impacts growth; Knack and Keefer (1995), who find that contract enforceability positively impacts growth; and Acemoglu et al. (2001), who measure institutions by expropriation risk and find it robustly impacts long-run GDP. This illustrates that in the empirical literature institutions are proxied by a wide variety of variables.

Another strand of this literature measures institutions with democracy, i.e. capturing institutions of electoral democracy or other institutional aspects that are associated with democracy such as protection of civil liberties or the rule of law. Because we follow this approach in chapters 5 and 6, the most important findings in this literature will be summarized briefly. Colagrossi et al. (2020) and Doucouliagos and Ulubaşoğlu (2008) conducted meta-analyses of the empirical literature on democracy and growth and are thus especially suitable to summarize the findings of the literature. Doucouliagos and Ulubaşoğlu (2008) analyzed 483 estimates of regression coefficients from 84 papers and found that democracy has no direct effect on growth but an indirect effect through higher human capital, lower inflation, higher political stability and more

economic freedom. Similarly, Colagrossi et al. (2020) updated the previous analysis including more recent research. They analyzed 2047 estimates from 188 papers and came to slightly different results: They found that democracy has a direct effect on growth and that the effect on human capital is stronger than the one on growth.

One more recent paper by Acemoglu et al. (2019) deserves a few remarks of its own. Using a variety of empirical methods in the attempt to estimate the causal effect of democracy on GDP per capita (p.c.), they find that democratization increases GDP p.c. by around 20% in the long run. Because they are methodically very rigorous and are able to convincingly estimate the causal impact of democracy on growth (while most other papers are less convincing in this regard) their methods serve as a prototype for the empirical approach taken in chapters 5 and 6.

Besides investigating the effect of democratic institutions on growth, there is a further subset of research that investigates the relationship between institutions and outcomes that are related to human well-being. For example, Acemoglu et al. (2015) find that democratization is associated with higher schooling, higher provision of public goods and reduced social unrest. Gerring et al. (2012, 2021) and Navia and Zweifel (2003) find that electoral democracy is associated with less infant mortality. Blaydes and Kayser (2011) find that democracies are better at translating growth into total calorie consumption, a measure that has the biggest impact on the poorest sections of the population. Deacon (2009) finds that dictatorships provide fewer public goods, specifically public schooling, roads, safe water, public sanitation and pollution control – all of which have high impacts on human well-being. Besley and Kudamatsu (2006) find a robust relationship between democracy and life expectancy. Brown and Hunter (1999) find that democracies have higher spending on education which enhances prospects of human capital formation and is an important factor for well-being.

Thus, there is a vast literature that studies the impact of democratic institutions on development in terms of growth and human well-being. Within this literature, however, poverty rates (defined as the share of the population living below the poverty line of \$1.90 a day) have been neglected. Poverty rates deserve consideration because

they are a development outcome which directly relates to human well-being and is also directly relevant for policy-makers. Chapters 5 and 6 address this research gap. In chapter 5, the overall effect of democratization on poverty rates is estimated with multiple empirical methods. Finally, in chapter 6, democratic institutions are disaggregated into their sub-components to investigate which institutional features are connected to poverty reduction. The research in these two chapters evaluates whether institutions should be targeted to improve human well-being in terms of poverty, and if, which institutions the most efficient way.

2 What is Inclusive Development? Proposing a Multidimensional Inclusiveness Index

This chapter is based on a working paper titled ‘What is Inclusive Development? Introducing the Multidimensional Inclusiveness Index’ (*JERP Working Paper 2020-015*).

2.1 Introduction

Probably the most widely accepted global policy framework for thinking about the issue of inclusive development is the United Nations’ Agenda 2030. The agenda and the Sustainable Development Goal (SDG)’s specified therein, provide a detailed set of frameworks, targets, indicators and means for galvanizing global action in support of development that delivers more sustainable and more inclusive⁷ outcomes (United Nations, 2015). However, the SDGs range widely from aspects of planetary sustainability (i.e., the environment) to social and economic issues like reduction of poverty or inequalities. Specific policy choices remain rather unspecified (but are left up to policy makers to formulate).

One important merit of the SGDs is that they have brought a number of new development objectives to the political agenda. This suggests that development is grasped on a broader, more inclusive scale and that other variables are targeted rather than only those which are income-related. There has been agreement that income has no intrinsic value for human well-being⁸; and that it is rather an intermediate means to promote other relevant factors. Development strategies focused on economic growth can be too myopic to encompass all areas of human life, especially when income growth is generated at the cost of other critical factors. While economists have been concerned themselves with development for centuries, suggestions and advances for broader development concepts and human-centered approaches of well-being have only recently started to receive comprehensive attention in academia and politics.

⁷A definition and discussion of the term inclusiveness will be provided in the Section 2.2.1

⁸We relate to the understanding of human well-being as a “broad concept which is not confined to the utility derived from the consumption of goods and services, but is also related to people’s functioning and capabilities” (United Nations Economic Commission for Europe, 2014, p. 5)

Despite the accomplishments of the Social Indicator Movement from the 1960s that aimed to promote matters which increase quality of life (Land and Michalos, 2018), income growth has remained the dominating development objective. We argue in this chapter that this needs to be furtherly complemented by other objectives.

To measure inclusive human development outcomes, the most acknowledged analytical framework is the Human Development Index (HDI) which comprises the dimensions of income, schooling and health. Another, more recent approach is the Inclusive Development Index (IDI). Both indices have been used for empirical studies, e.g. by Georgescu and Herman (2019) to analyze the determinants of productive employment in the European Union. They found that high levels of inclusiveness and sustainability (measured by the HDI and IDI) can be explained by higher labor productivity, an efficient sectoral structure of employment and better social safety nets for workers. The same indices have been used by Prada and Sánchez-Fernández (2019) to investigate the relationship between wealth and development using different development indicators. Prada and Sanchez-Fernandez highlight that the selection and weighting method of indicators for wealth within a composite indicator is extremely important for the ranking which the indicator will produce. Furthermore, the IDI has been used by Draper et al. (2018) to analyze differences in inclusive development between Group of 20 (G20) and non-G20 countries. They find evidence that G20 countries succeed at improving peoples' inclusiveness moreso than non-G20 countries. Furthermore, the HDI has been used in empirical studies, e.g. by Seth and Villar (2017) to analyze the nexus between human development, inequality and poverty. They stress the importance of inequality and additional dimensions of poverty to conceive patterns of human development.

While both indices analyze important aspects of inclusive development, they still have shortcomings. Based on only three dimensions, the HDI does not capture the inequality dimension (as noted e.g. by Sagar and Najam, 1998). Therefore, the United Nations Development Programme (UNDP) has published an Inequality-adjusted Human

Development Index in addition to the basic form HDI since 2010.⁹ Other dimensions are still unconsidered by the HDI, such as indicators for environmental quality, hence, it does not capture inclusive development in its full scope. A more technical problem has been named by McGillivray (1991), namely that the HDI suffers from redundancies because of correlations between the the subdimensions.¹⁰ This can be problematic as the variables deliver little additional information with respect to each other and can cause bias with some information being weighted too heavily. Finally, there has been an interpolation of missing data and changing methods used for the HDI calculation which makes difficult a comparison of index scores across multiple years. The IDI on the other hand, comprises an increased number of variables and explicitly includes indicators for environmental quality and fiscal sustainability (World Economic Forum, 2017). However, the IDI's limitation is its data availability which prevents analysis in panel settings.

We try to resolve this by taking a middle ground and creating the Multidimensional Inclusiveness Index (MDI), which extends the number of dimensions included in the HDI (e.g. environment), takes inequality into account (as the Inequality-adjusted Human Development Index (IHDI)) but is also available for a larger set of countries and a longer timeframe than the HDI, IHDI and IDI. We include data on environmental, productivity and demographic development and inequality. Our MDI data set covers up to 171 countries and the timeframe from 1960-2018. Similarly to Anand et al. (2013) who distinguish between income growth and income inequality, we disentangle the development achievements and equity dimensions. Therefore, we aim to evaluate their impact on inclusive development distinctly. Methods used by Dreher (2006), Gwartney and Lawson (2006), and Gygli et al. (2019) as well as Alvaredo and Gasparini (2015) guided us in the creation of the MDI. We use the statistical principal component analysis (PCA) method to derive variable weights to aggregate variables into the resulting

⁹Between 1991 and 1994, the Human Development Reports included an income-distribution adjusted HDI which considered income inequalities for the calculation of the income-related part of the HDI. Only since 2010, inequalities with respect to education and health have also been considered.

¹⁰Surely, there are countries where the correlation is less distinct. One can think the health and income dimensions in Cuba or South Africa.

index. This method is a data-driven method to deal with the underlying correlation structure of the variables to represent the original variables as best as possible after aggregation into a single index.

Due to its aggregated nature and larger set of variables, it may be challenging to derive specific policy advice from the MDI. Nevertheless, it can give researchers the chance to empirically assess the factors that influence inclusive development as well as its subdimensions and serve as a starting point to identify important policies. A first attempt was made in chapter 3 by Dörffel et al. (2021) who look at the main drivers of inclusive development. Additionally, researchers can assess the impact of inclusive development on other, e.g. growth or political, outcomes.

In section 2.2, we provide a discussion of inclusive development as this motivates the set-up for the MDI. Furthermore, we provide a brief discussion of the HDI and IDI as previous development measures. In section 2.3, we introduce the MDI and explain the construction of its three versions in detail. An overview over the index data and several illustrations highlighting the usefulness of the MDI will be presented in chapter 2.4. Section 2.5 concludes.

2.2 Measuring Inclusive Development

2.2.1 Defining Inclusive Development

The concept of inclusive development still lacks a clear-cut definition. We claim that inclusive development comprises of both a fair distribution¹¹ and preferable development returns. As Anand and Sen (2000) argue, development should be human-centered. The reason for this being that humans are both the end as well as the means of development (Anand and Sen, 2000). All development measures and policies are to serve humans and their quality of life. Therefore, looking only at gross domestic product (GDP) and

¹¹The definition about a fair distribution is highly normative. It cannot be the objective of an economic analysis to assess the fairness of a distributional outcomes. However, we can assess that there is a general agreement about an income distribution fulfilling certain criteria for being perceived as fair. One of these criteria is that differences in income are justified on the ground of differences in skills and effort rather than the outcome of rigid structural discrimination of certain members of society. Recently, increasing opposition can serve as an indicator of increasing discontent about decreasing fairness of distributional outcomes.

its growth rates does not show the whole picture of inclusive development (Hoekstra, 2019; Nordhaus and Tobin, 2018; Stiglitz et al. 2009). Examining income levels and stocks of (material) wealth does not allow inferences about a human's individual preferences and to what extent they are satisfied. Therefore, they can only be intermediate goals with instrumental value.

Talmage and Knopf (2017) define inclusiveness as a "community outcome that results from methods of inclusion that utilize diversity as a resource." In this light, inclusiveness shows the scale of "inclusion of all individuals and groups, specifically individuals or groups who were previously not included or excluded" (Talmage and Knopf, 2017). This goes along with the appreciation of diversity in personal characteristics and life plans. The term inclusive suggests that individuals have equal access to the social, political and economic mainstream as well as chances to assert their preferences. This normative aspiration requires all parts of society to benefit from development.

Thereby, inclusive development is related to equality but both concepts are not the same. A society with a highly unequal distribution that impairs access to and participation in that society can hardly be perceived as inclusive. Material inequalities may be justified, however, as long as they represent different preferences among members of a society. These inequalities do not impact the individuals' life fulfillment. When considering goods and means for the satisfaction of basic human needs, individual preferences are more homogenous, especially when the point is meeting minimum thresholds to secure human survival.¹² Here, vast inequalities are harder to justify. On the other hand, a just distribution in a society will not necessarily ensure a high level of inclusiveness. When all individuals are equally poor, they are still constrained in pursuing their life plans.

Inclusive development has a consistent relationship to sustainable development. In the "Brundtland Report" (World Commission on Environment and Development (WCED), 1988), sustainable development is defined as development that "meets the needs of the present without compromising the ability of future generations to meet

¹²Examples for these goods are accommodation, food required for basic nutrition, basic education like reading skills, clothes, access to basic medical care etc.

their own needs.” This highlights the importance of intertemporal considerations and protecting the environment in a prospective way. As per the definition of the United Nations (2005), this addresses economic, social and environmental dimensions. All three dimensions are mutually reinforcing and intertwined.

As a result of previous considerations, scholars have been driven by the attempt to introduce development approaches that also address non-monetary aspects of well-being. Probably the most famous and pioneering example to measure inclusiveness is the HDI introduced in the United Nations’ Human Development Report in 1990. It is based on the so-called capabilities approach, which claims that every person must be provided with the freedom and capabilities to pursue the life they want to live (Sen, 1992, 1999b). If policies, for whatever reason, marginalize or contribute to the persistence of existing marginalization of persons or groups, then there are individuals who are denied the capability to lead the life they desire. It is argued that certain variables – in a variety of dimensions including income, wealth, utilities, liberties, primary goods (Sen, 1992, p. 129) – allow people to increase their functionings (doings and beings) and that the ability to choose between alternatives (capabilities) has an intrinsic value for their well-being. Essentially, the capability approach claims for equality at least with regards to basic freedoms to achieve and capabilities for the necessary functionings in particular (Sen, 1992). The HDI captures basic functionings and capabilities to choose these functionings. However, we argue that the HDI does not fully operationalize claims for equality of the capability approach. The IHDI resolves this, yet lacks in data availability.

As the pro-poor growth literature suggests, and 40 years after the emergence Social Indicator Movement, by the early 2000’s, most of the discussions on inclusive development are still centered around addressing mostly economic growth dimensions. Emphasis is placed on the importance of growth that benefits poorer parts of society (Ravallion and Chen, 2003). Lakner and Milanovic (2013) show that between 1988 and 2008 income growth had been the highest in the lower and middle components of the global income distribution and below average in the richer world. Chen and Ravallion

(2010, 2013) point out that this improvement was mostly driven by the astonishing catch-up process in India and China. From 1981-2005, the percentage of people living on \$1.25 or less per day declined from about 60% to about 40% in South Asia, in East Asia from almost 80% to under 20%, while in Africa it remained at around 50%.

With the inclusive growth approach, Klasen (2010) puts an emphasis on the distributional outcomes of growth by turning the focus to the growth process itself, i.e. the extent to which large parts of the society are enabled to access and participate in the economic mainstream. Yet, inclusive growth addresses solely income-related dimensions.

To capture inclusive development, non-income dimensions must be acknowledged. Rauniyar and Kanbur (2009) trace the evolution from growth to inclusive development in two steps: First, by anticipating intra-society inequalities and, second, by including non-income dimensions like social participation and environmental protection. The African Development Bank (2013) highlights that inclusive growth comes through poverty reduction enabled by economic, social, spatial and political inclusion. According to the World Bank, a growth strategy can only be successful when benefitting equity, equality of opportunities and social protection (World Bank and Commission on Growth and Development, 2008). Yet, social dimensions have dominated growth strategies and a more profound acknowledgment of ecological dimensions seems required as the poorer members of society are more opposed to environmental systems (Fairhead et al. 2012).

As the societies develop and face new challenges, the concepts for inclusive development need to be adjusted accordingly. This is an “adaptive learning process, which responds to change and new risks of exclusion and marginalization” (Gupta et al. 2015). Given the current dissatisfaction with development yields¹³, claims for more inclusive development have prevailed. One such claim is premised on what the Inclusive Growth and Development Report (World Economic Forum 2017) characterizes as secular stagnation, particularly of Western societies. In the authors’ view, there

¹³Culminating in populist movements in many parts of the world accompanied by anti-globalization and anti-trade sentiments.

are three drivers of this stagnation: (i) rising within-country inequality; (ii) structural fiscal challenges due to long-term demographic changes and simultaneously growing debt issues in many western countries; and (iii) (expected) employment disruptions and income distribution shocks due to information-fueled technological disruptions. Addressing these problems is crucial as “people do not isolate the different aspects of their lives. Instead, they have an overall sense of well-being” (United Nations, 1990). Therefore, an index that represents this holistic development perspective is needed.

From these observations, we conflate that inclusive development comprises both aspects of process-inherent participatory empowerment as well as outcome-related attainments. In the past decades, there has been much progress with respect to development outcomes, especially economic growth. Nevertheless, distributional concerns have become a pressing problem in many countries. The focus of policy debates has lately shifted towards the promotion of equal access to assets that are required for wealth creation (Ngepah, 2017). Assigning single variables to either the process or outcome dimension can be somewhat ambiguous. We therefore draw the distinction between a distributional and absolute development achievements dimension which is more feasible.

To conclude the discussion, we suggest this definition: Inclusive development is societal progress (development) that incorporates participatory empowerment of citizens and promotes human well-being related outcomes in accordance with sustainability of societal foundations (institutions and environment). Although we have the concept of capabilities in mind, we relate our definition to (measurable and operationalizable) development outcomes rather than to subjective indicators of human well-being, e.g. level of happiness, or quality of life, which are closer to the concept of capabilities. In this way, we aim to measure and operationalize capabilities closely.

2.2.2 Previous Propositions to the Measurement of Inclusive Development

Inclusive development is multidimensional and complex. Our aim is to create a composite development index that allows comparisons between different countries and

times. This requires consideration of various heterogeneous characteristics, especially in high and low income countries.¹⁴ Also, the sophistication of certain variables constitutes a bottleneck manifested by limited data availability. A convincing index for inclusive development on the global scale is still a gap in the literature despite growing political debates and academic attention for the topic.

This section provides a discussion of two earlier attempts of development indices, namely the HDI and the IDI by the World Economic Forum (WEF). The HDI was the early attempt of a comprehensive index for comparison of development across countries addressing non-income aspects. It is calculated from three indices, one for income, health and education each ranging on a unit-free [0, 1] scale. The advantages and disadvantages in the choice of variables and computation method for the indices and HDI itself have been discussed extensively by their authors and others (see Kelley, 1991; McGillivray, 1991; Sagar and Najam, 1998). This has led to several adjustments in the HDI calculation since its establishment.

From the beginning, the HDI contained p.c. gross national income (GNI) as income variable. Income is therefore perceived as an intermediary target and “proxy measure for the choices people have in putting their capabilities to use” (United Nations, 1990) that were not sufficiently depicted by the other two variables. To address the assumedly decreasing marginal utility of income, the HDI uses the natural logarithm of p.c. GNI. The HDI health variable is the average expectation of life in years. Until 2008, the education indicator was calculated from the share of population with basic literacy skills and the share of gross enrollment. In 2009, this was replaced by an education index comprising the average years of schooling for a 25-year-old person and expected years of schooling for newborns (United Nations Economic Commission for Europe, 2014).

The choice and adjustment of all variables included indicates that the HDI was originally developed to measure achievements in the satisfaction of basic human capabilities. For the calculation of the indices, the authors selected (lower and) upper

¹⁴As defined by the World Bank.

boundaries. All data beyond those boundaries were curtailed. Consequentially, the country scores are determined by the choice of the boundaries which, in turn, appears to be arbitrary. The dilemma of the HDI is that it fails to address the heterogeneous nature of capabilities and demands for subjective well-being in various categories of countries. People in high income countries may have more refined needs so other capabilities matter more than they do in low income countries. To make the comparison of countries based on the HDI more convincing, it may be useful to think about new categories or the assignment of new variables. This seems necessary as basic capabilities have been increasingly served in large parts of the developing world over the past decades.¹⁵ Even when choosing other variables for the three incumbent categories, the HDI does not address environmental sustainability. Applying Rauniyar and Kanbur (2009)'s logic, the HDI in its basic version can be regarded as a development index but does not qualify as a comprehensive inclusiveness measurement. To address more specific matters, the UNDP included other indices into the Human Development Reports of the recent years: since 2010 the already mentioned Inequality-adjusted HDI, since 2011 the Multidimensional Poverty Index (MPI), since 2014 the gender development index and since 2019 the gender social norms index. The IHDI stands out in that it is very close to the concept of inclusive development used for the MDI. However, all indices mentioned have rather limited data availability. As for the MPI, gender development index and the gender social norms index, they are focused on more specific aspects of development outcomes and, thus, must rather not be considered as comprehensive development indices but useful tools to address the HDI shortcomings.

A second approach was delivered by the WEF. The IDI¹⁶ captures intra-society concerns on a comparative basis presenting cross-sectional data as well as data on five-year changes. The WEF claims that a reassessment of national performance is needed which is based on a larger set of objectives. The IDI which comprises 12 variables which are grouped into three domains:

¹⁵Mainly with the exemption of African states.

¹⁶As an amendment of the WEF's Inclusive Growth and Development Report 2015 (Samans et al. 2015), the current IDI was first established in the WEF's The Inclusive Growth and Development Report 2017 (World Economic Forum, 2017).

1. Growth and Development

- GDP p.c.
- Labor productivity
- Healthy life expectancy
- Employment

2. Inclusion

- Net income Gini
- Poverty rate¹⁷
- Wealth Gini
- Median income

3. Intergenerational Equity and Sustainability

- Adjusted net savings¹⁸
- Carbon intensity of GDP
- Public debt
- Dependency ratio (non-working age/working age population).

The IDI summarizes these National Key Performance Indicators. All quantitative data indicators are converted to a [1, 7] scale using a linear min-max transformation. Thereby, it is possible to aggregate the data from the indicator up to the index level. For outliers, a benchmark is applied to reduce the bias on the arithmetic mean of the whole sample. Thereby, the order of, and the relative distance between, country scores is preserved to allow for unbiased comparison. Because of its comprehensive formulation, the IDI enables a better assessment of inclusive development outcomes across different institutional setting (Draper et al. 2018).

However, the WEF IDI has certain weaknesses that confine the validity and persuasiveness. Those weaknesses are related to the construction set-up as well as the choice of variables. First, the definition of (upper and lower) boundaries is not comprehensible. This complicates the interpretation of the differences in the country scores for

¹⁷The Poverty rate has different definitions for “advanced” and “emerging” economies (relative and absolute poverty).

¹⁸Adjusted net savings are defined as “net national savings plus expenditure on education and minus depletion of energy, minerals, and forests, and damage by particulate emissions. Carbon damage has been excluded from the calculation” (World Economic Forum, 2018).

single variables. Neither is it transparent whether all National Key Performance Indicators are weighted equally during the aggregation. Second, despite the large number of sub-indicators, the IDI omits factors on education and, thereby, fails to consider factors critical for inclusive development. Therefore, it cannot fully capture cognitive capacities that are important for human capital, social interaction and the development, denomination and preservation of individual preferences. The data on median income and income Gini as well as GDP p.c. and labor productivity are highly correlated.¹⁹ Including both variables in each case translates into a bias in the overall index (Nardo et al. 2005). Another bias could arise from the variables savings and debt that comprise similar information. Due to its aggregation method, one cannot distinguish between the contributions of the three subdimensions, especially the development and equity dimensions, which prevents a detailed analysis about the performance of countries in these dimensions. Third and most importantly, the data availability of the IDI does not allow rigorous empirical usage and the analysis of development trends. It offers cross-section data for 2017 and 2018 plus respective five-year trends.²⁰ This timeframe is too short to conduct meaningful analyses of long-term development.

The previously discussed indices are, to our knowledge, the most prominent attempts for developing an index on inclusive development. However, there has been a list of other authors offering alternative approaches that have not been widely accepted in the literature. McKinley (2010) constructs an inclusive growth index, including a substantial set of economic and socioeconomic variables, e.g. on human capabilities and inequality measures. Anand et al. (2013) deliver another measurement for inclusive growth - as the product of growth rates and equity. Thereby, they are able to disentangle the development and inclusiveness (distributional) outcomes. We claim that both dimensions matter for social mobility and inclusive development. Hence, it is useful to disentangle both dimensions to gain a better understanding of development

¹⁹The Pearson correlation coefficients of the variables concerned are 0.60 and 0.90 respectively.

²⁰As of late 2021, the WEF seems to already have discontinued the IDI. No Inclusive Development Report or IDI has been published in 2019 or 2020.

patterns.²¹ Looking also at more subjective social and political factors of human well-being, another attempt is Estes (2014) Weighted Index of Social Progress. This index comprises among others indicators of violations of political rights and cultural cohesion and access to social security systems. Since 2014, the Social Progress Imperative (Porter and Stern, 2014) has been publishing the Social Progress Index.²² It comprises three subindices – one on the (satisfaction of) basic human needs, foundations on well-being and opportunities. Some of the chosen indicators (tolerance and inclusion, personal freedom and choice) connected to subjective well-being are hard to operationalize and compare across countries and time. Therefore, although this index does capture inclusive development, with our approach we are able to capture inclusive development based on (mostly) economic factors and the scale to which people are able to realize their life ambitions with regards to and/or by the means of material terms while allowing for broad comparisons over between countries and over time. Woldegiorgis (2020) extends the IDI with more indicators that are especially relevant for the African context to analyze patterns and drivers of inclusive development in on the African continent.

The growing number and heterogeneity of contributions with regards to the measurement and index construction for development matters showed the urgency of a common understanding and identification of a general set relevant factors (United Nations Economic Commission for Europe, 2014). Those also serve as a useful guideline for the following presentation of the MDI.

2.3 The Multidimensional Inclusiveness Index

Given the shortcomings of earlier development indices and the growing relevance of the matter, there is an evident need for a convincing index which measures inclusive development comprehensively for a long timeframe and, thereby, improves the problem of the data availability as well as allows a better comparison of results across countries

²¹Not least because we may expect trade offs between economic development and equality as suggested by the Kuznet's curve which, however, has been severely criticized for suggesting a deterministic relation (Sen, 1999b), lack of empirical evidence (e.g. see Frazer, 2006) and should, therefore, be treated with caution

²²The Social Progress Index was adopted by the European Commission in 2016 as an alternative development measurement to make development comparable across the set of European countries.

and time periods. The MDI will be a useful contribution to solve those two questions that have been identified as two main challenges in the present context (United Nations Economic Commission for Europe 2014). Our approach embraces the selection of the IDI indicators but is conceptually affiliated to works that differentiate explicitly between absolute achievements and equity (see Anand et al. 2013; Kakwani and Son, 2008).

2.3.1 Subindices and Selection of Variables

For taking a perspective on inclusive development, we must consider a large number of factors that matter for fulfilling individual life goals. We face a trade-off between being parsimonious, i.e. keeping the construction and interpretation of results simple and communicable, and including a larger number of indicators increasing the richness of information (Abson et al. 2012). We include a variety of variables that are representative and meaningful. Data availability is still a major constraint for the selection of variables.

We construct the MDI as the product of two subindices, one on development equity and achievements each: $MDI = I_E \times I_A$, where MDI denotes the aggregated Multidimensional Inclusiveness Index, I_E denotes the Equity Index and I_A the Achievements Index. This specification allows us to capture inclusive development for which distributional outcomes as well as development achievements matter. It also enables us to disentangle the distinct impact of the subindices on the overall index.²³ The selection of this setup is based on the normative judgement of assigning both dimensions equal weighting. We rely on the theoretic comprehension discussed in the previous chapter and the work by Anand et al. (2013) who suggest a similar approach.

The following two subsections describe our rationale for variable selection and a description of the data. The subsection thereafter provides an explanation of the three different versions of the MDI that we offer to researchers.

²³We acknowledge that both subindices can interrelate, theoretically as well as empirically there are arguments about a correlation between economic growth and inequality within countries (Sagar and Najam, 1998).

Equity Dimension

As discussed in section 2.2.1, inclusive development is related to equality. Since data on distributional outcomes are scarce, we are somewhat limited in our choices. Like most studies that address inclusive growth, we include income inequality (measured by the national income Gini) into our Equity Index. This is the most important variable because income has shown high correlation with people's life satisfaction (Deaton, 2008). We are confident that this variable is an expressive proxy for the equity income distribution which is a crucial determinant for human well-being. It is also the income inequality measure with the most data available. However, we recognize limitations that come with the Gini index, including the fact that it fails to reflect the share of people living in absolute poverty.

To cover additional aspects of equity, we include data on national distributions for wealth, education and health. Unlike income and wealth, the latter two have an intrinsic value for human well-being. Including these data gives genuine insight. Our elaboration is in line with the United Nations' HDI as three of them (excluding wealth) correspond to the dimensions covered in the HDI.

Data on the distribution of development outcomes are not comprehensively available.²⁴ For the income Gini, the Standardized World Income Inequality Database (SWIID) offers the most comprehensive data (Solt, 2019). The Wealth Gini has been estimated in the Credit Suisse Global Wealth Reports since 2010 (*Global Wealth Report*). Data on both education inequality and health inequality have been provided by the UNDP in the Human Development Reports since 2010 (United Nations Development Programme, 2020). These inequality measures use the Atkinson inequality index method.²⁵

²⁴Many sources provide incomplete data; often the data are available for a short timeframe only.

²⁵In their computation, Atkinson inequality measures contain an inequality aversion parameter which depending on choice assigns different weights to observations. This approach can be reasonable if it renders social norms shared by the population. However, it is highly normative.

The Achievements Dimension

To measure development achievements, we employ the WEF IDI set-up as a conceptual basis for the selection of variables in the achievements index. However, we choose to (i) resign from the structure of the three subdimensions and (ii) adjust the selection of variables.

First, we include GDP p.c. as a proxy for income per person.²⁶ Income is required to cover the expenses for the satisfaction of basic human needs. This indirect measure has drawbacks, e.g. a conversion is complicated given that an assumedly decreasing marginal return of income for human well-being. This could lead to insignificant effects of income increases above a certain level. Second, it was argued that income will only translate into higher human well-being when it exceeds a certain minimum. Below this threshold, income can only serve to satisfy basic human needs which can hardly be considered as human well-being (Sagar and Najam, 1998). Another problem of income as indicator for human well-being is that people differ with regard to their preferences and requirements to assert individual functionings. Some people have more expensive preferences and requirements. The same real income can result in distinct satisfaction of needs. This is the case both within and between countries as well as across time. Acknowledging these problems (of conversion), we nevertheless conclude that monetary income matters for human well-being.

Matching the distributional data in the equity dimension, we add the corresponding variables for development achievements in the wealth, health and education area. The selected variables here are gross domestic savings (as fraction of GDP), life expectancy at birth, and human capital.

Following the World Economic Forum (2017), we include labor productivity and the employment ratio. Labor productivity is measured by the output per worker and captures how technically advanced a country is; arguably an indicator for development achievements. The employment ratio indicates the fraction of the population that is

²⁶Using GDP as an income proxy has its advantages and disadvantages, as discussed in Hoekstra, 2019, p. 54-78 and (Dollar and Kraay, 2002a, p. 199). GDP remains a commonly used variable as income proxy. We chose GDP p.c. over GNI p.c. because of data availability.

formally employed. Employment is a main source of income but also serves other purposes like allowing people access to social capital or increasing subjective well-being (Winkelmann, 2009).²⁷

We include measurements capturing sustainability outcomes. We address the conventional three dimensions of sustainability by selecting adjusted net savings as proxy for financial sustainability and the dependency ratio as proxy for demographic sustainability. Since environmental sustainability is exceptionally important and an increasingly pressing issue in our times, we include carbon intensity of GDP (CO2 emissions per \$ of GDP) and natural resource depletion in percent of the GNI, i.e. how much of a nation's income is generated by depleting existing natural resources as proxies for environmental sustainability.²⁸

We retrieve data on GDP p.c., gross domestic savings, life expectancy at birth, labor productivity, employment ratio, adjusted net savings, dependency ratio, carbon intensity of GDP and natural resource depletion from the World Development Indicators (WDI) database of the (World Bank, 2016). As a proxy for educational achievements, we use the human capital index from the Penn World Tables 9.1 (Feenstra et al. 2015) which approximates the average years of schooling in the population.

Our variable selection is not immune to criticism. For the choices of the variable selection, we face a trade-off between completeness (how well does our measure represent inclusive development?) and exactness (how exact can we trace changes in the data to its underlying causes?). Compared to other development indices, we include a large set of variables, especially in the equity dimension²⁹ and, thereby, the MDI satisfies requirements for completeness in measuring inclusive development. Thus, we are willing to accept diminished exactness. Additional variables could also be included,

²⁷Despite our focus on economic variables, we acknowledge this merit of employment for human well-being.

²⁸Alternatives are: Total greenhouse gas emissions (in kilotons) or the share of renewable energy production/consumption of total energy production/consumption. We decide against the first because the kt amount of emissions from countries is non-informative because of different country sizes. Scaling it by population size or GDP leads to a variable similar to the one that is already included (CO2 emissions per \$ of GDP). We decide against the second, because the data provided by the International Energy Agency includes nuclear energy in the category of renewable energy. This may not be in line with the general understanding of environmental sustainability.

²⁹For a much longer time-frame than the Inequality-Adjusted HDI.

e.g. public debt, alternative measures for environmental performance like the carbon footprint as applied by Blancard and Hoarau (2013) or gender equality.³⁰ Including them would mean more completeness and less exactness. Furthermore, data constraints impeded our efforts. While sometimes data were not available at all, in other cases the underlying definition were uncertain and, therefore, obstructed an unbiased comparison. We are aware that the selection and omission of variables necessarily involves value judgements. However, we are confident that, given the aforementioned problems, we present an appropriate compromise between covering relevant domains and keeping the index construction operationalizable.

MDI Versions: Basic, Equity Plus and Achievements Plus

Because of data limitations in both the equity and the achievements dimension, we decide to offer three versions of the MDI which differ with regards to the variables included: The **MDI basic** (abbr. as MDI), **MDI equity plus** (abbr. as MDI_{E+}) and **MDI achievements plus** (abbr. as MDI_{A+}).

The **MDI basic** has the largest sample but is based on the narrowest set of variables. The set of variables contains the income Gini in the equity dimension and GDP p.c., savings, life expectancy and human capital in the achievements dimension.

$$MDI = I_E \times I_A = I_E(Gini_{income}) \times I_A \begin{pmatrix} GDP \text{ p.c.} \\ savings/GDP \\ life \text{ expectancy} \\ human \text{ capital} \end{pmatrix}$$

The **MDI equity plus** provides an extension in the equity dimension, i.e. we include more variables to measure the Equity Index. Those are wealth Gini, health inequality and education inequality.

³⁰Which, we claim, is partly reflected in the equity dimension. Higher rates of gender inequalities translate into higher inequality for the overall society. Another reason not to include variables for gender equality was to have conceptual congruence between the equity plus and the achievements index, each covering four variables that relate to each other, e.g. having one income equity and one income achievements variable, etc.

$$MDI_{E+} = I_E \times I_A = I_{E+} \begin{pmatrix} Gini_{income} \\ Gini_{wealth} \\ Atkinson_{health} \\ Atkinson_{education} \end{pmatrix} \times I_A \begin{pmatrix} GDP \text{ p.c.} \\ savings/GDP \\ life expectancy \\ human capital \end{pmatrix}$$

The **MDI achievements plus** provides an extension in the achievements dimension, i.e. we include more variables to measure the Achievements Index. These are labor productivity, employment ratio, adjusted net savings, dependency ratio, carbon intensity of GDP and the natural resource.

$$MDI_{A+} = I_E \times I_{A+} = I_E(Gini_{income}) \times I_A \begin{pmatrix} GDP \text{ p.c.} \\ savings/GDP \\ life expectancy \\ human capital \\ labor productivity \\ employment ratio \\ adjusted net savings/GNI \\ dependency ratio \\ carbon intensity of GDP \\ nat. res. depletion/GNI \end{pmatrix}$$

2.3.2 Method of Calculation of the Multidimensional Inclusiveness Index

We aggregated the 14 variables into two subindices. Subsequently, both subindices are aggregated into the MDI. We distinguish between the three aforementioned MDI versions. We provide the two subindices in their respective extended forms, i.e. the Equity Index plus (I_{E+}) and Achievements Index (I_{A+}) plus. Hence, we offer a total of five indices.

The MDI basic is calculated for up to 171 countries and each year in the timeframe

1960-2018.³¹ The selection of countries is based on the definitions used for the World Bank data base. The availability of the MDI equity plus and the MDI achievements plus as well as the subindices differs due to the data availability. With the MDI, we want to improve the data availability in measuring inclusive development and making scores comparable across countries and time, thereby addressing major issues pointed out (United Nations Economic Commission for Europe, 2014).

Imputation

Due to the long timeframe and large number of countries, there are missing observations for several variables. We follow Gygli et al. (2019) and impute missing observations within a series by using linear interpolation. Missing observations at the beginning or the end of a series are substituted by the timewise closest observation that is available. This means that the earliest available value is carried backward to earlier time periods of the series and the latest available value is carried forward until the end of the time series. Missing data tends to be more prevalent in the earlier years as data coverage has improved over time.

Table 1: Data Coverage

	1960-69	1970-79	1980-89	1990-99	2000-09	2010-18
Imputed	84.90%	84.90%	84.90%	84.90%	84.90%	84.90%
No imputation	25.20%	33.10%	40.10%	57.40%	63.30%	77.00%

Note: The cells show the fraction of countries for which data is available.

As shown in Table 1, the share of missing observations that were extrapolated is considerable, especially in earlier years. While, on average, for the 1960s only about a quarter of all countries data is available, the data coverage for the 2010s is more than three quarters. With our imputation method, we can increase the data availability to 84.9% over the whole timeframe. We argue that the extrapolated data is better than having no data. Even if the specific value of the extrapolated data does not reflect the

³¹Because of the aggregation method (section Weighting and Aggregation), the MDI cover less countries for some years, e.g. in 1980 it covers 129 countries, in 1995 162 countries, in 2008 the maximum of 171 countries.

true data points, the scores of countries in single variables and consequential index ranks are less fluctuating over time. Therefore, this extrapolation carries valuable information and gives an approximation of the unobserved true values. Since we extrapolate naïvely, the index for a country is simply kept constant over time with regard to the extrapolated variable. As soon as the aggregated index value for a country changes over time, this reflects real changes in the actually observed data.

The starting point of the MDI is determined by the earliest time period in the underlying cross-country data. This is mainly determined by the WDI database which starts in 1960 and the income Gini database also starting in 1960. Because of the large proportion of extrapolated data, there is not much variation in the MDI in early years. Thus, a starting point at a later point would also be conceivable.³²

Normalization and Inverting

We normalize all variables to a [0, 1] scale where 0 represents the observation with the lowest value in the sample and 1 the observation with the highest value in the entire sample covering all years and countries. We are aware of the problem that index scores are sensitive to the selection of boundaries (Kelley, 1991). Also, assigning the observation with the highest value a score of 1 suggests that there are no improvements possible. This is a normative implication that we want to avoid. We only intend to provide a suitable framework for inter-country measurement of inclusive development. All other observations are assigned values according to the percentiles of the distribution of each variable. We normalize over the whole sample (panel normalization) to capture time changes within countries. This allows us to compare the progress within countries across time (Gygli et al. 2019). Compared to normalization for each year separately, this procedure is not sensitive to outliers in specific years but only to those for the whole sample. A disadvantage is that this panel normalization procedure is sensitive to data changes, e.g. when the underlying data is updated or extended in the future, which can result in changed rankings and index values over all years (Gygli et

³²We leave it to the individual researcher to define the sufficient level of data coverage above which the MDI is deemed meaningful.

al. 2019).

For all variables in the Equity Index, as well as carbon intensity of GDP and the dependency ratio in the Achievements Index, high values impact inclusive development negatively. The values of these variables were inverted applying the same scaling. Therefore, the variable can be included in the same manner as all other variables, i.e. high values are beneficial for inclusive development.

Although the income and wealth Gini as well as the education and health inequality measurement technically have a $[0, 1]$ scale, we normalize them into a $[0, 1]$ scale ranging from the highest to the lowest value in the data sample. For the wealth Gini, some reported values are greater than one which is possible when households in the underlying distribution report negative net wealth. We normalize the inequality measure on health and education on a $[0, 1]$ scale as well.

Weighting and Aggregation

The weighting and aggregation methods matter largely for the index score, however, their choice is highly normative and arbitrary. Equal weighting of all variables seems straightforward but is an arbitrary determination based on value judgements. The same holds for adjusted weighting methods based on expert judgement or survey results. Once the variables were given weights, the aggregation method is decisive for the overall index score. While an arithmetic mean aggregation is straightforward and simple, it implies that a bad performance in one score can easily be compensated by a good score in another variable which was criticized for being inappropriate in the context of inclusiveness (Desai, 1991). We claim that all dimensions matter for inclusiveness such that they should not be excluded ad hoc. Yet, a perfect substitution is not justifiable.

To address the underlying data structure, we follow Dreher (2006) and Gwartney and Lawson (2006) and employ a statistical method that bases the weighting and aggregation on the common characteristics of the data. Principle component analysis uses the full data sample to determine the weights by partitioning the variance of the

variables in the respective subindex. This is a useful, data-driven method to aggregate multiple variables into one single variable (the index) in a way that best reflects the original data (Gwartney and Lawson, 2001) based on their commonalities. In line with this approach, Heckman et al. (2013, p. 2063) argue that aggregation through factor analysis (PCA) is preferable to e.g. taking a simple average of variables because it is less arbitrary and also accounts for measurement errors. Weights are determined in a way that maximizes the variation of the resulting principal component (PC). First, individual variable weights are determined, then variables are aggregated into PCs in a second step³³. As opposed to Dreher, 2006; Gwartney and Lawson, 2006, we do not use only one PC for each sub-index (or sub-group of variables) but apply the “Kaiser-Criterion”, a common stopping rule (see Nardo et al. 2005). According to this criterion, we include all PCs that have an eigenvalue higher than 1. The PCs are again weighted when aggregating them into the two subindices. This aggregation again uses the weighted arithmetic mean. Weights are determined according to relative proportion of the variance of the individual PCs to the total variance (Nardo et al. 2005). Although this is not free of value judgements because the choice of aggregation method necessarily involves judgements, we argue that our approach improves upon aggregation by a simple average.

Table 2 shows the resulting number of PCs for the subindices of the respective MDI version and their weights for the single variables. The MDI basic gets by with one PC for each subindex. When including additional variables in the MDI_{E+} and MDI_{A+} respectively, we obtain an increased number of PCs. The percentages in brackets reflect variable weights within each PC. We see diverse weights for single variables across the

³³Weights for the variables that determine each PC are determined by the procedure described in Nardo et al. (2005). They are calculated from squared factor loadings which are then scaled to sum to 1

MDI versions accounting for statistical characteristics in the data.³⁴

An observation of a subindex is reported as missing if more than 40% of observations in the underlying variables are missing (see Gygli et al. 2019). The MDI score is only calculated if both subindexes are available for the respective country and year.

We aggregate the equity and achievements subindices into the MDI applying equal weights for the multiplication, i.e. both the Equity Index and Achievements Index contribute 50% each to the MDI score. Here, we apply the value judgement that, based on our definition, both dimensions matter likewise for inclusive development. We decide for a geometric aggregation because the easy compensation between subindex scores seems inadequate. Using this aggregation method, a country requires a good performance in both dimensions to obtain a high MDI score. Afterwards, we multiply the MDI and the subindices by 100, thereby, bringing it into a [0,100] scale, making it more digestible. Additionally, by constructing the index in this way, we retain most of the exactness with respect to these two domains since researchers are able to analyze countries' performance separately for those two domains and, therefore, disentangle the effects. We show applications of this in section 2.4, especially in Figures 5-7.

The MDI still comes with some limitations. Due to the outlined construction with pooling of variables, the MDI cannot be perfectly sensitive to specific contexts. We make no claims about the specific drivers of the score for each observation and emphasize that we are not able to directly derive policy conclusions. The MDI is largely

³⁴The basic achievements index that goes into the MDI basic and MDI_{E+} puts almost equal weights on GDP p.c., life expectancy and human capital (each around 30%) and a very low weight on savings (7%). This indicates that for overall development achievements, GDP, life expectancy and human capital are all similarly important while savings does not contribute much to explain overall variance. The achievements index for the MDI_{A+} contain three components, where the first component has the largest weight by far, making out 69% of the overall index. The first component gives high weights to variables grouping classic development outcomes such as GDP p.c., life expectancy, human capital, labor productivity and the dependency ratio (none of them stand out particularly as weights range 16-20% for these variables). The second component contributes 16% to the overall index and gives most weight to environmental sustainability aspects 57% (the employment ratio contributes another 30%). The last component has a weight of 15% and variables adj. net savings and savings/GDP have weights of 60% and 23% respectively. Thus, this component centers around intergenerational sustainability and sound finances. Lastly, the MDI_{E+} consists of two components with the first one have twice the weight than the first (68% and 32% respectively). The first component gives almost equal weights to income, health and education inequality while the second component almost exclusively contains wealth inequality. This indicates that income, health and education are conceptually closer together and similarly important to explain overall variance as compared to wealth which involves much greater intergenerational ability (wealth stocks can be passed on over generations, solidifying inequalities).

Table 2: Index Weights for Different MDI Versions

Index	Subindex	Variable	Variable weight (PC 1)	Variable weight (PC 2)*	Variable weight (PC 3)*
MDI basic	Achievements Index [50%]	GDP p.c.	32%		
		Savings	7%		
Life Expectancy		28%			
Human Capital		33%			
	Equity Index [50%]	Income Equity	100%		
MDI equity+	Achievements Index [50%]	GDP p.c.	32%		
		Savings	7%		
Life Expectancy		28%			
Human Capital		33%			
	Equity Index [50%]	Income Equity	28%	6%	
Wealth Equity		0%	90%		
Education Equity		34%	1%		
Health Equity		39%	2%		
MDI achievements+	Achievements Index [50%]	GDP p.c.	18%	5%	1%
		Savings	4%	4%	23%
		Life Expectancy	16%	0%	2%
		Human Capital	20%	0%	10%
		Labor Productivity	16%	0%	0%
		Employment Ratio	3%	30%	0%
		Adj. Net Savings	3%	1%	60%
		Carbon Intensity	0%	57%	3%
		Nat. Res. Depletion	2%	0%	0%
		Dependency Ratio	18%	2%	1%
	Equity Index [50%]	Income Equity	100%		

Note: * empty cells indicate that only one principal component is used; Principal components are weighted according to their relative contribution to overall variance; in the I_E in the MDI_{E+} PC 1 has a weight of 68% and PC 2 a weight of 32%; in the I_A in the MDI_{A+} PC 1 has a weight of 69%, PC 2 16% and PC 3 15%

centered around a variety of aspects that are relevant for humans' lives, it cannot show structural differences between sexes, people of different age-groups and between rural and urban population. These differences may, however, be important for development. Nevertheless, we are confident that with the chosen procedure, the MDI is an important step forward in measuring inclusive development.

In the following section, we show that MDI is a valuable addition to existing indices in that it captures the concept of inclusive development well and expands data compared to existing indices.

2.4 Overview of the Multidimensional Inclusiveness Index Data

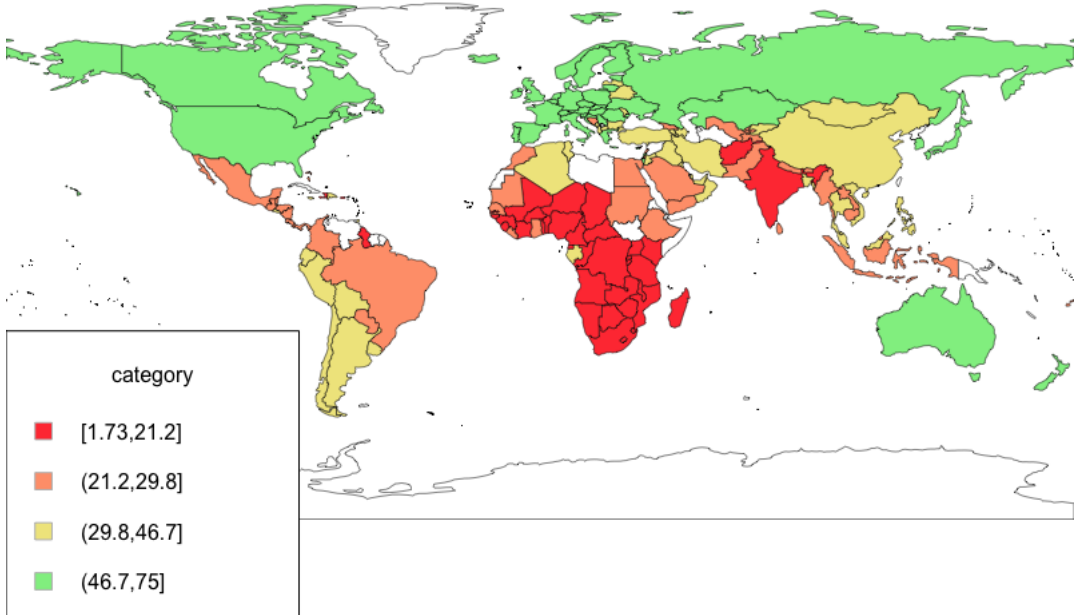
Table [A1](#) (see Appendix [A](#)) shows the MDI basic ranks of all countries for the years 1993 and 2018 plus the 25-year changes of the scores (absolute and percentage changes) for the 168 countries for which data points are available for those years. We deem this time interval long enough to capture structural changes in the development of a country.

With the most recent data from 2018, we see top positions largely dominated by Western developed countries. With Norway ranking first, the top ten positions are taken by Central and Northern European countries. The first non-European countries are Canada ranking 15th and Japan 19th. At the bottom of the ranking, we see many Sub-Saharan African and Central Asian countries as well as small island states.

As shown in the last two columns in Table [A1](#), the vast majority of countries improved their scores (at least between the two listed years). Only ten countries – about 7% of the sample – experienced a drop in their scores. The drops are rather small in scale; Eswatini and Cote d'Ivoire having the biggest losses with 9.8% and 7% respectively. In this case, Eswatini becomes a worrying example in light of its low absolute score. The improvements in the scores are much bigger in magnitude. Rwanda and Peru, for example, were two countries able to more than double their scores. The most populous countries, China and India, both show positive developments with improvements of 12.6% and 9% respectively, and neither country is in a top position with China ranking 68th and India 120th. The results suggest successes in facilitating

inclusive development, with forerunners leading and still improving their scores and many countries lacking behind but catching up over time.

Figure 2: MDI Basic Map for 2018

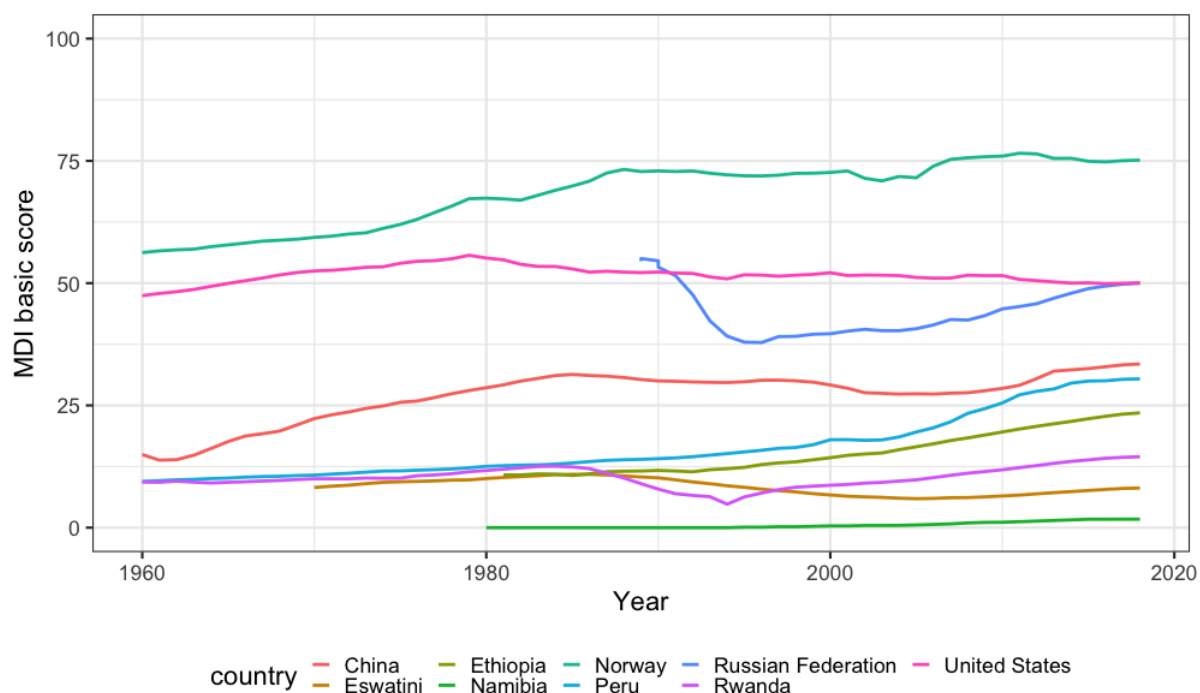


Note: Countries are grouped into quartiles. White countries reflect missing data

Figure 2 provides a graphical overview of MDI scores for 2018. Namibia sets the lower, Norway the upper boundary – with the scores 1.75 and 75.1 respectively. The map shows the four quartiles of MDI basic values in between. It shows a heterogeneous picture. Most of North America, Europe, Oceania and Russia display relatively high MDI scores, most countries in South America and Southeast Asia have scores in the middle quartiles and most countries in Sub-Saharan Africa and notably India have low scores. The figure reveals trends to regional concentrations, i.e. if we observe a high MDI score in one country, the neighboring country is likely to score (relatively) high as well. In most cases, neighboring countries are in adjacent quartiles.

Figure 3 shows the development of MDI basic scores in nine selected countries. We choose Norway as the country with the highest MDI basic score in 2018. The figure demonstrates that Norway has obtained high MDI scores since the late 1980s

Figure 3: MDI Basic Scores for Selected Countries



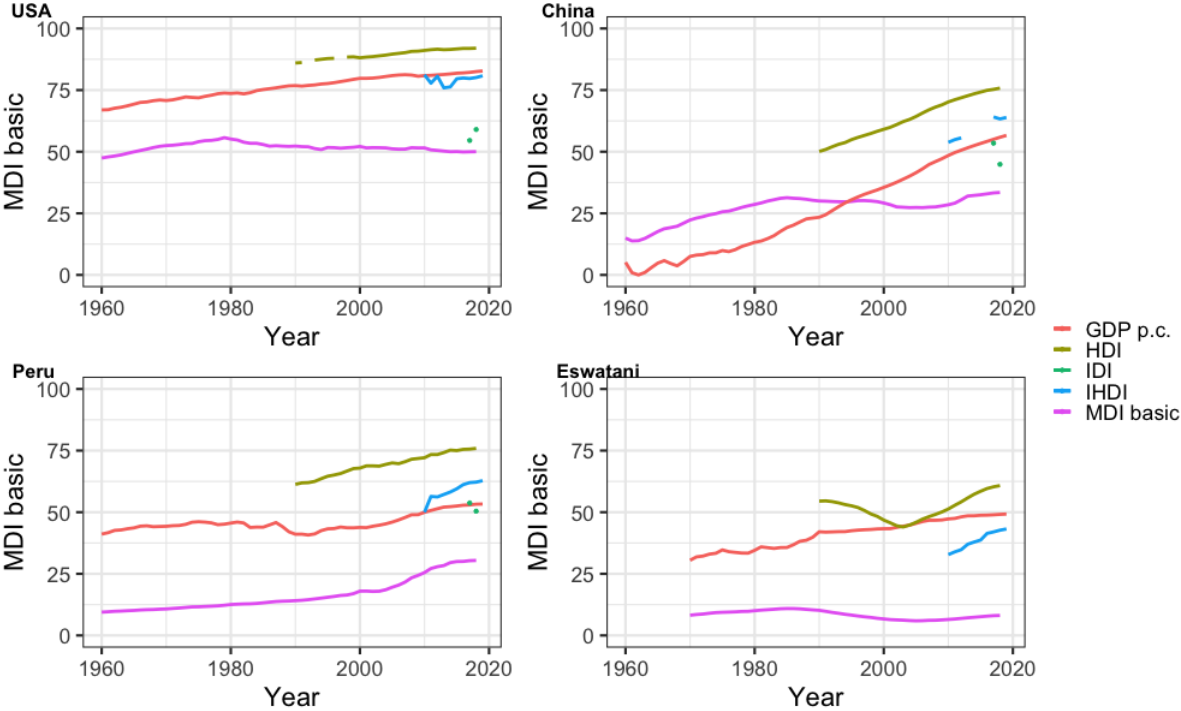
with minor fluctuations and rapidly increasing scores in earlier periods. The United States and Russian Federation both scored very similar in 2018, but their graphs reveal very different developments over time. The US score peaked in 1979, showing that development took place mostly in the post-World War II period. Russia, on the other hand, had high MDI scores thanks to high income equality in the times of the Soviet Union. After the collapse of the Soviet Union, the societal and economic changes led to a 15-point decline in the MDI score. Since it hit rock bottom around 1995, the situation has substantially improved. Interestingly, China has made no big improvements in the last 30 years. After large improvements through the early 1980s, the MDI scores stagnated during the 1990s and even declined in the 2000s. Only, recent years show improvements. Peru is the country with the second largest gain during the last 25 years, i.e. 105%. From the beginning of the timeframe, Peru has made steady progress, and the gains are especially large since 2000. Ethiopia also almost doubled its score in the last 25 years from 11.9 to 23.5, reflecting a 98% increase. Rwanda is also a remarkable case because it has almost the same MDI score today that it had in the mid-1980s. The political turbulences in the country, culminating in the genocide in 1994, had a clearly

visible impact on the MDI scores dropping down to a value of 6 but climbing back to about 15 reflecting the largest increase in our sample between 1993 and 2018 (of 129%). Eswatini ranks 152nd and has experienced the largest decrease since 1993. Namibia, last in our 2018 ranking, shows very little improvement in its MDI score.

In Figure 4, we compare the development of the MDI basic score of four countries covered in Figure 3 to their development with regards to HDI, IHDI, GDP p.c. and IDI scores. In the case of the USA, an increase in GDP p.c. does not necessarily translate into improvements in the MDI. Similarly, the panel with China illustrates that there is a close connection to the increase in GDP p.c. and the increase in the HDI but that the MDI does not follow this trend. For China, GDP p.c. and HDI have increased substantially over the last 30 years but this is not mirrored by advances in the MDI. In both cases, this may be ascribed to increasing inequalities within the society. The panel of Peru shows a larger increase in the MDI than in GDP p.c. or HDI in the last 20 years. Again, the HDI trend seems to be closely related to the trendline in GDP p.c.. Lastly, Eswatini illustrates that the MDI follows a different trend than GDP p.c. or HDI data. Eswatini's GDP p.c. has increased steadily during the last 30 years, while the MDI declined. The HDI data show a large drop around the year 2005 when Eswatini introduced a constitution with more democratic rights and regular elections. The comparison to the IHDI is harder due to its limited data availability (data is available only after 2010 and, in the case of China, it is even patchy). For all four countries, overall IHDI scores are higher than MDI scores. The IHDI trends seem to follow the HDI trends quite closely, except for Peru where the IHDI trend is steeper than the HDI trend and resembles more the trend of the MDI. In the case of Eswatini the IHDI trend shows no similarity to the MDI trend. In the case of Peru this might be due to changes in equality as compared to development achievements while the opposite is probably true for Eswatini. In the three panels, where IDI data is available, the IDI ranks countries somewhere in between GDP p.c. and MDI. Due to missing time-series data of the IDI, we cannot compare the trends over time.

Figure 4 illustrates two important aspects. First, as suggested by significantly

Figure 4: Comparison of MDI to HDI, IHDI, IDI and GDP Development for Selected Countries



different behavior, the MDI contains information different from the HDI and GDP p.c.. The MDI uses additional information in its equity subindex and weights it against the achievements index (which is closer to trends in GDP p.c. or the HDI). Second, having a larger sample than the HDI and especially the IDI, the MDI is advantageous in revealing long-term development patterns. In fact, the MDI sample size, with 8145 observations, is 50% larger than the HDI sample with 5399 observations, 5.6 times larger than the IHDI with 1454 observations and about 40 times bigger than the IDI sample.³⁵

The performance differences of the MDI basic, HDI, IDI and GDP p.c. are shown in Table 3, where we calculate the respective correlation coefficients for the year 2018 (i.e. we ignore time-series correlation here). The Pearson correlation coefficient looks at the distances between country scores in the data while the Spearman correlation coefficient compares the ranks of countries. Table 3 reveals that correlations are significantly

³⁵The MDI sample spans the years 1960-2018 and up to 171 years while the HDI data spans between the years 1990-2018 for up to 204 countries. The IDI is only available for the years 2017 and 2018 for 103 countries each.

different from zero for the overall sample and most subsamples and for both methods used. The correlation of the MDI for all countries is less pronounced with HDI and GDP p.c., large with the IDI, largest with IHDI. Correlations are much smaller and sometimes not significantly different from zero for non-Organisation for Economic Co-operation and Development (OECD) countries, Least Developed Country (LDC)s, and low-income countries (LICs).

Table 3: Correlations between the MDI basic, HDI, IHDI, IDI and GDP p.c. for different country groupings for the year 2018

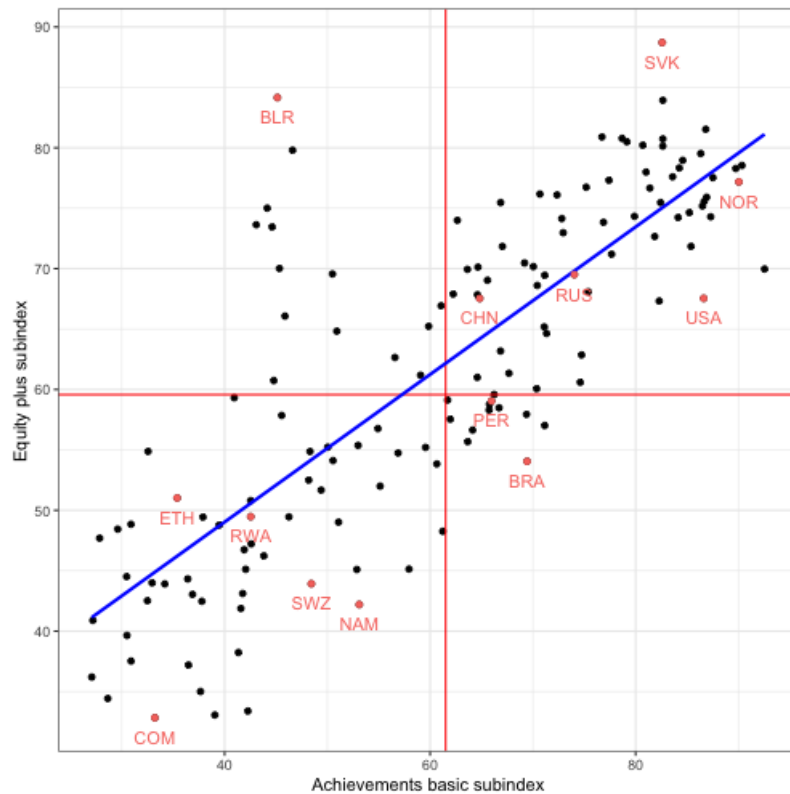
Pearson corr. coeff.	OECD countries (n=36)	non-OECD countries (n=141)	LDCs (n=42)	non-LDCs (n=135)	LICs (n=24)	MICs (n=98)	HICs (n=55)	All countries (n=175)
MDI basic & HDI	0.82*	0.73*	0.45*	0.82*	0.22	0.68*	0.75*	0.83*
MDI basic & IHDI	0.92*	0.85*	0.68*	0.90*	0.38	0.79*	0.71*	0.91*
MDI basic & IDI***	0.76*	0.68*	0.73*	0.82*	0.54	0.55*	0.71*	0.86*
MDI basic & log GPD p.c.	0.74*	0.59*	0.26	0.71*	0.25	0.42*	0.55*	0.78*
Spearman rank-corr. coeff.								
MDI basic & HDI	0.65*	0.76*	0.40**	0.82*	0.24	0.69*	0.69*	0.87*
MDI basic & IHDI	0.83*	0.86*	0.57*	0.92*	0.38	0.80*	0.78*	0.93*
MDI basic & IDI***	0.80*	0.72*	0.61**	0.82*	0.33	0.55*	0.78*	0.87*
MDI basic & log GPD p.c.	0.65*	0.60*	0.27	0.70*	0.08	0.44*	0.55*	0.78*

Note: * p-val < 0.01, ** p-val < 0.05, ***respective samples for the IDI are smaller. LDCs are least developed countries, LICs are low income countries, MICs are middle income countries and HICs are high income countries, as defined by the World Bank.

Although most correlation coefficients are relatively large and significant, the previous analysis shows that MDI provides different information. Part of the correlation of the MDI basic with the comparison indices is the result of including similar variables such as GDP p.c.. The correlation with the IHDI is – with correlation coefficients of over 0.9 – extremely large (except for LDCs and LICs). This is no big surprise since the IHDI is conceptually very close to the concept of inclusive development used to construct the MDI. We see this optimistically as additional confirmation that the MDI is an appropriate measure for inclusive development which also substantially expands sample size to research inclusive development compared to the IHDI. One major reason why the MDI behaves differently than the GDP p.c. or HDI data is that we combine achievement data (as do HDI and GDP p.c.) with equity data. To illustrate this, we show Figures 5-7 where we look at the subindices separately.

The MDI set-up with equity and achievements subindices helps to disentangle

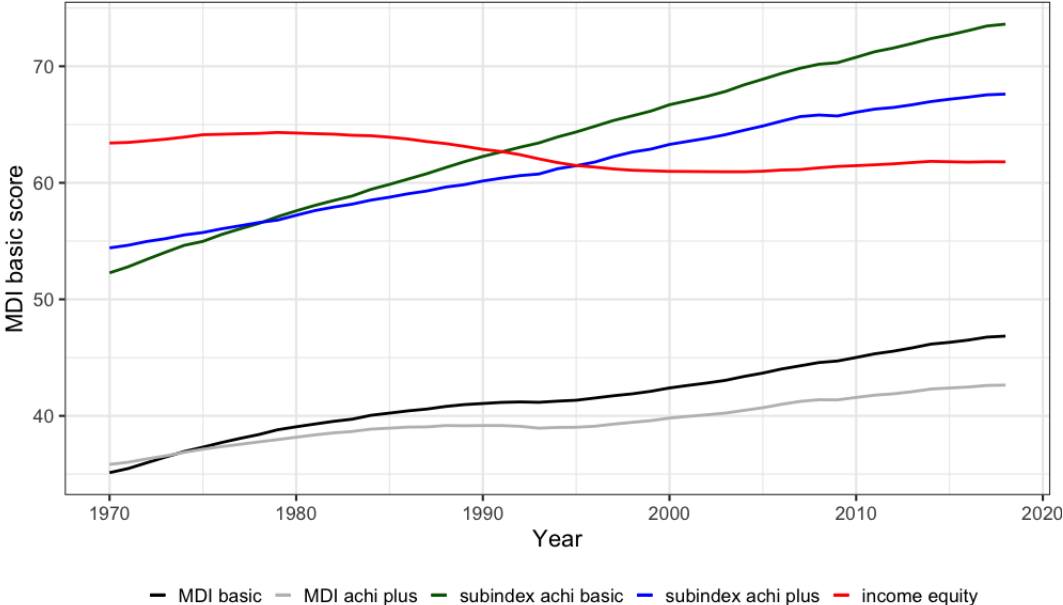
Figure 5: Scores in Achievements Index Basic and Equity Index Plus for 2018



countries' performances in these dimensions. Figure 5 shows all available scores of the I_{E+} and I_A subindices for 2018. We choose to show the MDI_{E+} results because it is richer in information on equity. For comparison purposes, we highlight the nine countries included in Figure 3. Overall, the performance of countries is quite heterogeneous. The red lines show the sample averages for both indices. The blue linear fitting line highlights the positive correlation between the scores in the subindices. Countries which perform well in the I_A subindex tend to also score high in the I_{E+} subindex. However, there are countries which perform very differently in the two subindices. Belarus (BLR), for instance, scores high in the I_{E+} but low in the I_A subindex. That means that development achievements in Belarusian society are below the global average but they are relatively equally distributed. A contrary picture applies to Brazil (BRA). This country obtained a higher score in the Achievement Index but obviously the merits are spread comparatively unequally within the population. As argued in Section 2.2.1, both countries cannot be perceived as truly inclusive because of deficiencies in one of

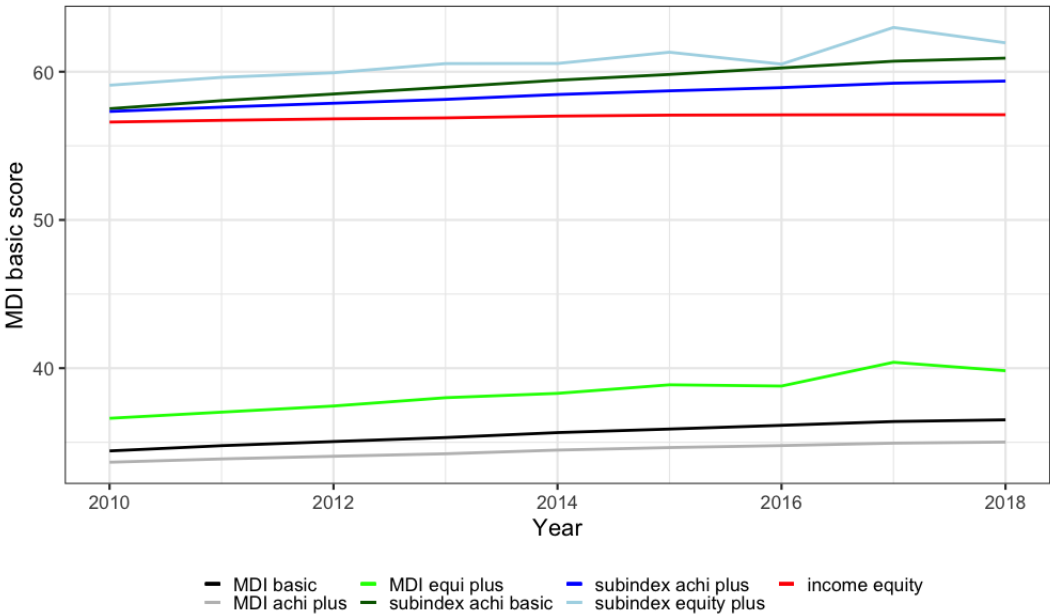
subindices. In fact, while Belarus ranks 2nd in the equity subindex, its I_{E+} position is 114th. Brazil ranks on 54st position in the achievements subindex but only lands on the 109th I_{E+} position. Overall MDI ranks are somewhere in between: Belarus ranks 55th and Brazil 88th. The highest I_{E+} score is obtained by the Slovak Republic (SVK), the lowest by the Comoros (COM).

Figure 6: Development of Long-Term Global Averages of the MDI basic, MDI Achievements and their Subindices (1970-2018)



Concerning the question of countries’ performance over time, Figure 6 and 7 show the developments of the global averages of the three MDI versions and their subindices. Figure 6 addresses the evolution of the global averages for the different MDI basic, MDI_{A+} and their subindices for the longer time frame from 1970-2018. Figure 7 displays the short-term period – 2010-2018 – for which the data availability is improved with regards to equity indicators. Both figures show a clearly positive trend for all three MDI versions, with countries scoring the highest in the MDI_{E+} in recent years. Following the positive progression of the 1970s and 1980s, the MDI basic and MDI_{A+} experience a kink in the early 1990s, (see Figure 6) which is mostly driven by the undesirable development of the global income equity. The income equity displays a worrying picture over the whole timeframe, i.e. the income distribution has become more unequal since 1970 with

Figure 7: Development of Short-Term Global Averages of all MDI Versions and Subindices (2010-2018)



strongest drop taking place in the early 1990s which might be associated to the collapse of the Soviet Union and the economic restructuring in the former member states. We also see slight flattening in trends of the achievements subindices following the 2008 global financial crisis. In the last years, there has been slight improvements of global income equity. When including the other inequality measures on the distribution of wealth, health and education which are available from the year 2010 (see Figure 7), we see that the latest upward trends are even more substantial. Figure 6 (after 1995) and Figure 7 reveal that, on average, the performance in the achievements subindices is better than in the equity subindices.

2.5 Conclusion

Despite substantial success in global poverty reduction translating into income gains in many countries, there has been ongoing discontent with regards to development outcomes. Environmental problems and inequalities might be among the most pressing issues of our times. For a better evaluation of development processes, we propose a

comprehensive multidimensional development index that is human-centered and that captures a variety of aspects relevant for individual human development. We are confident that the MDI – in its three versions – is an important addition to the existing indices, such as the HDI, Inequality-adjusted HDI and IDI. It allows a comparison of inclusive development outcomes for a large number of countries and a long timeframe. The MDI is based on 14 single indicators that are grouped into two subindices – one on development achievements and one on development equity respectively. The distinction between the subindices helps to disentangle the effects with regards to these two domains. Both subindices are weighted equally as both matter for inclusive development. In order to aggregate of the subindices, we apply PCA to determine the weights of single variables.

Due to similarities in the variables that are included, the MDI, to a certain degree, shows correlations with other development measurement, namely the HDI and IDI and especially the IHDI. However, we show that the MDI, processes a larger set of information and reveals differences in the performance when compared to the HDI and IDI while showing high similarity to the IHDI. These differences, and a data availability increased by 50% compared to the HDI and 5.6 times compared the IHDI, make the MDI a valuable addition.

In the MDI data, we see mainly European and other Western industrialized countries on the top positions, many Sub-Saharan African countries on the last ranks. Over the whole time period (1960-2018), the global averages for all MDI versions have been increasing. This progress can mainly be related to successes in the achievements dimensions. This means that many people in the world have a higher living standard than a generation ago. The global average with regards to the income equity is lower today than it was in 1970. While on average the world has become more prosperous, the welfare gains seem to be distributed more unequally. However, last years' trends create a more comforting impression. In MDI country trends we see that big societal and economic changes (e.g. the end of the Soviet Union or the Rwandan genocide) are very pronounced in the data.

The three versions of the MDI and the subindices can serve as a starting point for future debates and empirical analysis of human development on a comprehensive scale. Careful investigation can identify structural development patterns and those factors that facilitate MDI scores. Once there is an enhanced understanding of the determinants of inclusive development outcomes, policy choices can be more closely tied to preformulated objectives which would ultimately make the MDI a valuable conceptual framework (United Nations Economic Commission for Europe, 2014, p. 89).

3 Drivers of Inclusive Development: An Empirical Investigation

This chapter is based on a published paper titled ‘Trade, Inclusiveness and the Global Order’ (*Global Summitry* 4(1), 30-49) and a working paper ‘Drivers of Inclusive Development: An Empirical Investigation’ (*JERP Working Paper 2021-015*)³⁶.

3.1 Introduction

High global economic growth during the last decades helped to realize enormous welfare gains. Over one billion human beings have been lifted out of extreme poverty since 1990 (Chen and Ravallion, 2013)³⁷. This success, however, comes with some caveats. Increased outsourcing leads to structural adjustments in economies reducing the overall stock of working capital (Antonelli and Fassio, 2014) often resulting in job losses. This contributes to increasing inequalities within countries (Bourguignon and Morrisson, 2002). Rising within-country inequalities are paired with recent experiences of slowing economic growth and structural fiscal challenges³⁸, sometimes called “secular stagnation” (World Economic Forum, 2017). These problems were intensified by the 2007 world financial crisis and COVID-19 crisis both of which led to a global recession. Concerns about socially uneven progress have resurfaced, and these economic problems have generated powerful nationalistic and protectionist currents. This phenomenon takes place especially, but by no means exclusively, in Western countries, where the recovery was slower and unemployment rose (IMF, 2015, p. 3) and populist movements have already taken root. However, this phenomena can also be observed in Latin America (LA), Africa and other parts of the developing world. Arguably, these currents are unevenly spread and differently endowed with popular support.

³⁶It has been presented at the “G2010 Conference in Bonn in October 2018, at the Annual Meeting of the European Public Choice Society in Jerusalem, Israel in March 2019 and at the “Sustainability and Development” Conference in Ann Arbor, Michigan in October 2019 by my co-author Sebastian Schuhmann

³⁷This has mostly been driven by rising incomes in developing countries (Anand and Segal, 2015), particularly China and India.

³⁸Addressing long-term demographic change – aging societies – in the context of growing sovereign debts amid persistent economic stagnation.

Nonetheless, they are undeniably happening.

Even proponents of globalization recognize that the associated problems with it are real and must be addressed thoroughly – both on their own merits, and to head off the rise of populism. Political leaders have acknowledged that current development frameworks increasingly fail to deliver desired results. They must be adjusted to be more (socially) inclusive rather than focused primarily on economic growth (Rodrik, 2011; Samans, 2018; Stiglitz, 2012). For inclusive economic policies, firstly, a better understanding about “new” aspects of human development is necessary. To this end, Dörffel and Schuhmann (2020) developed the MDI as a new measure. Secondly, the channels, policies and economic factors through which inclusive development emerges need to be analyzed. Therefore, the main purpose of this chapter is the application of the MDI to empirically explore drivers of inclusive development. The research in this chapter is the first attempt to deliver indications in this respect.

In the following section, we delineate and discuss inclusiveness as a benchmark for human development and the MDI as our measure of choice. Section 3.3 analyses the set of the drivers of inclusive development. Section 3.4 tests the relation of the MDI score and those drivers empirically. Section 3.5 analyses and discusses the results. Finally, section 3.6 concludes.

3.2 Inequality, Inclusiveness and Inclusive Development

The next subsections provide a brief discussion of two key concepts of human development - inequality and inclusiveness.

3.2.1 The nexus of inequality and inclusiveness

Every society is concerned to a certain extent with the issues of inequality and inclusiveness. They are both important premises for human development. Yet, there is no comprehensive conceptualization that disentangles them and describes the nature of their relationship.

Inequality typically describes the relative distribution of variables among individ-

uals in a society, commonly with regards to income or wealth. To a certain degree, inequality is the natural outcome of individual economic activity reflecting different scales of effort, efficiency, or luck. It becomes problematic when it is the consequence of constraints in social mobility caused by unjust access to educational systems and labor markets and, thereby, reproducing inequalities that are not based on performance but rather on initial endowments.

Empirically, two important observations can be highlighted: Firstly, within-country inequality has increased recently, particularly in developed economies. Globally, it has increased by between 25-72% from 1988 to 2005 (Anand and Segal, 2015). This trend could be a motivator for increasing anti-globalization, populist and anti-trade sentiments. Secondly, between-country inequality had declined as the drop of the Gini coefficient from 0.649 in 1988 to 0.633 in 2005 shows (Anand and Segal, 2015).³⁹

Defining inclusiveness – compared to inequality – is more difficult. A common denominator of most approaches is the appreciation of the multidimensionality of well-being and participation (OECD, 2015). Hence, inclusiveness shows the scale of “inclusion of all individuals and groups, specifically individuals or groups who were previously not included or excluded” (Talmage and Knopf, 2017). This requires improving the access to the economic activity, especially for marginalized groups.

Equal societies cannot necessarily guarantee inclusiveness. While many people can be included in the economic mainstream and able to cover life expenses, the society may yet suffer from inequalities. By contrast, societies that are relatively equal, yet where most people are “equally poor”, lack inclusiveness.

3.2.2 Delineating Inclusiveness and Inclusive Development

Thinking about the conceptualization of human development, one important starting point is the capability approach; arguing that every person must be provided with the capabilities to pursue the life they want to live (Sen, 1992, 1999b). The United Nation’s **HDI** is the pioneering attempt to provide an empirical measure of this. It combines

³⁹Historically, this is a reversal of a long-term trend. Bourguignon and Morrisson (2002) show that from 1800-1992 world income inequality experienced opposite trends.

income, health and education indicators (Anand and Sen, 1994). Another approach is delivered by the World Economic Forum (2017) with the Inclusive Development Index. Other authors approach the task from a different angle by deriving a development measure from domestic capital stock considering different types of stocks. This could include natural resources, human capital, public health etc. (Arrow et al. 2012), or net national products, considering also environmental and human factors when compared to gross national product (Dasgupta and Mäler, 2000). Deficiencies of those measures have been pointed out (see Aidt et al. 2018; Fleurbaey and Blanchet, 2013).

Most debates about human development have mainly focused on income dimensions, e.g. pro-poor growth and inclusive growth (e.g. Klasen, 2010). Other concepts include non-income dimensions. Rauniyar and Kanbur (2009) track the Sen'ian idea of human capabilities and argues that a measure for inclusive development needs to include factors that reflect capabilities, such as education, health, social protection, and institutional quality. Rauniyar and Kanbur (2009) argue that inclusive development should regard income inequality as well as non-income dimensions. Fairhead et al. (2012) and Gupta et al. (2015) emphasize the importance of the non-income dimension of environmental sustainability. The Asian Development Bank (2014) underscores the need to empower individuals and groups that have been marginalized owing to their gender⁴⁰ or ethnicity.

This conceptual discussion leads us to the definition given by Dörffel and Schuhmann (2020) who describe inclusive development as “societal progress (development) that incorporates participatory empowerment of citizens and promotes well-being related outcomes in accordance with sustainability of societal foundations (institutions and environment)”.

⁴⁰Indicators of women's discrimination are unambiguously a driver of development as measured by GDP growth (see Esteve-Volart, 2004; Roomi and Parrott, 2008). The MDI reflects gender inequalities indirectly e.g. with employment ratio and human capital indices. The missing of a variable explicitly addressing gender discrimination can be a critique for the MDI. Such could be the proportion of female to male education levels or proportion of parliamentary seats held by women as included in the UN Gender Inequality Index (United Nations Development Programme, 2019).

3.2.3 The Measure of Inclusiveness: The Multidimensional Inclusiveness Index

For the empirical analysis following in section 3.4, we needed to find a suitable empirical measure for inclusive development. While there has been thorough thought about measures from a theoretic point which has spawned a variety of indices such as the HDI, many of them still have problems covering relevant domains of development comprehensively enough or making scores comparable across time and countries (Dasgupta and Mäler, 2000).

For our analysis, we use the MDI developed by Dörffel and Schuhmann (2020) and which has been presented in the previous chapter in detail. This measure was developed in three versions and contains a set of up to 14 variables. The MDI exploits PCA as aggregation method for the calculation of two subindices, one on equity (I_E) and achievements (I_A) each. Both subindices are subsequently aggregated by a geometric mean with equal weighting which means that deficiencies in one subindex cannot easily be compensated by the other subindex.⁴¹

The MDI's advantage is a comprehensive data coverage, especially for the basic version providing data for up to 178 countries for the years between 1960 and 2018 which we apply in the baseline regressions. It contains the income Gini, GDP p.c., savings, life expectancy, and human capital.

$$MDI_{basic} = I_E \times I_A = I_E(Gini_{income}) \times I_A \begin{pmatrix} GDP \text{ p.c.} \\ savings/GDP \\ life \text{ expectancy} \\ human \text{ capital} \end{pmatrix}$$

For the robustness test, we use the remaining two versions, MDI_{E+} and MDI_{A+} which include an extended set of variables. The equity plus subindex (I_{E+}) includes income and wealth Ginis as well as health and education inequality measures. The achievements plus subindex (I_{A+}) includes labor productivity, employment ratio, adjusted net savings/GNI, dependency ratio, carbon intensity of GDP, and natural resource de-

⁴¹ A detailed discussion can be found in Dörffel and Schuhmann (2020)

pletion/GNI in addition to the variables included in I_A . These extensions increase the richness in information but decrease the data coverage.

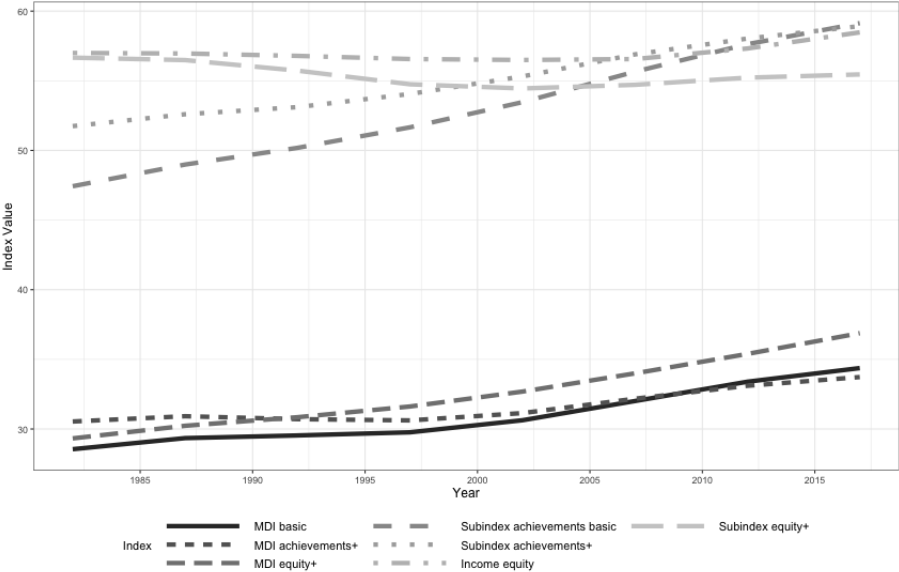
This set of variables addressing factors of inclusive development that have been long left unconsidered makes the index more comprehensive in measuring inclusive development compared to the HDI or p.c. income and is therefore most suitable for our research interest. The sub-indices on development equity and achievements allow the disentanglement of countries' performance in those domains. The three MDI versions exploit improved data availability for more recent years. By applying PCA, the weights of single variables during the aggregation of the sub-indices are determined purely by the characteristics of the underlying data. The two sub-indices (achievements and equity) are weighted equally. This implies equal importance for both sub-indices.

Because data coverage is low for the earlier years, we use data from 1980 onwards for the empirical analysis in this chapter. Figure 8 shows the development of the global average for five-year intervals of the different MDI versions and their subindices. The MDI basic average increases from about 28.5 to about 34.4 points (20%). The trend of the MDI equity plus is slightly better – the score climbed from 29.3 to 36.3 (26%), the MDI achievements plus increased from 30.5 to 33.7 (10.5%). The top ranks for 2018 are dominated by western countries, such as Norway, Slovak Republic or Denmark, while countries at the bottom are mostly Sub-Saharan African, e.g. South Africa, Namibia, or small island states such as Haiti. Russia and the USA show similar MDI scores ranking at 36th and 37th. The two most populous countries, China and India, take ranks 72nd and 136th. The subindices reveal that improvements in scores result mostly from the achievements dimension rather than improved distribution.

Figure 9 shows the development of MDI basic global average and those of the continents revealing regional differences. Africa, the Americas and Oceania (including Australia and New Zealand) are below the global average; Asia slightly and Europe far above the global average. Comparing trends, the graph shows that the largest improvements have been made in Africa and the Americas (35% and 32%), while the increase in Asia has been moderate (20% - about the global average) and advancements

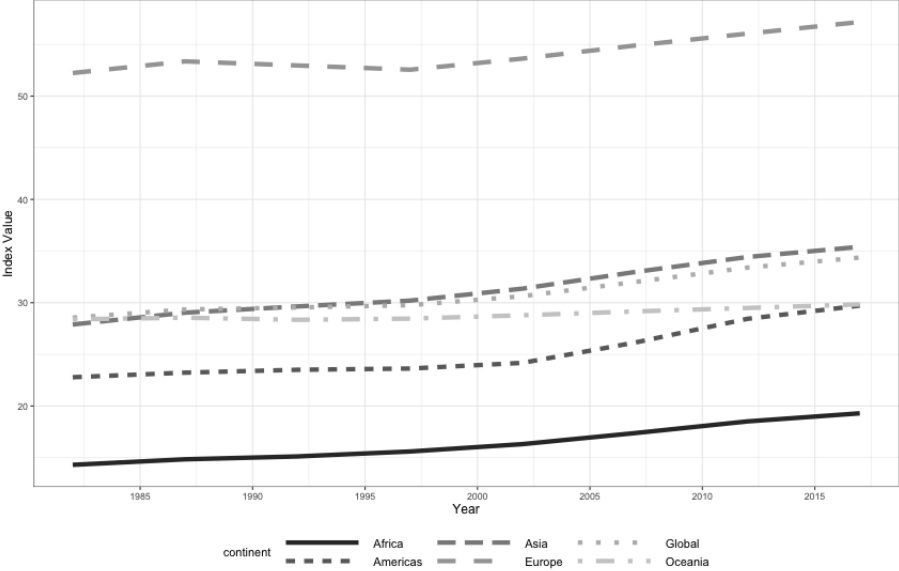
in Oceania and Europe below average (both 6%) - although still positive.

Figure 8: The Development of Average MDI Scores and Subindices Over Time



Note: Data from Dörffel and Schuhmann (2020).

Figure 9: The Development of the MDI Basic Index Scores by Continent Averages



Note: Data from Dörffel and Schuhmann (2020).

3.3 Drivers of Inclusiveness

In this section, we identify economic policies and factors that we use for the empirical analysis. For this purpose, we conduct a review of the growth literature⁴². Subsections 3.3.1 to 3.3.8 describe this set of relevant factors grouped by categories. We also describe how we narrow the set of potential drivers of inclusive development down to the set used in the empirical analyses, based on data availability, possible similarities of variables and model parsimoniousness. Table B1 in Appendix B contains descriptive statistics for all variables as well as the MDI.

3.3.1 Economic Development

Indicators of economic development are commonly used in growth analysis. For our purpose, we make sure to avoid variables that are included in the MDI. Trade openness is frequently used in growth regressions (see Barro, 2000, 2003; Burnside and Dollar, 2000; Dalgaard et al. 2004; Dollar and Kraay, 2003; Mishra et al. 2011; Roine et al. 2009). The positive impact of trade on growth as an intermediate indicator for inclusive development has been highlighted (Aksoy and Beghin, 2004; Berg and Krueger, 2003; Dollar and Kraay, 2002b, 2004; Hoekman et al. 2001; Ravallion, 2007; Sachs and Warner, 1995). Another indicator for economic development is investment as a fraction of GDP (Barro, 2000, 2003; Mishra et al. 2011; Sala-i-Martin, 1997; Vanhoudt, 2000). The investment to GDP ratio is a proxy of an economy's savings rate, which is an important driver of growth in standard growth-models. We include both, trade openness and investment. Further indicators for economic development mentioned in the literature are financial development (Roine et al. 2009), the credit to GDP ratio, financial openness, ICT application, infrastructure quality and sophistication of goods and service exports (Anand et al. 2013). To proxy the sophistication of financial systems, we use the volume of credit to private sectors and the amount of bank deposits both as fractions of GDP. The application of ICT gives countries the chance for leapfrogging and benefitting from the

⁴²A list of all reviewed papers and the included variables can be found in Table B9 in Appendix B.

“flying geese”⁴³ phenomenon of industrial relocation. ICT can also help to facilitate the peoples’ lives in various domains including access to services in the financial or health sector. However, it can also contribute to increased income inequality when adopted asymmetrically (OECD, 2011). Due to ambiguous definitions, data availability and the need to keep our econometric models parsimonious, we include only investment, trade, financial depth and ICT density⁴⁴. The data for investment to GDP ratio, trade to GDP ratio and ICT are available widely for most countries and years in the World Bank’s WDI database. The data on bank deposits are retrieved from the World Bank’s Global Financial Development database. We include lagged MDI level values to control for path dependencies. GDP p.c. cannot be included as an independent variable since it is incorporated in the MDI.

3.3.2 Social and Political Stability

Social and political stability are prerequisite for development. Political turmoil increases risks and costs for economic activity and affects persons’ physical and mental conditions. To consider political instability, Burnside and Dollar (2000), Dalgaard et al. (2004), and Roubini and Sala-i-Martin (1992) factor in assassinations, Roubini and Sala-i-Martin (1992) and Sala-i-Martin (1997) control for revolutions and coups, and Roubini and Sala-i-Martin (1992) additionally include a war dummy. To capture social instability, ethnolinguistic fractionalization has been used (see Burnside and Dollar, 2000; Dalgaard et al. 2004). To address political instability in our analysis, we include a dummy variable with the average number of coups using data from Bjornskov and Rode (2019). Because coups take place at low frequency (leading to limited variation in the data) and to address the social stability, we also include the Historical Index of Ethnic Fractionalization from Drazenova (2019) measuring the probability that two

⁴³Originally coined by (Akamatsu, 1962).

⁴⁴I.e. sum of mobile cellular subscriptions (per 100 people), fixed broadband subscriptions (per 100 people) and fixed telephone subscriptions (per 100 people) in line with (Hameed, 2006; Sridhar and Sridhar, 2007).

individuals in a society have different ethnic origins.⁴⁵

3.3.3 Institutional Quality

There is a substantial body of literature that establishes the impact of institutional quality on long-run development (see Acemoglu et al. (2001); Rodrik et al. (2004)). Especially, inclusive institutions have positive effects on growth and development (Acemoglu and Robinson, (2013); Acemoglu et al. (2001)). Barro (1996, 2000, 2003), Burnside and Dollar (2000), Dalgaard et al. (2004), Dollar and Kraay (2003), and Sala-i-Martin (1997) include a rule of law variable, Sala-i-Martin (1997) controls for political rights, civil liberties and the degree of capitalism. Furthermore, Barro (1996, 2000, 2003) uses a democracy index to control for quality of political institutions. We use the support vector machines democracy index (SVMDI) developed by Gründler and Krieger (2016, 2018). This measure captures a broad concept of democracy.

3.3.4 Economic Policies

The surveyed studies use an array of measures that can be characterized as economic policies. Burnside and Dollar (2000) and Dalgaard et al. (2004) use (lagged) M2/GDP to proxy financial sector development, budget surplus, inflation and trade openness.⁴⁶ The inflation rate is frequently used as control variable (Anand et al. (2013); Barro, (1996, 2000, 2003)). Another measure is government consumption (see Barro, (2000, 2003); Burnside and Dollar, (2000); Roubini and Sala-i-Martin, (1992)). “[G]overnment consumption (. . .) entail distortions of private decisions. (. . .) A higher value of the government consumption ratio leads to a lower steady-state level of output per effective worker and, hence, to a lower growth rate for given values of the state variables.” (Barro, (2003), p. 239). We confine ourselves to the inclusion of inflation and government consumption to cover the area of economic policies and take data for both from the

⁴⁵Ethnic and religious fractionalization has often been associated with social unrest. However, there are cases where the domestic population is characterized by large ethnic heterogeneity and a high degree of stability. Therefore, this indicator is flawed in some cases.

⁴⁶In the literature, trade openness was discussed as a policy. We considered it a development factor.

WDI database.⁴⁷ Many other policy variables lack data availability or do not match our research purpose.⁴⁸

3.3.5 Human Capital and Health

In endogenous growth models, human capital is considered an important driver of long-run economic development. While the inclusion of human capital indicators (such as school enrollment rates) and health indicators (such as average years of schooling, life expectancy) is established in the literature (see Anand et al. 2013; Barro, 1996, 2000; Roubini and Sala-i-Martin, 1992; Sala-i-Martin, 1997), we omit them in our analysis to avoid spurious correlations as they are contained in the MDI.

3.3.6 Regional Heterogeneity

Many empirical studies control for heterogeneity of certain regions by including region dummies (see Barro, 1996, 2000; Burnside and Dollar, 2000; Dalgaard et al. 2004; Dollar and Kraay, 2003; Roubini and Sala-i-Martin, 1992). To account for this regional heterogeneity, we include region dummies for Africa, Eastern Asia (EA) and Latin America (LA) in our analysis.⁴⁹

3.3.7 Other (uncategorized) Determinants

There is a variety of other determinants mentioned in the literature such as religious affiliation (see Sala-i-Martin, 1997), or demographic factors, such as fertility rate (see

⁴⁷Data on budget surplus is also available from the WDI database but the coverage is limited such that we would lose about one third of our estimation sample.

⁴⁸Sala-i-Martin (1997) uses the length of the period since the “opening” of the economy, the black market premium, primary exports and exchange rate distortions. Roubini and Sala-i-Martin (1992) use price distortions of investment goods and financial repression. Roine et al. (2009) include the marginal tax rate of the top 1%. (Anand et al. 2013) add GDP volatility and REER deviations. Barro (1996, 2000, 2003) includes the change in the terms of trade.

⁴⁹Further spatial indicators have been used in the literature. Acemoglu et al. (2001), Dalgaard et al. (2004), and Dollar and Kraay (2003) use the fraction of land in tropics, Dollar and Kraay (2003) use the latitude (distance from the equator) and Dollar and Kraay (2003) use a dummy of whether countries are landlocked. These indicators are not intended to capture institutions per se, however, Acemoglu et al. (2001) showed that these variables are able to capture variations in institutions caused by colonial experience. Once these institutions are controlled for, the regional variables have no additional influence on long-run development. Therefore, including a variable for institutional quality as described above is sufficing for the analysis in this chapter.

Barro, 1996, 2000, 2003), population growth (see Roine et al. 2009; Vanhoudt, 2000) and population size (see Dollar and Kraay, 2003). For the sake of parsimoniousness, we do not include fertility rate and population growth in baseline estimations. Their influence is addressed in a robustness check. The data are widely available from the WDI database. Lastly, country fixed effects account for differences in religion.

3.3.8 Additional drivers: Foreign direct investment and structural change

Apart from factors derived from the literature above, we find additional factors which we deem important for inclusive development. As Camamero and Tamarit (2004) show, trade and foreign direct investment (FDI)s are complements and should, therefore, be considered together. Their effect on inclusive development is not clear *a priori*. Resource-seeking inward FDIs are likely to be export-oriented and generally, provide additional employment. Therefore, they are not likely to generate negative economic consequences but may provoke “resource nationalism.” Market-seeking inward FDI, however, seeks to compete with local producers. Outward FDI can lead to an “export pull” force, as companies look to leverage their home base to service a new investment location. The home base may be upgraded in the value chain. In the main analysis, we include only aggregated trade and FDI and in a robustness check, we disentangle effects of trade and FDI.

Structural change is an unavoidable feature of economic development. It describes the reallocation of production factors into new, usually more efficient production purposes. These processes can leave uncompetitive areas behind. While Western countries face troubles of “deindustrialization” (Alvarez-Cuadrado and Poschke, 2011; Felipe and Mehta, 2016; Herrendorf et al. 2014), some developing countries fight with “pre-mature deindustrialization” (Rodrik, 2016). However, structural change gives regions the opportunity to move their economies up the value chains.

For our analysis, we use data on the volumes of imports, export, inward FDI and outward FDI from the WDI Database. We calculate a structural change variable - the sum of the absolute one-year changes in the employment shares in the agricultural,

industrial and services sectors, exploiting data from the UN Statistical Division National Accounts dataset.

We do not claim our selection of drivers is an exhaustive set of determinants of inclusive development. Other factors discussed in development literature are governance (see Kaufmann et al. 2002), corruption (see Mauro, 1995), doing-business polices (see Pinheiro-Alves and Zambujal-Oliveira, 2012), indicators related to the discrimination of women (see Duflo, 2012), all factors which affect entrepreneurship and the ability to start and expand firms (see Ani, 2015; Corcoran and Gillanders, 2015), output volatility (see Ramey and Ramey, 1995) or capital market imperfections (see Li et al. 1998). Governance and corruption are indirectly covered by including the institutional quality variables. For keeping the number of independent variables sufficiently low, we spare the inclusion of all other variables.

3.4 Empirical Analysis

In this section, we test the influence of the selected indicators on inclusive development.

3.4.1 Method

We use panel regression models with 5-year averages of variables. The major econometric difficulty is that inclusive development and its potential drivers exhibit endogenous relationships. To account for this endogeneity, we firstly apply values for the independent variables that are lagged by a 5-year period, thereby, mitigating simultaneity bias. Secondly, we employ two-way fixed effects (TWFE) regressions and use internal instruments of generalized method of moments (GMM) estimations to mitigate the problems of endogeneity bias.

The estimation equation of the fixed effects model is the following:

$$MDI_{i,t} = \gamma MDI_{i,t-k} + \mathbf{X}'_{i,t-1} \beta_k + \vartheta_i + \eta_t + \varepsilon_{i,t}$$

where MDI_{it} refers to the MDI index score of country i , at time t . β_k represents vector

X'_i comprising the set of drivers as discussed in section 3.3. γ is the coefficient for the lagged independent variable $MDI_{i,t-k}$ lagged by k periods, ϑ_i are country fixed effects, η_t are time fixed effects and ε_i is the error term.

Country fixed effects control for unobserved time-invariant heterogeneities between countries, time fixed effects control for unobserved country-invariant heterogeneities over time. Adding both results in the TWFE estimator. Eliminating these unobserved heterogeneities mitigates omitted variable bias (OVB). Possibilities of OVB affecting only a subset of countries or periods persist.

To address remaining biases, the usual approach is to use instrumental variable (IV) using two-stage least squares estimation techniques. To implement this, an IV for each driver would be needed. Thus, this approach comes unpractical.

System GMM and difference GMM estimators introduced by Arellano and Bond (1991) and Blundell and Bond (1998) constitute a relief for this problem by using so-called “internal instruments”. These use information of past values of all independent variables as IVs. The difference GMM approach uses lagged differences as instruments, whereas the system GMM approach additionally includes lagged levels into the set of instruments. The general advantage of system GMM is that it uses more information (past differences and levels). The disadvantage herein, is that the number of instruments tends to increase quickly, which can lead to overfitting of estimations. The difference estimator uses less information, i.e. might be less informative but more reliable due to the lower number of instruments. GMM estimations have been established as a method to advance the estimations of causal relationships (see Acemoglu et al. 2019; Aslaksen, 2010; Bjornskov, 2019; Dietrich, 2011; Dreher et al. 2008; Gngain et al. 2019; Gründler and Krieger, 2016).

IV estimations must fulfil two conditions. First, instruments must be correlated with independent variables. Second, the instruments must not be correlated with the error term. This exclusion restriction in difference GMM estimations requires that even if error terms are correlated with independent variables, there is no reason to suspect that this holds over time. As we expect that the error term of (current) differences

of independent variables are uncorrelated with the past values of the independent variables, the exclusion restriction holds (Roodman, 2009, p. 104f.). Similarly, the exclusion restriction of system GMM estimates is satisfied when we deem (current) errors of independent variables uncorrelated with past differences of these independent variables (Roodman, 2009, p. 114).

Configuring the GMM estimators, we rely on three sets of information, the first being the number of instruments. As a rule of thumb, it should be below the number of countries covered in a regression. Apart from overfitting, too many instruments invalidate the Hansen test (the second set of information) by inflating its p-value. The Hansen test statistic indicates the power of the instrument set. While a p-value above 0.25 is likely to indicate “too many instruments”, a p-value below 0.1 adverts to a weak instrument set. Third, we consult the Arellano/Bond autocorrelation test for second order lags.⁵⁰ A value lower than 0.1 indicates the presence of autocorrelation within the set of instruments which makes them invalid. We include the finite sample correction for standard errors in all estimations (see Windmeijer, 2005).

GMM treats Nickel bias (“Small T, large N”) and is consistent for finite T (Acemoglu et al. 2019; Arellano and Bond, 1991; Blundell and Bond, 1998; Roodman, 2009). One drawback is that the moment conditions increase with order of T^2 , which leads to a problem of “too many instruments” and a bias that is asymptotic in order of $1/N$.⁵¹ Chen et al. (2019) derive a small bias condition under which GMM estimates can be considered unbiased.⁵² This condition does not hold in our case, i.e. we suspect some bias. Hahn et al. (2007) show that the bias depends on the size of the beta coefficient and is only substantial for “large positive beta” coefficients. They perform Monte Carlo

⁵⁰In the regression tables below this is abbreviated as “AB-AR(2) test”.

⁵¹Acemoglu et al. (2019) use the Hahn et al. (2007) estimator of to correct for this, because it is unbiased when both N and T are large. In their case, T is 38.8 on average and in our case T is 5.1 on average. Therefore, we cannot use this estimator since we do not have “large T”.

⁵²The condition is that p^2/n or $m^2/n \rightarrow 0$ as $N \rightarrow \infty$, where p is the number of parameters to estimate (which is roughly the number of countries plus the number of periods in our sample), m the number of instruments (T^2) and n the number of observations. For our baseline GMM regression (Table 5 column 1) this $p^2/n = (139 + 5)^2/707 = 29.3$ and $m^2/n = 3342/707 = 157$ where we use a large number of instruments. When we truncate the number of instruments in the other estimations (Table 5 columns 2 to 7) this condition ranges between 4.8 and 15.8 which indicates a much smaller bias but is still different from zero.

simulations to give a sense of the size of this bias. For a panel of five time periods and 500 observations (which comes closest to our panel size), they report a bias of -3.68% for a (small) beta with size 0.1 and a -20.5% bias for a (large) beta with size 0.9. Most of our coefficient estimates in the results section fall under the category of “small bias” and can, therefore, be evaluated at face value – especially in the face of our sample being larger than 500 observations. In fewer cases, we also report “large” coefficients, however, which should be taken with a grain of salt.

Additionally, Hayakawa (2009) shows that difference GMM estimates can suffer from weak instruments because of non-stationarity. We conduct Levin et al. (2002)’s unit root test for balanced panel data (which we have for the MDI) and fisher-type unit roots tests as suggested by Choi (2001) for unbalanced panel data (on the estimation sample) to check whether the (differenced) MDI is stationary (filtering out country fixed effects). Both tests indicate that non-stationarity is rejected with p-value of 0.00 when including only one lag of the MDI. Including two or more lags, the test rejects non-stationarity at conventional significance levels. Therefore, our estimations including two or more MDI lags should be interpreted cautiously, which is also supported by weak instrument test below. System-GMM on the other hand formulates the instruments in a way such that non-stationarity is not an issue.

We claim results from TWFE regressions as associations, but not causal connections. Despite the outlined caveats and given that the GMM regressions fulfill the statistical tests, we consider the significant relationship in GMM regressions as hinting towards causal relations (Roodman, 2009). This advances the identification of causal relations between inclusive development and its drivers.

3.4.2 Short-term results

The main results will be presented briefly in this section. Firstly, Table 4 shows the main results of the TWFE regressions, Table 5 those of the system GMM regressions.⁵³

The first three columns of Table 4 show the results of a specification including all

⁵³We do not show difference GMM results because all specifications encountered autocorrelation issues, i.e. the AB-AR(2) test rejected the absence of autocorrelation

variables of interest. In the estimation shown in the first column, we include the one lag of the MDI. Because path dependencies can go back further than five years, a second lag is added in the specification shown in column 2, a third and fourth lag in column 3. The MDI scores of past periods have a profound impact on current scores. The first lag is always highly significant. Values close to one suggest that past increases in inclusive development scores entail increases of a similar extent in the current period. The effects of earlier lags are more ambiguous. They are mutually correlated, therefore providing no additional information (the adjusted R-squared in column 3 is lower than in column 1).

Table 4: Main Results TWFE

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	TWFE baseline	TWFE	TWFE	TWFE policy specification	TWFE policy specification restricted	TWFE structural specification
Lag MDI basic	0.822*** (0.0367)	1.086*** (0.0561)	1.069*** (0.0688)	0.849*** (0.0323)	0.803*** (0.0380)	0.762*** (0.0399)
Lag MDI basic (t-2)		-0.406*** (0.0514)	-0.574*** (0.107)			
Lag MDI basic (t-3)			0.220** (0.0985)			
Lag MDI basic (t-4)			-0.0549 (0.0396)			
Lag trade/GDP	0.00374 (0.00370)	0.00467 (0.00312)	0.00353 (0.00373)	0.00267 (0.00310)	0.00407 (0.00331)	
Lag investment/GDP	-0.00396 (0.00861)	-0.0111 (0.0105)	-0.0139 (0.0108)	-0.00233 (0.00808)	-0.00245 (0.00878)	
Lag credit/GDP	-0.0147*** (0.00409)	-0.0109*** (0.00370)	-0.0119*** (0.00426)	-0.00795 (0.00614)		
Lag bank deposits/GDP	0.00576*** (0.00174)	0.00784*** (0.00152)	0.00691*** (0.00112)	0.00329* (0.00170)	0.000743 (0.00241)	
Lag FDI inflow/GDP	0.0125 (0.00857)	0.0113 (0.00697)	0.00593 (0.00414)	0.00326 (0.00382)	-0.00234 (0.00269)	
Lag ICT density	0.00132 (0.00292)	0.000927 (0.00243)	0.00278 (0.00301)			0.00113 (0.00300)
Lag Coups	0.0990 (0.323)	0.629* (0.351)	0.328 (0.436)			-0.0736 (0.305)
Lag ethnic fract. index	-3.921 (2.951)	-2.891 (2.714)	-3.541 (3.289)			-8.830*** (2.700)
Lag SVM DI	-0.0950 (0.363)	-0.128 (0.316)	-0.217 (0.428)			0.0857 (0.277)
Lag inflation	-0.00129*** (0.000273)	-0.000904*** (0.000254)	0.00413* (0.00217)	-0.00140*** (0.000259)	-0.00156*** (0.000283)	
Lag gov. cons.	0.0591*** (0.0169)	0.0680*** (0.0136)	0.0709*** (0.0112)	0.0536*** (0.0177)	0.0390* (0.0210)	
Lag struct. ch.	0.00125 (0.00554)	0.00170 (0.00523)	-0.00252 (0.00526)			-0.00554 (0.00434)
Observations	707	643	483	838	907	940
R-squared	0.876	0.889	0.860	0.862	0.839	0.845
Number of countries	137	137	137	163	163	144
Adj. R-squared	0.873	0.886	0.855	0.860	0.837	0.843

Note: *** p<0.01, ** p<0.05, * p<0.1; Robust clustered standard errors in parentheses.

Lagged inflation, the indicator for economic instability or uncertainty, has a negative

association with inclusive development. However, the effect is small in magnitude. Government consumption is positively associated, pointing towards redistribution policies, social safety nets having a positive – though limited – impact on inclusive development (coefficients range from 0.05-0.07). Columns 1 to 3 also show a negative association of the ratio of private sector credit to GDP, though small in magnitude. The impact of credits is ambiguous. While they allow investments that facilitate development, poorly monitored financial markets and insufficient regulatory frameworks entail risks for creditors, which can translate into credit losses and can cause financial crises (Wu et al., 2010). The other financial depth proxy, the ratio of bank deposits to GDP is also highly significant and positive but small in magnitude.

Columns 4-6 of Table 4 splits the regressions from the full specification into two sets of separate regression specifications. Because of the high number of independent variables, multicollinearity can cause biased estimated. The new specifications serve to confirm the estimations from the full specification. We decide to assign variables that are relatively quickly moving and more easily modifiable by policies to a “policy specification” and variables that are relatively sluggish to a “structural specification”.⁵⁴

In the specifications in columns 4-6, past MDI values remain highly significant (in a range of 0.76 and 0.85). In the policy specification, the financial depth proxy credit to the private sector becomes insignificant. When keeping bank deposits to GDP ratio as the only proxy for financial development, it becomes insignificant, too. The associations of lagged inflation and lagged government consumption stay significant.

In the structural specification in column 6, we find only the ethnic fractionalization index significant. Increased ethnic fractionalization by 10 p.p. decreases inclusive development by 0.8 units. Interpreting changes in ethnic fractionalization as changes in political stability can be doubtful. The general quality of institutions (SMVDI), political instability (coups), structural change and ICT density do not seem to be associated with MDI scores.

⁵⁴We admit some arbitrariness within this categorization.

Table 5 mirrors Table 4 but employs the system GMM estimator.⁵⁵ In the specification in column 1, the number of instruments is very high (334). A common strategy in the literature is to truncate the number of lags used for instrumentation (Acemoglu et al. 2019; Roodman, 2009). Using lags of the 5th and 6th periods as instruments lowers the number of instruments down in columns 2 to 7.⁵⁶ In columns 2 to 4 the Hansen test is within the desired range. Past values of the MDI, financial depth, and the Africa dummy are significant here. The magnitude of past inclusive development is close to one, similar as in TWFE estimations. Private sector credit to GDP is negatively associated with the MDI with a slightly larger magnitude than in TWFE estimations, again small in magnitude (0.013). On average, African countries show MDI scores lower by 1.6 units, when controlling for all the other factors. In the baseline regression, trade openness is significant as well, which is not confirmed in any of the other specifications.

The number of instruments in the policy specification in columns 5 and 6 is considerably lower (66). Despite excluding many variables, the Hansen p-value is high (0.46 and 0.36), indicating that the number of instruments might still be too large. Lagged investment is significant both at the 5 and 10 percent level with a negative coefficient of -0.053 and -0.042 respectively. This is contrary to our expectations. One possible explanation can be that savings and investments exhibit an inverse U-shaped relation to development, i.e. beyond a threshold, there is overinvestment. Furthermore, African as well as LA countries exhibit significantly lower MDI scores.

The structural specification in column 7 suffers from weak instruments according to both the Hansen and autocorrelation test. Therefore, we are not able to identify any causal linkages.

⁵⁵We also ran the regressions as difference GMM estimations. They exclude the level equation from the instrument set, therefore, mitigate autocorrelation. Most estimations resulted in a set of weak instrument. Hence, we do not report them. Those estimations that pass the tests, confirm prior results with regards to the influence of past MDI, ethnic fractionalization, and inflation.

⁵⁶We ran the regression using all possible combinations of lag structures and identifying this lag structure as the one providing the best set of instruments.

Table 5: Main Results System-GMM

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	SYS-GMM baseline	SYS-GMM baseline	SYS-GMM	SYS-GMM	SYS-GMM policy specification	SYS-GMM policy specification restricted	SYS-GMM structural specification
Lag MDI basic	0.974*** (0.0136)	0.964*** (0.0235)	1.414*** (0.0960)	1.573*** (0.125)	0.935*** (0.0259)	0.943*** (0.0276)	0.977*** (0.0233)
Lag MDI basic (t-2)			-0.440*** (0.0922)	-0.724*** (0.265)			
Lag MDI basic (t-3)				0.154 (0.254)			
Lag MDI basic (t-4)				-0.0237 (0.104)			
Lag trade/GDP	0.00665** (0.00318)	5.88e-05 (0.00610)	-0.00151 (0.00562)	0.000443 (0.00561)	0.00433 (0.00607)	0.00517 (0.00601)	
Lag investment/GDP	0.00726 (0.0125)	-0.0162 (0.0258)	-0.0501*** (0.0185)	-0.0457** (0.0191)	-0.0529** (0.0249)	-0.0424* (0.0251)	
Lag credit/GDP	-0.00879*** (0.00331)	-0.0134*** (0.00509)	-0.00779* (0.00461)	-0.00494 (0.00415)	-0.00458 (0.00545)		
Lag bank deposits/GDP	0.00122 (0.00146)	0.00312 (0.00229)	0.00423* (0.00238)	0.00398 (0.00267)	0.00292 (0.00262)	0.00129 (0.00417)	
Lag FDI inflow/GDP	0.00246 (0.00531)	0.01000 (0.0186)	0.00211 (0.00864)	-0.00272 (0.00694)	0.00223 (0.0127)	-0.00211 (0.0138)	
Lag ICT density	0.000338 (0.00275)	0.00294 (0.00625)	0.000789 (0.00489)	-0.000245 (0.00478)			-0.00311 (0.00554)
Lag Coups	0.258 (0.548)	1.681 (2.559)	2.328 (2.286)	1.371 (2.092)			0.768 (3.534)
Lag ethnic fract. index	-0.885 (0.681)	-0.378 (1.525)	-0.766 (1.101)	-0.221 (1.040)			-2.021 (2.862)
Lag SVMDI	0.119 (0.396)	0.712 (0.601)	1.213** (0.488)	0.721 (0.483)			0.0141 (0.713)
Lag inflation	-0.000773** (0.000331)	-0.00864 (0.00770)	0.00199 (0.00659)	0.0279 (0.0179)	-0.0134 (0.0112)	-0.0106 (0.0108)	
Lag gov. cons.	0.0316 (0.0237)	0.0195 (0.0422)	0.0276 (0.0341)	0.0403 (0.0398)	-0.0152 (0.0302)	-0.0177 (0.0274)	
Lag struct. ch.	-0.0102** (0.00480)	-0.0173 (0.0166)	0.000565 (0.0124)	-0.00764 (0.0124)			-0.0155 (0.0132)
LA	-0.116 (0.812)	-0.903 (0.622)	-0.360 (0.533)	-0.0125 (0.413)	-1.068* (0.645)	-0.963 (0.606)	-0.00393 (0.602)
EA	0.514 (0.789)	0.879 (0.915)	0.935 (0.681)	0.978 (0.622)	0.793 (0.702)	0.240 (0.616)	0.280 (1.004)
Africa	-0.663** (0.279)	-1.624** (0.687)	-0.522 (0.628)	-0.618* (0.373)	-2.069*** (0.789)	-1.779** (0.721)	-0.378 (0.573)
Observations	707	707	643	483	838	907	940
Number of countries	137	137	137	137	163	163	144
Lags:	2-7	5-6	5-6	5-6	5-6	5-6	5-6
No. of Instr.	334	106	105	103	66	66	50
Hansen test p-val	1	0.163	0.162	0.173	0.460	0.361	0.00379
AB-AR(2) test	0.000134	0.137	0.00154		0.221	0.159	2.34e-05

Note: *** p<0.01, ** p<0.05, * p<0.1; Robust clustered standard errors in parentheses.

3.4.3 Long-term results

We repeat the analysis conducted in section 3.4.2 with 10-year averages to test for longer-run effects. We report TWFE estimations in Table 6 and difference GMM estimations in Table 7.

In accordance with the previous results, the results from the TWFE regressions show a significant relation between past and current MDI score. The coefficients are lower than in the short-term analysis, indicating that past development has a lower influence in the long-term. While in the short-term, trade did not seem to play a substantial role, it displays significance in three out of five long-term regressions (TWFE as well as GMM; ranging from 0.013 to 0.026). Inflation is also significant and similar in magnitude as in short-term TWFE estimates. Furthermore, there are two regressions (columns 1 and 2), where the two financial depth proxies, and two regressions in columns 3 and 6, where the influence of fractionalization are significant. These results mostly confirm the short-term regression results. However, the short-term association of government consumption is not present in long-term regressions.

All difference GMM regressions⁵⁷ are well identified according to test statistics.⁵⁸ Past inclusive development does not exert a significant influence on current inclusive development anymore, except in the structural specification in column 6. In the full specification in columns 1 to 3, trade has a significant and positive influence on inclusive development. However, this is not robust in the policy specification. As in TWFE estimations, inflation has a negative influence on inclusive development in most estimations and is about twice as large in comparison. Investment and government consumption are significant in one regression. We do not consider this as a robust relation. Compared to TWFE estimations, financial depth and fractionalization is not significant, hence, have no causal effects on inclusive development.

⁵⁷We also ran system GMM estimations. However, instrument sets are slightly weaker and, therefore, we do not report results.

⁵⁸For regressions in columns 2 and 3, it is not possible to calculate autocorrelation because lags are used for coefficient estimations. We can assume that autocorrelation is not a problem here, since the regression setup differs only slightly compared to column 1 where the autocorrelation test is looks unsuspecting.

Table 6: TWFE Results with 10-Year Panel

VARIABLES	(1) TWFE baseline	(2) TWFE	(3) TWFE	(4) TWFE policy specification	(5) TWFE policy specification restricted	(6) TWFE structural specification
Lag MDI basic	0.630*** (0.0740)	0.595*** (0.113)	0.376** (0.167)	0.694*** (0.0674)	0.600*** (0.0591)	0.590*** (0.0557)
Lag MDI basic (t-2)		-0.165** (0.0764)	0.0195 (0.110)			
Lag MDI basic (t-3)			-0.0545 (0.130)			
Lag trade/GDP	0.0103 (0.00876)	0.0181** (0.00746)	0.0262** (0.0126)	0.00766 (0.00741)	0.0127* (0.00731)	
Lag investment/GDP	0.00753 (0.0234)	-0.0115 (0.0250)	-0.00161 (0.0307)	0.0124 (0.0190)	0.0133 (0.0185)	
Lag credit/GDP	-0.0190** (0.00887)	-0.0222** (0.00877)	-0.0131 (0.0127)	-0.00771 (0.0122)		
Lag bank deposits/GDP	0.0369** (0.0167)	0.0381** (0.0162)	0.0233 (0.0203)	0.0112 (0.0148)	0.00396 (0.0106)	
Lag FDI inflow/GDP	-0.0293 (0.0533)	-0.0403 (0.0690)	-0.105 (0.0718)	-0.00506 (0.0530)	-0.00392 (0.00681)	
Lag ICT density	-0.00417 (0.00750)	-0.00139 (0.00762)	-0.00286 (0.00956)			-0.00537 (0.00531)
Lag Coups	0.0871 (1.031)	0.198 (1.241)	0.780 (1.877)			-0.927 (0.878)
Lag ethnic fract. index	-9.622 (7.702)	-7.419 (8.160)	-18.16* (9.600)			-9.776** (4.513)
Lag SVM DI	1.049 (0.740)	-0.280 (0.943)	-1.983 (1.627)			0.533 (0.540)
Lag inflation	-0.00204*** (0.000722)	-0.00244*** (0.000774)	-0.00309** (0.00150)	-0.00203*** (0.000576)	-0.00239*** (0.000538)	
Lag gov. cons.	-0.000387 (0.0366)	0.0515 (0.0421)	0.0934 (0.0564)	0.0262 (0.0321)	-0.00666 (0.0322)	
Lag struct. ch.	0.00267 (0.0164)	0.0133 (0.0171)	0.0103 (0.0173)			-0.00198 (0.00718)
Observations	352	300	230	425	472	505
R-squared	0.751	0.752	0.716	0.712	0.694	0.735
Number of countries	132	132	132	156	158	144

Note: *** p<0.01, ** p<0.05, * p<0.1; Robust clustered standard errors in parentheses.

Table 7: Difference GMM Results with 10-Year Panel

VARIABLES	(1) Dif-GMM baseline	(2) Dif-GMM	(3) Dif-GMM	(4) Dif-GMM policy specification	(5) Dif-GMM policy specification restricted	(6) Dif-GMM structural specification
Lag MDI basic	0.000203 (0.210)	-0.0463 (0.202)	0.158 (0.390)	0.451 (0.372)	0.486 (0.417)	0.456*** (0.140)
Lag MDI basic (t-2)		0.281 (0.260)	0.301* (0.180)			
Lag MDI basic (t-3)			-0.315 (0.271)			
Lag trade/GDP	0.0597* (0.0354)	0.0441* (0.0250)	0.0706*** (0.0256)	0.0248 (0.0313)	0.0235 (0.0554)	
Lag investment/GDP	-0.101 (0.114)	-0.0389 (0.0855)	-0.0698 (0.0646)	-0.0514 (0.0536)	-0.407* (0.239)	
Lag credit/GDP	-0.0252 (0.0176)	-0.0213 (0.0275)	0.0146 (0.0253)	0.000288 (0.0330)		
Lag bank deposits/GDP	0.0625 (0.0657)	0.0252 (0.107)	-0.000169 (0.0542)	-0.0630 (0.0483)	-0.122 (0.0914)	
Lag FDI inflow/GDP	-0.0610 (0.160)	-0.111 (0.257)	-0.274 (0.264)	0.0314 (0.107)	-0.0527 (0.0495)	
Lag ICT density	-0.00964 (0.0240)	0.00423 (0.0279)	-0.0164 (0.0173)			-0.00546 (0.00744)
Lag Coups	1.165 (1.718)	-0.0399 (2.146)	3.516 (3.307)			0.337 (0.822)
Lag ethnic fract. index	-9.976 (23.57)	-32.06 (34.72)	-23.59 (15.25)			-9.108 (7.359)
Lag SVM DI	3.794 (3.310)	1.698 (4.179)	-2.402 (5.470)			1.359 (0.861)
Lag inflation	-0.00442*** (0.00171)	-0.00475** (0.00206)	-0.00384 (0.00287)	-0.00508*** (0.00160)	-0.0183** (0.00911)	
Lag gov. cons.	-0.00345 (0.199)	0.0537 (0.236)	0.0447 (0.128)	0.192* (0.110)	0.163 (0.188)	
Lag struct. ch.	-0.0221 (0.0616)	-0.0213 (0.0454)	-0.0368 (0.0334)			-0.0188 (0.0119)
Observations	220	168	98	269	314	361
Number of countries	98	98	98	116	135	140
Lags:	2-4	2-4	2-4	2-4	2-4	2-4*
No. of Instr.	42	40	37	24	17	37
Hansen test p-val	0.212	0.152	0.221	0.113	0.132	0.111
AB-AR(2) test	0.862			0.350	0.728	0.463

Note: *** p<0.01, ** p<0.05, * p<0.1; Robust clustered standard errors in parentheses; * additional restrictions of lags of agricultural services, and industry sector shares to identify the estimation.

3.4.4 Extended MDI and sub-indices analysis

In this subsection, we explore the influence of the MDI_{A+} and MDI_{E+} , and its sub-indices (I_A, I_{A+}, I_E and I_{E+}) separately.

Comparing the MDI_{A+} and MDI_{E+} in TWFE specifications (Table B2, see Appendix B) reveals only minor differences. The influence of past inclusive development is robust for both, but slightly higher for the MDI_{E+} . The influence of financial depth, inflation and government consumption are also robust and confirm estimations with the MDI basic. Bank deposits and inflation have a somewhat larger influence on the MDI_{A+} than on the MDI_{E+} . The structural specifications for both index versions confirm the negative influence of ethnic fractionalization. Lastly, the structural specification for the MDI_{E+} shows significant, negative correlations with ICT density and structural change.

System GMM estimations for the MDI_{A+} and MDI_{E+} shown in Table B3 in Appendix B are identified for the full specification and policy specification. They confirm the dependence on past development levels. Investment to GDP and the Africa dummy show negative, significant correlations for the MDI_{A+} . The full specification for the MDI_{E+} shows that social instability (ethnic fractionalization) has a negative association with it. The policy specification finds that inflation has a (small) negative association when we test the MDI_{E+} while it vanishes for MDI_{A+} .

Analyzing the sub-indices (i.e. I_A, I_{A+}, I_E and I_{E+}), we look at TWFE estimates first (Table B4 in Appendix B). Past index values and financial depth have a significant relation for all specifications and sub-indices. The largest influence is on I_{E+} , indicating that it is more persistent over time than the I_A, I_{A+} or I_E . Financial depth is associated with all sub-indices but has higher significance levels for the I_A and I_{A+} than for I_E and I_{E+} . ICT density is associated with lower I_A and I_E but for the latter the relation is weak. Social instability (ethnic fractionalization) is significant in all structural specifications and the full specification of the I_{E+} . The magnitude is up to twice as large in the equity compared to the achievements dimension. Institutional quality is associated neither with I_A, I_{A+} nor I_E , but negatively correlated with the I_{E+} sub-index. Inflation and government consumption have a significant association with the I_A, I_{A+}, I_E sub-

indices but not with the I_{E+} sub-index. As in the main results, inflation has a negative, government consumption a positive association. Lastly, structural change is negatively associated with the I_{E+} in the structural specification.

For GMM estimates in Table B5, all policy specifications and the full specifications for the I_{E+} sub-index and I_E are properly identified according to test statistics. Specifications for the I_A sub-index, the full specification for I_{A+} sub-index and the structural specifications for each sub-index remain unidentified. The policy specification for the I_{A+} sub-index shows that none of the policy drivers are significantly correlated with I_{A+} scores. The full specification for the I_{E+} sub-index shows that higher private sector credit is associated with lower I_{E+} scores. However, the significance disappears in the policy specification. None of the policy proxies seem to significantly influence I_{E+} scores. Furthermore, higher investments translate into lower I_E in the policy specification in column 11. Lastly, the significant influence of past index values and lower scores in African countries are confirmed. Apart from that, there are no other associations with I_E .

Overall, the main results are robust when extending the set of variables used to measure the equity dimension.

3.4.5 Robustness checks

In this section, we present the results of the robustness checks to support our previous results. We estimate TWFE regressions.

First, as motivated in section 3.3.8, we disaggregate trade into imports and exports and include FDI inflows and outflows, looking only at the short-term, as shown in Table B6 (see Appendix B). As trade flows are relatively fast and easily influenced by regulation and political measures, we prefer to look at the policy specification in this robustness test. While trade is not significant in the baseline specification, including only imports delivers significant results, with a slightly positive coefficient (0.145). When including imports and exports at the same time, both are highly significant and almost offset each other. The robustness check suggests that FDI cannot be linked to inclusive

development which confirms the ambiguous theoretical relationship. The significant result for imports indicates that openness to and buying from the international markets facilitates domestic MDI scores.

In a second robustness check shown in Table B7 (see Appendix B), we include the KOF globalization index as additional independent variable in the structural specification. Gygli et al. (2019) show that globalization is associated with development. Thus, we deem it important to conduct this robustness check. Because the KOF is a composite index that consists of 43 variables, we refrain from using it in our main regressions to avoid cross-correlation with other variables. The results from the baseline TWFE specification are largely confirmed. We tested for all three versions of the KOF globalization index.⁵⁹ The main index is significant at the 5 percent level, the *de facto* version at the 1 percent level. Both are associated with higher MDI scores as shown by the coefficient values (0.0468 and 0.042), indicating that more globalized countries have higher MDI scores. *De jure* globalization is not associated with the inclusive development. This means *de facto* globalization, meaning actual trade flows, investments, tourism, etc., is more important than *de jure* globalization, which is a measure for things such as trade regulations, trade agreements, investment restrictions, freedom to visit, civil liberties, international treaties and more (see Gygli et al. 2019). This suggests that, first, policy focus should be directed at supporting *de facto* globalization and secondly, in a more general sense, the backlash to globalization is worrisome because we find that globalization supports inclusive development

Third, as motivated in section 3.3.8, we control for the fertility rate and population growth in the baseline, policy, and structural specification in Table B8 (see Appendix B). Lagged fertility rate is not significant in any specification. Population growth is significant at the 10 percent level in the policy specification and at the 5 percent level in the structural specification. In both cases the coefficient value is negative but small in magnitude (-0.0836 and -0.086). This indicates that higher population growth is associated with lower inclusive development.

⁵⁹I.e the standard, *de facto* and *de jure* version

3.5 Discussion

We identify past MDI scores as well as domestic inflation rates as robustly significant variables in most TWFE and GMM estimations. The influence declines when we look at long-term trends (i.e. using 10-year intervals). This confirms development literature which suggests that (i) low inflation and sound financial institutions facilitate growth (Rousseau and Yilmazkuday, 2009), that they are an indirect determinant of financial development (Bittencourt, 2011), and (ii) that low inflation is an important determinant for an equal income distribution (Bulir, 1998).

The financial depth proxies (credit to GDP ratio and bank deposits to GDP ratio) are significant. The negative coefficient for the credit ratio is contrary to the positive association between credit and growth emphasized in the literature (Rousseau and Wachtel, 2002). The net effect of a sound financial sector on the MDI cannot be clearly predicted, though. Credit ratio and bank deposit ratio take effect into opposite directions and might offset.

In the structural (TWFE and difference GMM) specifications, ethnic fragmentation seems to be an important determinant of MDI scores. As Alesina et al. (2016) and Easterly and Levine (1997) show, ethnic inequalities in economic performance are a significant driver for inequalities in economic development. Deficiencies in the institutional framework can restrict access to the economic activities along ethnic frontiers.

In most GMM specifications, the Africa dummy is significant. Obviously, most African countries still suffer from the consequences of their colonial past.

The results of the long-run regressions with 10-year periods generally support those of the 5-year regressions: Past MDI scores, inflation, financial depth and the Africa dummy are significant. Additionally, we see significances in few specifications for investment and political instability (coups).

Contrary to the findings in Barro (2000) who finds negative impacts of government consumption on growth, it seems to be positively correlated with the MDI in the short run. The lack of significance in the 10-year regression setting could hint towards the “Ricardian equivalence”. Higher government expenses must be financed eventually

by higher taxes or less goods and services provided, unravelling the positive short-run effect in the long-run.

Another striking difference is the significance of the trade to GDP ratio in the 10-year regressions. Larger trade volumes seem to positively impact inclusive development when looking at longer timeframes. It is possible that benefits from increased trade volumes benefit firms first and individuals with delay. Thus, the trade integration of the past 40 years may have facilitated inclusive development. This period was characterized by the establishment of the World Trade Organization (WTO) sustaining the liberalization of international trade, resulting in tariff reductions and lifting of other trade barriers (Baldwin, 2016, p. 98ff.). Mirroring increased trade flows, countries with greater integration in global value chains (GVCs) tend to have more productive firms, a higher share of female employment (Dollar et al. 2019, p. 3; World Bank, 2020, p. 3) and higher wages (Dollar et al. 2019, p. 3; Dollar et al. 2017, p. 8). Through these channels, inclusive development can be affected.

In the TWFE estimates, we find that all past MDI scores, ICT, and inflation are important for both the development achievements as well as equity. This underlines the general importance for macroeconomic stability. We also find that bank deposits, investment and government consumption are important for achievements but not equity. We stress that restricted access to the financial sector may disadvantage parts of the population. The GMM estimates show that higher credit to GDP ratios relate to lower I_{E+} scores. This relationship is not present for the other sub-indices.

We find structural change to be associated only with the I_{E+} sub-index. This indicates that restructuring the economy yields both winners and losers magnifying existing inequalities. The effect is, however, small and not very robust. In TWFE specifications, ethnic fractionalization has a larger effect on equity than on achievements. Lastly, inflation, government consumption or bank deposits are not significant for the I_{E+} sub-index but for most other sub-indices. Hence, they might primarily help to improve development outcomes. Overall, the sub-index analysis shows that there are important differences between achievements and equity. The focus of the development

community has for the longest time been focused on achievements rather than equity. Our analysis shows that the effects vary and be conflicting.

3.6 Conclusion

The research in this chapter is – to the best of our knowledge – the first attempt to discuss and empirically estimate the determinants of inclusive development. Since public and political debates indicate that there is a lack of inclusive development, the problem at hand is of utmost importance. With an improved understanding for relevant policies, governments will be able to address urgent challenges more adequately.

Derived from the empirical literature, we identify a set of growth determinants that are likely to impact inclusive development. These include a mix of policy variables such as inflation, investment, financial depth and trade, and structural factors such as institutional quality, social stability, FDI and structural change. The results from TWFE and GMM panel estimates show that (i) inclusive development is very path dependent, (ii) the inclusive development is most robustly associated with macro-economic policies such as inflation, financial sector development and trade, (iii) that the size of the public sector has a positive short-run influence, and (vi) social stability also plays a role. The robust associations we find with financial sector variables, inflation (negative), credit/GDP (negative) and bank deposits (positive) warrant further research. It suggests that inclusive development is dependent on financial sector development. Especially the robustly negative association with credit/GDP and robustly positive association with bank deposits/GDP we find across estimations is a hint towards this channel being important and deserving more attention to guide policy makers.

We see that certain variables are related with both dimensions while others rather with one MDI sub-index only. Inflation rates, ICT density and past development scores are equally important for achievements and equity, but financial depth and government consumption matter mainly for the achievements indices. Contrarily, social stability and structural change rather drive equity outcomes. These results are largely robust.

Our results highlighting the presumable effects of financial sector development,

inflation, trade and government consumption are especially notable in the light that they reflect core ideas of the “Washington Consensus” as termed by Williamson (1990) which have become rather unpopular and the target of public resentments (Rodrik and World Bank, 2006, p. 974). Therefore, the rudiments of the Washington consensus could still serve as useful guidelines to address development deficiencies.

Our analysis also shows which drivers can be a starting point to facilitate inclusive development and should be a subject of further research. It can give first indications for mechanisms to mitigate asymmetric effects of the ongoing process of globalization, for societies to deal with structural adjustments in the economy and allow all individuals to participate in developmental progress.

4 Interim Conclusion

Recalling the inclusive institutions theory outlined in chapter 1, chapter 2 demonstrates that the proposed MDI can capture inclusive development in a way that reflects theories from Acemoglu and Robinson (2013) as well the capability approach. It captures human well-being in a way that goes beyond income-focused approaches by including a variety of development outcomes and the sustainability of development, as well as incorporating information on how development is distributed in society. Chapter 2 also demonstrates that MDI is designed to enable researchers to distinguish between achievements and equity to disentangle where progress is made. This allows incorporation of equality considerations into the analysis itself to reflect the concept of *inclusive* development rather than just “development” and secondly it also allows to track in which subdimensions progress is made.

Summarizing the findings from chapter 2, we find global progress mostly in development achievements, but less so in the equity dimension. This might guide policy-makers should they want to improve inclusive development. Development and growth policies worked very well in the past in raising the average living standard in world. Thus, they should not be abandoned. However, if *inclusive* development is the goal of policy-makers, the overall policy framework should be adjusted to focus not only on growth, but additionally consider measures to equalize incomes such that income gains reach everyone. Which specific policies are most suitable to achieve this is not a research question of this dissertation. However, while taxation of incomes and social transfer programs are traditional ways to redistribute incomes, there are also indirect measures for redistribution. Social spending on health, education, social security indirectly benefits lower income segments more than higher income segments (Acemoglu et al. 2015, pp. 1904f.) and are therefore indirect means of redistribution. Furthermore, programs like conditional cash transfers have become more popular in recent decades because they yield a two-fold dividend: increasing the living standard of poor households and improving aspects such as health or education outcomes of these households at the same time (when transfers are conditioned on this; see Rawlings and

Rubio, 2005). Should policy-makers target inclusive development, the MDI can serve as a tool for policy-makers and researchers to track the progress in inclusive development and allow countries to learn from each other about which policies support progress. The ability to disentangle achievements and equity dimension with the subindices of the MDI can be helpful in this regard. It allows to track not only whether progress is made with respect to inclusive development overall but also from which subdimension (equity or achievements) progress stems from and which policies are associated with it.

The research presented in chapter 3 puts the MDI to use and conducts a first empirical analysis into the drivers (policies and structural elements) of inclusive development. Our analysis revealed that some policies and structural features are important of overall inclusive development, and that they also differ with respect to the subdimensions of achievements and equity. While inflation and the development of information and communication infrastructure are important for overall inclusive development, financial depth and government consumption improves development achievements and more social stability impacts equality positively and structural change negatively. Combined with the insight from chapter 2 that overall progress is mostly attributed to the achievements dimension, the results from chapter 3 suggest areas to which policy-makers may pay special attention. These are the policies that are associated with equity subdimension; in particular, social stability and structural change. When individual governments and the international community contribute to social stability and cushion negative effects of structural change, inclusive development is likely to increase.

For future research, the MDI can be used to analyze patterns of inclusive development. One big advantage of the MDI in this regard is its wide country and year availability compared to similar indices such as the Inequality-adjusted Human Development Index (IHDI). Identifying the drivers in chapter 3 is a first glimpse into the research possibilities of drivers of inclusive development. Identifying causal relationships in future research would be especially helpful for policy-makers. One possible

approach is to estimate individual drivers using [IV](#) to identify specific policies that are associated with inclusive development.

Furthermore, improving or altering the MDI is open to the research community. As argued in [chapter 2](#), normative judgments are necessarily involved in the process of creating an aggregated index measure. In some circumstances researchers may come to different judgments about aggregation depending on their particular research questions. For example, it might be sensible to reduce the number of variables used to increase sample size or to change the set of variables to have a composition of variables with a different focus. One possibility would be to change the composition of variables to include data on development achievements for women (or gender gaps) and gender inequality measures.^{[60](#)}

⁶⁰Prominent and widely used indices such as the KOF Globalization Index, the Economic Freedom Index or the HDI have undergone changes in aggregation over the years for different reasons.

5 The Poverty Effect of Democratization

This chapter is based on a working paper titled ‘The Poverty Effect of Democratization’ (JERP Working Paper 2021-017).⁶¹

5.1 Introduction

In recent years, discontent with the liberal international order has increased, not in the least due to the widespread feeling that globalization has only helped a rich minority in Western democracies. At the same time, a reduction of poverty is one of the most important items on the global agenda as illustrated by the United Nations (2015)’s SDG No. 1 being that of “ending poverty in all its forms everywhere”, meaning that by 2030 no-one in the world should live under \$1.90 a day. Despite much progress since 1990 the world is not on track to achieve this goal.

Much research has been done on poverty reduction. The link between growth and poverty is especially well researched where usually the finding is that growth reduces poverty (Dollar and Kraay, 2002a, 2004; Dollar et al. 2013; Ravallion, 2001). Poverty is seen by many as a more pressing policy issue than inequality. In 18 Afrobarometer countries, “poverty outranked inequality as a pressing political problem by a multiple of 20” (Bermeo, 2009, p. 26). This illustrates the importance of poverty reduction for individuals in poor societies.

Although there is widespread consensus that “institutions matter” (North, 1994), little is known about link between institutions and poverty.⁶² By structuring behavior of individuals through setting rules and giving incentives, economic activity is influenced by institutions. Thus, they naturally also influence the prevalence of poverty in societies. This is the link we investigate in this paper. We proxy institutions by electoral democracy and investigate empirically whether changes in these institutions during democratizations result in changes in poverty rates. This question has not yet

⁶¹It has been presented at the European Public Choice Annual Meeting 2021 (online), the CGDE doctoral workshop (online) and in an earlier version at the 4th Conference of the Political Economy of Democracy and Dictatorship 2020 in Münster.

⁶²According to North (1990, p. 97) institutions can be defined as “humanly devised constraints that structure political, economic and social interactions”.

been answered, although it seems highly relevant. This is especially interesting against the background of mixed empirical evidence with respect to the questions of whether democratization causes growth (Acemoglu et al. 2019; Colagrossi et al. 2020) and whether there are effects of democratization on other outcomes such as inequality or health indicators (Acemoglu et al. 2015).

Economic theory suggests that democratization could affect poverty rates through several channels. Extending voting rights of poorer segments of society may lead to more redistribution towards them, or democratization might lift barriers forcing the poor to work low wage agricultural jobs (Meltzer and Richard, 1981; Moore, 1966). However, democracies might be captured – economically or physically – by the previous elite who could work to prevent pro-poor policies. Middle-class bias could cause redistribution towards the middle class rather than the poor, or newly gained market opportunities might increase pressure on wages and increase poverty (Acemoglu and Robinson, 2008).

We assess the question with a dataset covering years from 1980 to 2018 for around 140 countries. We use a democracy measure from Acemoglu et al. (2019) that proxies institutions of electoral democracy. Much of the literature does not adequately address endogeneity issues (Acemoglu et al. 2015; Ross, 2006). Our empirical strategy reflects the need to address endogeneity in two ways. First, we estimate a dynamic panel model using the TWFE estimator to account for unobserved heterogeneity and GMM estimations to correct for Nickell bias. To control for selection into democracy we include lags of poverty, GDP and inequality. Secondly, we estimate non-parametric treatment effects which can be deemed causal under some plausible assumptions. Treatment effects estimations are more flexible in the timing of when democratization affects poverty rates and do not impose a linear effect as does regression estimators do. Our dynamic panel estimates show an insignificant impact of democracy throughout a variety of specifications. These are robust to a number of alternative specifications. Treatment effects estimates find a causal effect of democracy on poverty rates. On a 95% significance level, democracy reduces poverty rates by about 11-14% in the first

five years after democratization and with 90% significance about 20% 10-14 years after democratization.

These results suggest that a mix of forces is at play. It is likely that many democracies redistribute income, decrease inequality and enact pro-poor policies at least to some extent so that poverty rates decrease more compared to non-democracies. On the other hand, as made clear by anecdotal evidence, many democracies are also plagued by corruption, the influence of rich elites, or the middle-class using their electoral power to redistribute incomes and wealth to themselves.⁶³

The remainder of this chapter follows a straightforward structure. Section 5.2 outlines our theoretical considerations. Section 5.3 describes the empirical approach, the data we use, results and robustness checks. Section 5.4 discusses our results and section 5.5 concludes.

5.2 The Effect of Democracy on Poverty in Theory

5.2.1 The Literature

Democratization and Growth

Institutions are a complex matter. As North's definition suggests, one can distinguish between political, economic and social institution. Because of this complexity much of the literature looks at a narrower concept of institutions, specifically at democratic (political) institutions which are conceptually better to grasp as well as easier to quantify. We will follow this approach and focus on democratizations to proxy (changes in) political institutions.⁶⁴ The literature looking at democratization and GDP/growth shows a mixed evidence (Doucouliagos and Ulubaşoğlu, 2008; Gerring et al. 2005; Przeworski et al. 1995, 2000; Rodrik and Wacziarg, 2005). Przeworski et al. (1995) survey the literature looking at whether democracy increases GDP through guarantee-

⁶³This is supported by many authors highlighting country heterogeneity in processes of democratization and institutional change (e.g. Bermeo, 2009; Bourguignon, 2004; Colagrossi et al. 2020)

⁶⁴However, poverty reduction cannot occur only through political institutions. We assume that political, economic and social institutions are closely linked, and that democratization similarly triggers changes in economic and social institutions. It does not seem to be far-fetched that economic institutions such as property rights protection will change after democratization.

ing property rights or bolstering private economic activity. The studies they survey show a mixed picture, i.e. one which does not clearly favor democracies. Przeworski et al. (2000) find an ambiguous result where democracies tend to have higher output than autocracies but the latter tend to allocate capital more efficiently. Gerring et al. (2005) looked at the role of political capital captured by the stock of democracy and find a positive relationship with GDP. Rodrik and Wacziarg (2005) look at democratic transitions and find they positively impact the growth rate in the 10 years following a successful transition as well as decrease growth volatility for 24 countries that transition to democracy. Doucouliagos and Ulubaşoğlu (2008) find no direct effect of democracy on growth but rather an indirect effect through human capital in their meta study. More recent influential work is from Acemoglu et al. (2019) who make an effort to look at the causal link between democracy and growth and find that democracy increases long-run GDP by about 20-25% and a new meta study from Colagrossi et al. (2020) of 2000 regressions finding a positive direct effect of democracy on GDP.

What Drives Poverty Rates

The empirical literature on what drives poverty rates is not very extensive. Exceptions are papers by Ravallion and Chen who regularly investigate global poverty trends (e.g. Chen and Ravallion, 2010; Ravallion, 2001). Fosu (2017) shows that there are substantial differences among regions in the world. Analyzing the elasticities with a focus on the African continent, Fosu finds a large geographical variation with respect to the responsiveness of poverty to income growth between African nations (Fosu, 2010). These differences are likely in part due to differences in institutions as Rodrik et al. (2004) show that geographical factors do not play a role anymore once institutions are controlled for.

In the context of poverty reduction, the notion of “inclusive growth” has received some attention in the literature (Adams, 2004; Dörffel et al. 2021; Fosu, 2010, 2017; Kalwij and Verschoor, 2007; Ravallion, 2001). Most authors’ main argument is that growth only translates into poverty reduction if there is a high initial level of equal-

ity and social inclusion within the society. Hence, equality mediates the positive or negative effect of growth on poverty reduction (as also argued below). To investigate this empirically, Adams (2004), Fosu (2017), and Kalwij and Verschoor (2007) estimate the effect of income growth and inequality changes on poverty. The general findings are that higher income growth leads to faster poverty reduction and higher changes in inequality leads to poverty increases.

There is small number of papers looking at the effect of democratic institutions on outcomes that are related to poverty. Health outcomes are closely related to poverty because large changes in health outcomes tend to affect poorer people the most. Many studies find democracies to have higher life expectancy, people consume on average more calories and lower infant mortality (see Acemoglu et al. 2015, p. 1907f. for details). However, Ross (2006) finds no effect of democracy on infant mortality rates in a panel of 44 countries, i.e. he finds no effect of democracy on poverty.⁶⁵ Kapstein and Converse (2008) have looked at correlations between economic and political conditions and successful versus failed democratizations. They find that poverty rates are twice as high in countries where democratization failed compared to democratizations that sustained. This indicates that permanent democratization at least coincides with lower poverty. However, the literature has yet not investigated the direct relationship between democratic institutions and poverty rates. This is the gap we intend to fill.

The Mechanics Between Growth, Inequality, and Poverty

A decrease of poverty is often seen as by-product of economic growth. However, poverty rates do not automatically decrease when GDP increases. We use the definition of poverty of the poverty headcount ratio; i.e. the fraction of the population in a given country that lives below the poverty line. Bourguignon illustrates the dynamics of the poverty-inequality-growth triangle. He shows that changes in poverty is a

⁶⁵While we agree that poverty overall is a multidimensional problem, that includes also aspects such education, health, adequate housing, access to water, sanitation, as suggested e.g. by Alkire and Santos (2014), we focus on income poverty (rates) in our work for the sake of clarity. We argue this is a valid approach to look at poverty in general, since there is likely to be high correlation between incomes and other poverty dimensions.

function of growth, the income distribution and changes in the distribution. Assuming that all incomes across the population grow by the same rate, then income growth lifts people out of poverty and the poverty rate decreases. However, this must not necessarily be true. If only incomes above the poverty line grow, the poverty rate remains unchanged.⁶⁶ The change in poverty is also affected by the distribution because the shape of the distribution (its flatness and size of the tails) influences how many people get lifted out of poverty even when incomes grow at the same rate. Lastly, changes in the income distribution (i.e. through differential taxation or redistribution) directly influence the poverty rate except when changes only occur in the part of the income distribution above the poverty line (Bourguignon, 2004).

5.2.2 Theoretical Mechanisms

The mechanics between growth, inequality and poverty imply that only limited statements about the effect of institutions on poverty are possible when we attempt to derive them from changes in GDP or inequality. The literature mentioned above suggests that GDP and inequality may be channels through which democracy might impact poverty rates. Further economic theories provide several possible mechanisms by which democratization might decrease poverty and also several factors that might mitigate this impact. We will briefly present the major influences identified in the literature here. For a more extensive discussion see the survey article by Acemoglu et al. (2015).

The first and most prominent mechanism has been outlined by Meltzer and Richard (1981). They argue that, starting from a situation where only a small part of the society has voting rights, the extension of voting rights to a larger part of the population due to democratization will shift the median voter down on the income distribution to a relatively poorer part of society. In consequence, policies are expected to be relatively more pro-poor (e.g. by increasing transfers or establishing social security programs). A similar argument has been made by Sen (1981) who argues that the electoral process in

⁶⁶This would be “anti-poor” growth as opposed to pro-poor growth where incomes below the poverty line increase faster than incomes above the poverty line, resulting in a reduction in poverty rates (Ravallion and Chen, 2003).

democracies allows the poor to penalize governments and to avoid this, governments will enact pro-poor policies (Ross, 2006). Also related to this argument is the argument that democracies – because of the electoral progress – tend to produce more public goods and more redistribution (Deacon, 2003; Lake and Baum, 2001; McGuire and Olson, 1996; Niskanen, 1997; Ross, 2006). Another similar argument has been made by Olson (1993), arguing the protection of private property rights or more efficient supply of inputs in democracies leads to higher output which can in turn result in poverty reduction.

The second channel is based on the argument that democratization will lift barriers of mobility out of the rural sector and therefore speed up structural transformation in the economy. Barriers that were present before democratization are enacted through policies that benefit the politically powerful at the expense of the rest of society. Such policies could then push wages down by repression and other means. Lifting such barriers could increase wages for the poor and lead to a more equal distribution of income and thus is likely to decrease poverty (Acemoglu et al. 2015, pp. 1888, 1893).

A third theoretical explanation comes from North et al. (2009) who develop a theoretical framework for explaining the state and its institutions in general, and the transition “limited access orders” (LAO) to “open access orders” (OAO). Although some precision of concepts gets lost, one can broadly frame autocracies in terms of limited access orders and democracies in terms of open access orders.⁶⁷ While in LAOs the creation of organizations in economic and political spheres is limited to the members of dominant coalition and their associates, in OAOs this activity is allowed for the wide strata of society. This allows the poorer part of society to seek economic rents by political influence (e.g. to increase redistribution) or by engaging in profitable economic

⁶⁷The most important aspect of the state in general is to deal with violence that would occur without it and LAO and OAO differ in terms of how they solve the problem of violence. LAOs provide order by using the political system to limit economic entry to create rents, and then using the rents to stabilize the political system and limit violence. LAOs support a dominant coalition that establishes institutions and can be in itself a seed for new violence. In OAO, open access and entry into economic and political organizations sustains economic and political competition. Social order is sustained by competition rather than rent-creation. OAOs allow for establishing and consolidating strong army and police forces – subjected to clear, strict and self-enforcing rules – who serve to deter violence. Simultaneously, non-governmental organizations are deprived of the ability to use violence which in LAOs would be used for the purposes of arrangement enforcement, creation of rents, etc.

activities. Both are severely restricted in LAOs since the dominant coalition will exclude them from pursuing economic rents to protect their own or even worse - extract rents from them. Hence, poverty should decrease in OAOs through redistribution or access to economic activity.⁶⁸

There are several less elaborated mechanisms through which democratization also might reduce poverty in theory. For example, Sen (1981) – as cited by Ross (2006) – argues that democracies allow better information flow through freedom of press. This leads to better knowledge by policymakers about poor people and therefore will lead to more pro-poor policies. Furthermore, Bermeo (2009) argues that foreign aid is often conditional on institutional change or good governance, and therefore poor democracies might receive more foreign aid that can be used for poverty reduction than poor autocracies. Lastly, Tavares and Wacziarg (2001) argue that trade unions and workers are given more power in democratic societies. Thus, companies are forced to pay higher wages, which can induce poverty reduction. In autocracies this component does not exist.

However, the literature also has developed many arguments why the mechanisms above might not be harnessed and democratization could therefore have an ambiguous or even negative effect.

The first reason is that democracy might be “captured” (Acemoglu and Robinson, 2008); and the authors posit three possible arguments as to how. The first argument is that the rich people in a society can take costly investments to hold their *de facto* power even when *de jure* power changes due to democratization. They can also gain *de facto* power through methods such as lobbying, repression, control of local law enforcement or nonstate armed actors which lead to control of all parties or to a change political ideology via the media (Acemoglu et al. 2015, p. 1895). Second, a newly transitioned democracy may be highly dysfunctional or effectively captured because

⁶⁸Tullock (1987) argues that autocracies also need to create rents. Due to the inefficiency of tax collecting in autocracies typically monopolies for certain economic activities are granted to individuals close to the ruler, who then will take a large of the rents in return. Thus, we can make a similar argument as with the framework of North et al. (2009): autocracies will tend to extract rents from the poorer population and redistribute them to the richer part of the population, thus increasing poverty in the process.

its institutional architecture is often chosen by previous rulers/elites (Acemoglu et al. 2015, p. 1896). Furthermore, a young democracy might be captured via constitutional provisions that restrict the scope for redistribution (and therefore for pro-poor policies), while the threat of capital flight may increase the cost of redistribution (Acemoglu et al. 2015, p. 1896).

The second reason democratization of a country can lead to an increase of poverty is through an increase in market opportunities after democratization which puts pressure on wages especially in the low-skilled part of society (Acemoglu et al. 2015, p. 1897). If inequality increases and wages of the poor decrease the poverty rate could increase.

The third reason is a modification of “Directors’ law” insinuating a middle-class bias of democracy. Because democratization empowers the middle class, “which uses its power to redistribute to themselves and not to the poor, the resulting income distribution might be more or less equal (it will be more equal if the middle class is much poorer than the rich, and less equal if the middle class are much richer than the poor)” (Acemoglu et al. 2015, p. 1898). In any case, it entails income redistribution which is directed from rather than towards the poor; potentially leading to increased poverty.

The fourth aspect is that social cleavages or identities in society may be such that they tend to reduce the likelihood that a coalition favoring redistribution would form (Acemoglu et al. 2015, p. 1898). Varshney (2005) argues that pro-poor policies are more likely to be enacted when economic class and ethnicity coincide for the poor because they can then put more pressure on governments. However, when class and ethnicity clash, the voting bloc for pro-poor policies is smaller as ethnic divisions often also divide voting blocs.

The fifth reason is that most redistribution under democracy does not take the form of transfers but social insurance (Acemoglu et al. 2015, p. 1898). Moene and Wallerstein (2001) develop a model to show that inequality effects (and therefore poverty reducing effects) are ambiguous when both transfers and insurance are possible policy options.

A final reason is brought forward by Olson (1982) who argues that rent-seeking behavior of special interest groups leads to institutional sclerosis which will lead to

economic stagnation and political instability which both can result in less poverty reduction.⁶⁹

5.3 Data, Method and Results

5.3.1 Empirical Approach

A potential reason why the effects of institutions on poverty rates are not well researched is that data is only sparsely available. Poverty data for most countries are available from the 1980's onwards. Since more data becomes available as time progresses, we can profit from more recent observations that were simply not available 10 or 20 years ago. We can make use of over 1600 data points with poverty data from surveys. Although this is still somewhat limited, we are confident that data coverage is large enough to provide us with some useful insights.

To tackle the issue of developing a metric for institutions we follow Acemoglu et al. (2019)'s methods. They develop a democracy dummy that is robust to spurious changes in democratic institutions by combining different sources and therefore should be less prone to measurement error. The measure is based on the Polity2 score and the Freedom House measure of political freedom. Thus, this concept of democracy covers institutions that are connected to electoral democracies. Institutional elements are free and competitive elections, checks on the power of the executive, an inclusive political process that allows various groups access to be represented politically, which are represented by the Polity2 score, as well as the extent of civil liberties covered by Freedom House. This measure of democracy leaves out some aspects of the institutional setting, such as clientelism, corruption or state capacity that can also be considered important democratic institutions. Using a democracy dummy has the further advantage that we identify shocks to institutions by the events of changes in the dummy. These shocks to the institutional environment are helpful do identify effects on other outcomes (in our

⁶⁹There are several further reasons that make the effect of democratization on poverty ambiguous. The first addresses the influence of social mobility on the demand of redistribution. When rates of social mobility are high and tax policy is sticky, people who are poor today may not support high rates of taxation and redistribution because they worry that it will negatively impact them should they become rich in the future (Acemoglu et al. 2015 p. 1898).

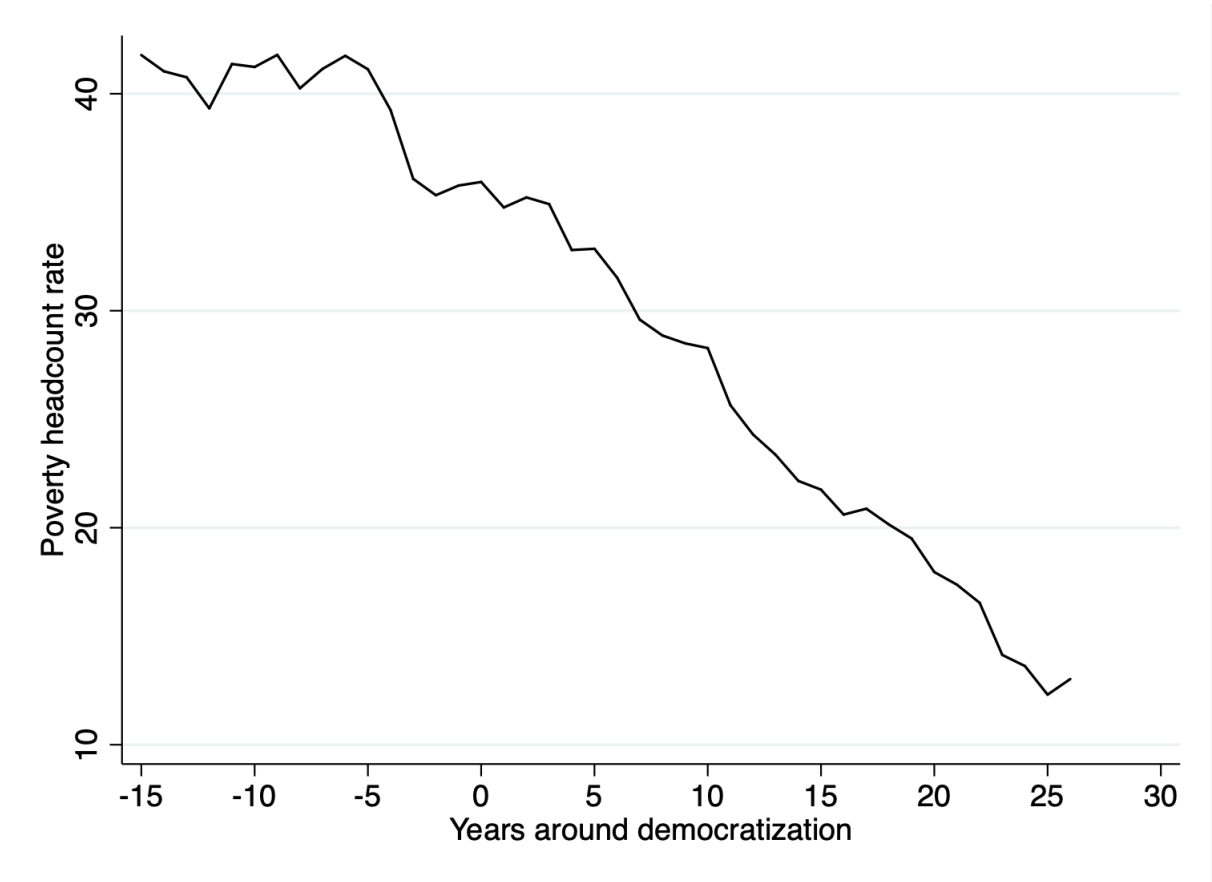
case, poverty).

Much of the literature we cite so far which estimated an effect of democracy on growth or e.g. health outcomes has difficulties to identify causal effects. Many of these studies received criticism for such things as estimating cross-section or panel effects without fixed effects which leads to bias in estimates (Acemoglu et al. 2015; Ross, 2006).⁷⁰ Hence, much the past literature does not account for endogeneity in the relationship between democracy and growth. Estimating causal effects is a difficult endeavor. Measurement errors, unobserved characteristics that introduce biases, and unaccounted dynamics that violate parallel trends assumption can all introduce biases in estimations. In dealing with these we follow Acemoglu et al. (2019). Measurement errors in the democracy measures are reduced by combining several sources to code the democracy dummy as described above. Unobserved characteristics are addressed by using the TWFE settings which filter out period specific or country specific heterogeneity. Furthermore, we use the GMM estimator (Arellano and Bond, 1991) to deal with the Nickell bias likely to affect FE estimates. Lastly, unobserved characteristics are addressed by estimating non-parametric treatment effects (more specifically the average treatment effect on the treated (ATE)) for different time periods. They have the advantage that they do not rely on the assumption of a linear functional form (as regression estimators do) which allows effects to be delayed and not necessarily in the same period. This estimation captures the causal effect of democracy on poverty as long as there are no unobserved characteristics that influence poverty rates and the selection into democracy at the same time (apart from GDP, poverty and inequality which we control for as described below). Figure 10 shows the path of average poverty rate for countries that democratize from 15 years before democratization until 25 years afterwards. It demonstrates that, in the 5 years that precede democratization, poverty rates tend to fall sharply while in the 10 years prior to that, they are rather stable. Hence, this fall in poverty rates might affect democratization itself and must therefore be adequately addressed because it violates the parallel trend assumption in standard

⁷⁰To illustrate this with an example, Kalwij and Verschoor (2007) do not take into account the conditions under which economic growth is transformed into poverty reduction.

regression estimators. To address this, we model this decline in poverty rates in estimations by including a sufficient number of lags of the poverty rates which filters out this decline. Because democratization is likely to not only be influenced by poverty but also by GDP and inequality before the event, we additionally control for these dynamics. We control for these dynamics in both, TWFE/GMM estimations and treatment effects estimations. By addressing these challenges, and under some plausible assumptions which we discuss below, we can interpret TWFE and GMM estimates as unbiased and treatment effects estimates as causal.

Figure 10: Poverty Headcount Rate (at the \$1.90 Poverty Line) Before and After Democratization



5.3.2 Data and Descriptive Statistics

We use poverty data from the [WDI](#) database which has also been used in various important studies (see Alvaredo and Gasparini, [2015](#); Chen and Ravallion, [2004](#), [2010](#),

among others). Because poverty data is collected from individual household surveys in each country, the data is relatively sparse, especially in low- and middle-income countries. We use simple linear interpolation to fill the gaps between missing years.⁷¹ This provides a large (unbalanced) sample of over 2200 observations in the baseline sample of around 145 countries covering the period 1981-2017 (see Table C12 in Appendix C for included countries).⁷² The WDI contain multiple poverty measures (poverty headcount, poverty gap) at different poverty lines (\$1.90, \$3.20 and \$5.50) measured in international PPP dollars, and the Gini coefficient as inequality measure.⁷³ We use the poverty headcount rate at the \$1.90 poverty line as our main measure and check the sensitivity of our results to the poverty measure as a robustness check. GDP data come from the WDI as well.

To assess the effect of democracy on poverty we add multiple democracy dummies to this dataset. First, our main democracy dummy is taken from Acemoglu et al. (2019)'s dataset and extended until 2018 to increase sample size. This democracy dummy is coded as one when the Polity2 score⁷⁴ from Polity IV (Marshall et al. 2014) is positive, and Freedom House considers it "Free" or "Partially Free". Otherwise, it is coded as zero. When one of these two sources is unavailable, the democratic status of a country is confirmed by the democracy measures from Boix et al. (2013), or Cheibub et al. (2010). To check the sensitivity of our results to this democracy measure we use two other democracy measures to rerun our analysis. These are the dummies from Boix et al. (2013) and Cheibub et al. (2010).

For robustness checks we also use non-binary democracy measures. The measures

⁷¹Linear interpolation increases our sample of poverty data from around 1600 observations to around 3400.

⁷²Because of later use we define some notation here: we use n as the number of countries in the sample, T as the number of years in the sample and N ($n \times T$) as the overall number of observations. In regressions N differs from 36×145 because our panel is unbalanced.

⁷³The poverty headcount indicates the fraction of population living below a defined poverty line (we mainly use 1.90\$ per day as the poverty line). The poverty gap on the other hand is a measure that indicates how far people are away from the poverty line on average. It is the sum of distances of incomes to the poverty line for all people below the poverty line, again normalized by the size of the population. Formally, it is expressed as $PG = 1/N \sum_{i=1}^H ((z - y_i)/z)$, where N is the size of the population, H the number of people living below the poverty line, z is the poverty line itself and y_i the income itself. See Foster et al. (1984).

⁷⁴The Polity2 index ranges from -10 to 10 (autocracy to democracy).

we use are the Polity2 index from Polity IV (Marshall et al. 2014) and the continuous democracy indices from Gründler and Krieger (2016, 2018), in addition to the SVM DI and the V-Dem polyarchy index from Coppedge et al. (2021). The SVM DI (Support Vector Machine Democracy Index) developed by Gründler and Krieger (2016, 2018) uses a support vector machines algorithm that detects patterns of democracy and translates it into a continuous measure for democracy – capturing a broad concept of democracy on a range between 0 and 1. The V-Dem polyarchy index captures the concept of electoral democracy based on country expert judgements who code them and is also standardized to a range between 0 and 1 (Coppedge et al. 2021).

Table 8: Descriptive Statistics of Main Sample

	Non-democracies			Democracies		
	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
GDP p.c.	707	2368.96	2148.19	1,534	14631.67	18004.63
Poverty headcount rate \$1.90	707	29.12	25.80	1,541	16.75	21.94
Poverty headcount rate \$3.20	707	49.17	30.14	1,541	28.83	30.39
Poverty headcount rate \$5.50	706	69.50	26.37	1,541	42.06	35.62
Poverty gap \$1.90	707	11.51	12.54	1,541	6.70	9.89
Poverty gap \$3.20	707	23.03	18.69	1,541	13.39	16.37
Poverty gap \$5.50	706	38.67	22.37	1,541	22.87	23.06
Gini	696	40.59	6.78	1,527	40.86	9.98

Note: See text for a full description of the variables and their sources. The sample is restricted to observations in column one of Table 9.

Table 8 shows the descriptive statistics for the main variables used in the analysis. They show that democracies have overall higher average incomes and less poverty by any measure compared to non-democracies. However, the average Gini coefficient is about the same, indicating that democracies are not necessarily more equal than non-democracies. Looking at the observations, we also see that data in non-democracies is scarcer than in democracies, stemming from poverty and inequality data rather than the GDP data.

5.3.3 Dynamic Panel Estimates

We start from a simple equation that relates the level of poverty to the levels of income and inequality respectively, as can be found for example in Adams (2004):

$$\log H_{it} = \alpha + \beta \log \bar{y}_{it} + \gamma \log G_{it} + \varepsilon_{it},$$

where H_{it} is the poverty rate, \bar{y}_{it} is mean income (GDP p.c. in our case), G_{it} the Gini coefficient in country i in year t , all taken in their natural logarithm and ε is an unobserved error term.

However, since we want to assess the effect of democracy on the poverty rate, we add our democracy measure D_{it} to the equation. Additionally, we control for past levels of poverty, inequality and GDP, which might affect the selection into democracy, by adding lags of these to the equation.

$$\log H_{it} = \beta D_{it} + \sum_{j=1}^p \gamma_j \log H_{it-j} + \sum_{j=1}^p \delta_j \log \bar{y}_{it-j} + \sum_{j=1}^p \theta_j \log G_{it-j} + \alpha_i + \nu_t + \varepsilon_{it},$$

where additionally to the notation above, D_{it} is the democracy dummy, α_i denote country fixed effects which control for unobserved time-invariant heterogeneities between countries, ν_t denote year fixed effects which control for unobserved country-invariant heterogeneities over time, p denotes the lags of poverty, GDP as well as inequality. The error term ε_{it} includes all other time-varying unobservable shocks to the poverty rate.

This specification relates the regime type (democracy/non-democracy) to the poverty rate, while addressing the possible dependence on poverty rates, inequality, and GDP in this relationship. Because the democracy dummy varies only between zero and one, the estimated coefficient captures the effect of regime changes (i.e. democratizations) on poverty the poverty rate. Since we only control only for past levels of GDP and inequality, we leave the mechanism open that democracies impact poverty through changes in current inequality or growth.

Country fixed effects (FE) control for unobserved time-invariant heterogeneities between countries. Thus, they eliminate any unobserved differences that are time-invariant, that is, those that do not change over time; these could include different tax systems, law systems, etc. In a similar fashion, year FE control for unobserved country-invariant heterogeneities for specific years. They control for unobserved systematic shocks such as global recessions, price shocks that hit every country at the same time. Adding both country and year fixed effects results in the TWFE estimator.

Main Results TWFE

One important assumption for dynamic panel models is sequential exogeneity. It requires that our main independent variable (democracy) and past values of poverty are independent of current and future shocks to poverty (our dependent variable) and that the error term is serially uncorrelated. This means we need to include enough lags of poverty to remove residual serial correlation in the error term and the influence of the decrease in poverty rates right before democratization as seen in Figure 10. This imposes the so-called parallel trends assumption, that countries that transition to democracy are not on a different poverty trend relative to other countries with similar poverty levels in the previous years which are captured by lags of poverty and the level of long-run development captured by fixed effects. However, since the literature suggests that democratization may not only be dependent on past poverty but especially on GDP and to a lesser extent on inequality, we need to control for past levels of these factors, too, since they are likely to influence the likeness of countries to democratize.

Table 9: Main Results for the Effect of Democratization on Poverty Rates (\$1.90 poverty line) Using the TWFE Estimator

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
Democracy	1.876 (2.681)	0.375 (2.319)	-1.185 (2.456)	0.137 (2.532)	-0.421 (2.326)	-1.784 (2.778)	0.221 (2.667)	-0.204 (2.439)	-1.576 (2.839)	2.081 (4.474)	13.564 (39.633)	-52.265 (63.417)	
Poverty first lag	0.882*** (0.026)	0.887*** (0.060)	0.847*** (0.063)	0.863*** (0.026)	0.865*** (0.062)	0.821*** (0.065)	0.860*** (0.026)	0.858*** (0.064)	0.810*** (0.063)	0.980** (0.344)	0.459 (1.129)	0.123 (0.900)	
Poverty second lag		0.080 (0.093)	0.010 (0.069)		0.080 (0.092)	0.010 (0.069)		0.092 (0.094)	0.019 (0.068)		0.424 (1.897)	0.471 (1.565)	
Poverty third lag		-0.038 (0.087)	-0.013 (0.079)		-0.028 (0.087)	-0.003 (0.078)		-0.041 (0.086)	-0.016 (0.075)		1.289 (1.417)	0.281 (1.478)	
Poverty fourth lag		-0.015 (0.052)	0.037 (0.072)		-0.017 (0.052)	0.039 (0.072)		-0.009 (0.054)	0.048 (0.077)		-1.159* (0.513)	0.101 (1.244)	
GDP first lag				-0.259*** (0.073)	-0.500*** (0.184)	-0.681*** (0.212)	-0.271*** (0.074)	-0.532** (0.195)	-0.779** (0.242)	-0.362 (0.481)		-1.237 (1.367)	-0.532 (1.094)
GDP second lag					-0.030 (0.176)	-0.020 (0.210)		-0.002 (0.198)	-0.010 (0.270)		2.178 (2.699)	1.826 (2.374)	
GDP third lag					0.409* (0.187)	0.670** (0.254)		0.395 (0.204)	0.747** (0.275)		-0.747 (2.570)	-1.706 (2.492)	
GDP fourth lag					-0.078 (0.158)	-0.309 (0.233)		-0.055 (0.168)	-0.357 (0.253)		-0.297 (1.933)	0.687 (1.933)	
Gini first lag							0.056 (0.117)	0.368 (0.438)	0.190 (0.535)	-0.783 (1.172)	-2.677 (3.026)	-3.025 (2.855)	
Gini second lag								-0.722 (0.571)	-0.189 (0.656)		6.067 (6.001)	7.109 (5.360)	
Gini third lag								0.708 (0.447)	0.170 (0.603)		-2.406 (5.188)	-4.148 (5.028)	
Gini fourth lag								-0.362 (0.263)	0.115 (0.481)		-0.989 (1.986)	0.116 (3.610)	
Observations	2248	1811	1311	2239	1805	1309	2209	1778	1285	2209	1778	1285	
Countries in sample	143	134	105	142	133	104	141	132	103	141	132	103	
p-value poverty lags 5 to 8			[0.903]			[0.873]			[0.898]			[0.096]	
p-value poverty lags 5 to 8						[0.477]			[0.417]			[0.457]	
p-value poverty lags 5 to 8									[0.813]			[0.375]	

Note: This table presents the results of the effect of democracy on the poverty headcount ratio. The reported coefficient on democracy is multiplied by 100. In all specifications we control for a full set of country and year fixed effects. Columns 3, 6, 8 and 12 include 8 lags of poverty as controls but we report only the p-value of a joint significance test for lags 5 to 8 in the lower part of the table. Columns 10-12 include additional interaction terms between democracy and one lag (column 10), 4 lags (column 11) and 8 lags (column 12) of poverty GDP and inequality but coefficients are not shown. Standard errors are robust against heteroscedasticity and serial correlation at the country level are reported in parenthesis. *** p<0.01, **p<0.05, *p>0.1.

Including several lags allows us to control for the influence of past levels of poverty, GDP and inequality on the likeliness of democratizations. Under this assumption, Table 9 shows the main results using the TWFE estimator. In columns 1-3 we control for different lags of poverty; in columns 4-6 we additionally control for lags of GDP; in columns 7-9 we add controls for inequality and in columns 10-12 we add interaction terms between democracy and lags of poverty, GDP and inequality (the coefficients are not reported in Table 9 but are in Table C1 in Appendix C).

With these estimations considered, democracy has no significant effect on the poverty headcount rate.

Apart from this, in column 1 – where we control for the first lag – poverty is highly significant indicating that poverty rates are highly persistent over time indicated by the coefficient close to one. The first lag of poverty is also significant in columns 2 and 3 where we add more lags. In column 2, we include four lags to control the decrease in poverty rates in the years before democratization seen in Figure 10. Lags two to four are not significant. In column 3 we include eight lags. We do not report the coefficients but only the p-value of a joint significance test for lags five to eight which shows they are jointly not significant.

We include one lag of poverty and one lag of GDP in column 4, four lags of both in column 5 and 8 lags of both in column 6. This same pattern is repeated in columns 7-9 when we add inequality lags. Estimates show that past GDP lags are especially important factors influencing current poverty rates, as the first lag of GDP is significant in all regressions in columns 4 to 8 and the third lag is also significant in three out of four regressions included. On the other hand, inequality does not play an important role as the Gini coefficient is not significant in any of the specifications.

Because past poverty, GDP levels and inequality could each affect poverty on their own, but could also be reinforced by the level of institutions, we add interaction terms in columns 10-12. Specifically, in column 10 we add six interaction terms: the interactions of democracy with lagged poverty, with lagged GDP and with lagged inequality as well as the interaction of poverty with GDP, the interaction of poverty with inequality

and the interaction of GDP with inequality. In the same pattern as before, we add four lags of all terms in columns 11 (amounting to 24 interaction terms) and 8 lags of all terms in columns 12 (amounting to 48 interaction terms). Overall, they do not change the insignificance of the democracy coefficient. Additionally, coefficients of poverty and GDP lags that were significant before lose their significance; indicating that these interaction terms capture some of the dynamics that are otherwise captured by the simple lags. In Table 9 we do not report the coefficients themselves to save space, but we report them in Table C1 in Appendix C. It reveals that most interaction terms are not significant. The only significant interaction terms are that of democracy with the first lag of poverty and the first two lags of inequality, as well as the first and third lag of poverty and GDP. They show that past poverty rates and past inequality in current democracies do matter for current poverty rates but in current nondemocracies they do not. This confirms that they influence democratization itself. Furthermore, the significant interaction terms between poverty and GDP show that these two reinforce each other in reducing poverty, even though the magnitude is rather small.⁷⁵

Main Results Arellano and Bonds' GMM Estimator

The TWFE estimator of the dynamic panel model shown in Table 9 can suffer from Nickell Bias in the order of $1/T$, also called “small panel bias”, which results in the failure of strict exogeneity (Nickell, 1981). In the TWFE estimations shown in Table 9 each country is observed around 15 times which results in a potential bias of $1/15 = 6.66\%$ which is not neglectable. Therefore, we use Arellano and Bond's GMM estimator which deals with this bias (Arellano and Bond, 1991).

We also report the p-value of an AR2 test for serial correlation in the residuals for GMM estimations in Table 10. This is necessary because the GMM estimator uses first differences of the independent variables in the model as instruments and the absence of serial correlation between the residuals of these differences is required for consistent

⁷⁵Lastly, the coefficient of democracy becomes very large in size (e.g. column 12) and changes its sign in column 3. This might indicate that estimates become unstable because of high cross-correlation between variables included.

estimation. The p-value is larger than 0.1 throughout all estimations, indicating that we cannot reject the null of no serial correlation in the residuals. This indicates that our specification adequately controls for the past dynamics of poverty, GDP and inequality.

Lastly, one drawback of Arellano and Bonds' GMM estimator is that the number of instruments used increases with T^2 and therefore the number of instruments becomes fairly large and introduces as bias in the order of $1/N$ in GMM estimates. However, we argue that this bias is fairly small in our case since we have on average only 15 observations per country. The bias depends on the size of the beta coefficient and is only substantial for "large positive beta" coefficients. Hahn et al. (2007) perform Monte Carlo simulations to give a sense of the size of this bias. For a panel of ten time periods and 500 observations (which comes closest to our panel size), they report a bias of -3.15% for a (small) beta with size 0.1 and a -8.74% bias for a (large) beta with size 0.9. Our significant coefficients for the first poverty lag would be a "large beta" and would therefore carry a slightly larger bias than the ones for the first GDP lag which would be "small betas" and therefore carry a rather small bias. Furthermore, our sample size (T and N) are larger than the reference values cited above reported by Hahn et al. (2007) which means that the actual bias in our estimates should still be smaller than that (but not zero).⁷⁶

⁷⁶GMM methods use so-called internal instruments because they instrument with the lagged differences of the independent variable. Another approach would be to use a "external" instrument, i.e. to find an exogenous source of variation to instrument the democracy variable. The advantage is that it can deliver unbiased results even in presence of omitted variables that may affect poverty and democracy at the same time and it diminishes possible measurement in the measurement of democracy. Acemoglu et al. (2019) provide such an instrument based on regional waves of democratization. We used this instrument to for IV estimations, but the instrument turned out to be too weak, with KP F-statistics being way below 10. This might be because of the smaller sample we use starting in the 1980s while Acemoglu et al. (2019)'s sample starts in 1960 which means they can exploit 20 more years of regional democratization.

Table 10: Main Results for the Effect of Democratization on Poverty Rates (\$1.90 poverty line) Using the Arellano and Bond GMM-Estimator

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
Democracy	3.533 (3.393)	2.354 (3.144)	-1.625 (2.998)	1.813 (3.145)	1.153 (3.142)	-2.018 (3.377)	1.322 (3.429)	0.956 (3.153)	-1.091 (3.420)	3.671 (4.465)	63.428 (55.996)	-118.266 (62.398)	
Poverty first lag	0.834*** (0.030)	0.799*** (0.060)	0.826*** (0.061)	0.823*** (0.028)	0.787*** (0.060)	0.802*** (0.062)	0.804*** (0.030)	0.789*** (0.062)	0.794*** (0.061)	0.683* (0.319)	0.018 (1.194)	-0.239 (0.949)	
Poverty second lag		0.091 (0.086)	0.010 (0.068)		0.089 (0.086)	0.007 (0.067)		0.093 (0.088)	0.020 (0.066)		0.821 (1.823)	0.640 (1.469)	
Poverty third lag		-0.048 (0.078)	-0.004 (0.079)		-0.038 (0.079)	0.005 (0.078)		-0.048 (0.079)	-0.007 (0.074)		1.352 (1.399)	0.511 (1.377)	
Poverty fourth lag		0.027 (0.050)	0.036 (0.072)		0.021 (0.050)	0.042 (0.072)		0.028 (0.052)	0.048 (0.076)		-1.132 (0.607)	0.190 (1.215)	
GDP first lag				-0.225* (0.092)	-0.513** (0.195)	-0.822*** (0.230)	-0.273** (0.096)	-0.576** (0.206)	-0.791** (0.254)	-0.736 (0.598)		-2.331 (1.000)	-0.923 (1.853)
GDP second lag					0.012 (0.169)	0.046 (0.203)		0.054 (0.192)	-0.003 (0.263)		3.376 (2.676)	1.853 (2.244)	
GDP third lag					0.344* (0.169)	0.633** (0.245)		0.319 (0.186)	0.722** (0.265)		-0.982 (2.618)	-1.758 (2.286)	
GDP fourth lag					-0.088 (0.153)	-0.256 (0.232)		-0.037 (0.158)	-0.345 (0.246)		-0.525 (1.143)	0.943 (1.759)	
Gini first lag							0.344* (0.164)			-1.466 (1.366)	-5.103 (3.085)	-4.021 (2.673)	
Gini second lag								-0.489 (0.602)	-0.217 (0.641)		8.556 (5.950)	6.951 (5.110)	
Gini third lag								0.637 (0.427)	0.188 (0.589)		-3.128 (5.190)	-3.929 (4.643)	
Gini fourth lag								-0.403 (0.290)	0.087 (0.476)		-1.111 (2.412)	0.779 (3.359)	
AR2 test p-value	0.40	0.29	0.78	0.41	0.30	0.81	0.42	0.33	0.72	0.44	0.26	0.49	
Observations	2095	1673	1205	2087	1668	1204	2058	1642	1181	2058	1642	1181	
Countries in sample	137	125	101	136	124	101	135	123	100	135	123	100	
p-value poverty lags 5 to 8			[0.948]			[0.843]			[0.859]			[0.125]	
p-value poverty lags 5 to 8						[0.438]			[0.361]			[0.376]	
p-value poverty lags 5 to 8									[0.731]			[0.366]	

Note: This table presents the results of the effect of democracy on the poverty headcount ratio. The reported coefficient on democracy is multiplied by 100. In all specifications we control for a full set of country and year fixed effects. The AR2 row reports the p-value of a test of serial correlation in the residuals of the poverty series. Columns 3, 6, 8 and 12 include 8 lags of poverty as controls but we report only the p-value of a joint significance test for lags 5 to 8 in the lower part of the table. Columns 10-12 include additional interaction terms between democracy and one lag (column 10), 4 lags (column 11) and 8 lags (column 12) of poverty GDP and inequality but coefficients are not shown. Standard errors are robust against heteroscedasticity and serial correlation at the country level are reported in parenthesis. *** p<0.01, **p<0.05, *p>0.1.

Table 10 mirrors Table 9 but shows results for the GMM estimator. The main results stay the same: democracy has no significant impact on poverty reduction, but the first lags of poverty and GDP do significantly impact poverty rates. Estimates for poverty are slightly smaller and estimates for GDP are slightly larger in magnitude. The only difference is that the first lag of inequality is significant in regression of column 7, indicating that higher inequality leads to higher poverty rates, which is the expected result based on the literature. However, the significance of inequality vanishes in regressions of columns 8-12. Looking at the interaction terms in Table C1 in Appendix C shows broadly the same results as the TWFE estimations. Overall, the GMM estimations show that the Nickel bias is rather small in our case.

The significance of lags of growth and inequality is in line with the literature and the expected direction. Several authors report that higher GDP growth leads to lower poverty and higher inequality leads to higher poverty (Adams, 2004; Alvaredo and Gasparini, 2015; Fosu, 2017). However, in our estimations the influence of inequality is less pronounced, likely because we use a lagged specification rather than a contemporaneous one.

Since we specify our model in terms of log variables, we can interpret the coefficients in terms of percentage changes. The TWFE and GMM estimations estimate the first lag of poverty between 0.683 and 0.98, which means a one percent increase in the poverty rate in the previous year leads to 0.68-0.98% increase in poverty contemporaneously. This underlines the high persistence of poverty over time. Similarly, a one percent increase in GDP p.c. in the previous year decreases the poverty rate by 0.23 to 0.79 percent. The Gini coefficient is significant in only one GMM estimation (Table 10 column 7) which indicates that a one percent increase in inequality in the previous year leads to a 0.34 percent increase in contemporaneous poverty.

In summary, in dynamic panel estimates we do not find poverty rates to be significantly higher nor lower in democracies compared to non-democracies. This also means that democracies do not affect poverty indirectly by means of higher growth or more redistribution. Theory suggests that democracies could be captured, increase

market opportunities which in turn increase inequality and prevent poverty reduction, or that redistribution in democracies goes to the middle class, not towards the poor. Furthermore, regression estimators could be too restrictive in terms of the timing of the effect and assumed linearity to capture the effect properly.

Robustness Checks

We run a number of robustness checks that address different poverty lines (Table C2), different poverty measures (Table C2), democracy measures (Table C3), restrictions to subsamples (Table C4) and different lengths of panel spells (Table C5). Overall, they do not systematically differ from baseline results, therefore we place the respective tables in Appendix C and address the results here briefly.

Poverty lines

Descriptive statistics in Table 8 show that poverty rates differ quite largely when using higher or lower poverty lines. Using the main poverty line of \$1.90, the average poverty rate in the sample is 29% in non-democracies and 16% in democracies. At the higher poverty line of \$3.20, (i.e., everyone earning less than \$3.20 a day counts as poor) the average poverty rate is 49% in nondemocracies and 28% in democracies. Table C2 shows only the democracy coefficients of TWFE and GMM regression that mirror Tables 9 and 10. The upper part the table shows that results are somewhat insensitive to the used poverty line. The democracy dummy stays insignificant throughout. Thus, the results are not systematically different from the main results.

Poverty measures

Other poverty measures define poverty in a different way. The measure used in the main results simply counts the number of poor persons in a country. Alternative measures, such as the poverty gap, additionally take into account how poor these poor persons are. Descriptive statistics in Table 8 show that these also differ quite substantially compared to the main measure used. The poverty gap also differs substantially between democracies and nondemocracies, with the latter having almost twice as large poverty gaps.

The lower part Table C2 shows whether the main results are sensitive to that. Again, Table C2 shows only the democracy coefficients of TWFE and GMM regression that mirror Tables 9 and 10. The results support our main results in that democracy also does not affect poverty when measured by the poverty gap (at different poverty lines). Thus, the used poverty measure does also not systematically drive the main results.

Democracy measures

Although the democracy measure of Acemoglu et al. (2019) reduces measurement errors it does not completely eliminate possible errors. A dichotomous coding of a polity into democracy/non-democracy or democracy/dictatorship is associated with some amount of arbitrariness when making these coding decisions. Hence, the measurement error has the potential to be quite large which increases the uncertainty around the measured coefficients. We check whether results are sensitive to the measurement error of one specific democracy measure by re-estimating main results with the democracy dummies from (Boix et al. 2013, abbr. as BMR) and (Cheibub et al. 2010, abbr. as CGV)). Table C3 in Appendix C reports the coefficients for the democracy measure only of regressions corresponding to Table 9 and 10, i.e. controlling for different numbers lags of GDP, poverty and inequality as indicated in the lower part of the table. The upper part of the table shows TWFE and GMM estimations for the BMR measure and the lower part for the CGV measure. Only two regressions, FE and GMM regressions with the CGV measure and one lag of all three covariates, show a significant effect of democracy on poverty rates. Here, democracy would decrease poverty rates by 5.2-6.8%. All other specification supports the main results in finding no effect of democracy on poverty.

Subsamples

Adams (2004), Fosu (2010, 2017), and Kalwij and Verschoor (2007) find geographical heterogeneities in poverty elasticities. Thus, in robustness checks shown in Table C4, we restrict the sample to different country groupings compared to main results, which applies no sample restrictions at all. The table shows the regression corresponding to column 8 in Table 9, including 4 lags of poverty, GDP and inequality for the subsamples

of LDCs (column 1), for non-LDCs (column 2), low- and middle-income countries (LMICs, column 3) and high-income countries (HICs, columns 4) using the TWFE estimator. Column 5-8 repeat the same specification and sample restrictions using the GMM estimator.

Throughout columns 1 to 8, the reported democracy dummy is not significant, indicating that the effect of democracy on poverty does not depend on these subsamples. This agrees with the finding of Acemoglu et al. (2019) who find that the democracy effect (on growth) does not depend on income level.

Panel length

In the way we set up our dynamic panel model, democratization is assumed to affect poverty rates within the same year. However, the effect might not be that immediate but take some time – especially if poverty reduction works through changes in the income distribution or social insurance rather than direct transfers to the poor that affect poverty rates more quickly. To allow the effect some more time, we construct a 5-year panel instead of using annual data by using only every fifth observation in our annual dataset. We use this method instead of taking 5-year averages of all variables – as is often seen in the literature – to avoid serial correlation problems within those averages. Table C5 in Appendix C shows estimation results for the TWFE estimator in the upper part of the table, and GMM estimator in the lower part of the table. We include specifications with one and two lags of poverty, GDP and inequality, which mean in this case that we use observations from 5 years prior and 10 years prior. The results show that our main results are not driven by using an annual dataset. The coefficient for democracy is insignificant throughout. The persistence of poverty is similar to the annual dataset, while GDP seems less persistent in this setting.⁷⁷

Non-binary regime measures

Because we expect that some measurement error remains when using binary democ-

⁷⁷The GMM estimations in columns 6 and 8 have extremely low sample sizes and should therefore not be taken at face value. Furthermore, to allow even more time to let democratization affect poverty rates, we also ran specifications where we used the 5-year panel set-up and lagged all independent variables one period, i.e. democracy by one period, poverty, GDP and inequality by two and three periods. Results are not shown for the sake of brevity, but results do not differ from those shown in Table C5.

racy which might result in large standard errors, we explore whether non-binary regime indicators yield different results.

We show results in the same pattern as the main results but add regressions that control for lags of democracy. Since we do not use a binary measure anymore, we cannot rely on regime change shocks to identify changes in political institutions. Rather, these continuous measures show, by their nature, more gradual. Therefore, we need to control for past levels of institutions since they are likely to influence current levels of institutions and poverty rates. We report estimates for the Polity2 index in Table C6 (TWFE) and C7 (GMM), for the V-Dem polyarchy index in Table C8 (TWFE) and C9 (GMM) and for the SVM DI in Table C10 (TWFE) and C11 (GMM) in Appendix C.

Tables C6 and C7 paint a similar picture as the main results in Tables 9 and 10. Democracy as measured by the Polity2 index is not significant. Lags of poverty and GDP are significant influences on poverty rates, but lags of inequality are not. Furthermore, the added regression that controls for past levels of democracy suggest that poverty rates do not depend on past institutions. Tables C8 and C9, using the V-Dem polyarchy index as a democracy measure, largely confirm this; although, one specification in column 10 of Table C8 controlling for one lag of democracy, poverty, GDP and inequality suggests democracy reduces the poverty rates by about 22% percent. However, this is not robust to adding more lags or using the GMM estimator in Table C9. Tables C10 and C11, using the SVM DI as democracy measure also confirm this evidence. When controlling for 4 and 8 lags of democracy, FE results suggest that democracy has a significant effect on poverty rates. GMM estimates that control for 8 lags of democracy suggest the same. These significant coefficients suggest that democracy reduces poverty rates between 9.3 and 11%. However, this result is not robust for the other lag structures.

The results with continuous democracy measures are not robust enough to refute our main findings that the effect of democracy on poverty is not significant. Thus, the main results are not driven by using a dichotomous measure of democracy.

5.3.4 Treatment Effects Estimates

As a second major approach we follow Acemoglu et al. (2019), and calculate treatment effects of democratization. There are several advantages compared to regressions. First, it does not rely on the assumption of a linear relationship between poverty and democracy which therefore allows for more flexibility. Secondly, it allows for the possibility that countries revert back to nondemocracy over time. Thirdly, it does not suppose that the effect of transitioning to and away from democracy has the same size (as TWFE does). Most importantly, it does not restrict the time pattern of the effect. In TWFE estimates, the assumption is that the effect occurs within the same time period and the long-run effect is then extrapolated from this. Treatment effects estimates directly calculate long-run effects which allows for effects taking a longer time to show up in the data. This also makes sense economically. While some mechanisms might affect poverty rates immediately (public good provision, direct transfers through tax credits or programs such as food stamps), others might take a longer time and take effect only after several years (e.g. increased incomes due to higher human capital).⁷⁸

The estimation equation is given by

$$\beta^s = E(\Delta H_{it}^s(1) - H_{it}^s(0) | D_{it} = 1, D_{it-1} = 0),$$

where β^s is the causal effect of a transition of democracy at time t on the poverty headcount rate s years after the democratization, H_{it}^s is the change in the poverty rate between the year of democratization and s years afterwards. The equation expresses the change in the poverty rates between the year of democratization and s years afterwards between countries that democratized and countries that remained a non-democracy.

⁷⁸Gerring et al. (2012, 2021) argue that democracy is likely to have both short- and long-term effects on human development. For example, vaccinating infants has immediate societal effects (by reducing infant mortality) and some policies such as public good provision, direct cash transfers, tax credits or food programs are likely to affect poverty rates quickly. However, many policies that involve investments, e.g. in infrastructure, education or health, might only affect poverty rates indirectly and thus are likely to take a longer time to produce observable results. Support for this comes also from Gerring et al. (2005, 2021) who find evidence that the stock (rather than the level) of democracy increases GDP, that is to say, democratic experience plays an important role. Regression estimators would not capture these long-run effects, but the treatment effects used in this chapter do.

Although the calculation of treatment effects does not rely on a parametric process of poverty itself, it is necessary to specify a model to adjust for non-random selection into democracy. The potential issue is that countries that democratize might be different than countries that do not. This difference can be modeled by conditioning on past values of poverty, GDP and inequality, since they might influence the selection into democracy and the assumption that among non-democracies there are no other confounding factors that influence the likeliness to democratize and that are related to subsequent poverty reduction. This assumption is similar to the assumption for TWFE estimations and GMM estimations where we conditioned on past lags of poverty, GDP and inequality to remove the influence of these factors before democratization. The treatment effect estimations impose that either omitted characteristics that affect both the likelihood of democratizations and poverty (such as the decrease in poverty seen in Figure 10) are fully captured by including lags of poverty, or that any such omitted characteristics are common to all non-democracies at time $t-1$ (e.g. institutional features in non-democracies), so that the countries that democratize are not on a different trend relative to other non-democracies with similar levels of poverty in the recent past.

Following Acemoglu et al. (2019), we use two alternative approaches to estimate treatment effects (ATE). The first one uses linear regression with past levels of poverty, GDP and inequality (4 lags) and fixed effects for non-democracies to form a counterfactual for countries that to transition to democracy (Acemoglu et al. 2019; Jordà, 2005; Kline, 2011). Although the selection into democracy is modeled by a linear regression, the effect itself is not modeled linearly because it is calculated for each s individually. In other words, the regression adjustment estimator models the outcome (the poverty level) to account for non-random treatment assignment.

The second approach estimates the effect of democratizations on poverty by conditioning on the propensity score for transitioning to a democracy (Acemoglu et al. 2019; Angrist and Kuersteiner, 2011; Angrist et al. 2018), which is in turn modeled by a probit regression on fixed effects and 4 lags of poverty, GDP and inequality. The counterfactual is then estimated by weighting with the inverse propensity score (Hirano et al. 2003).

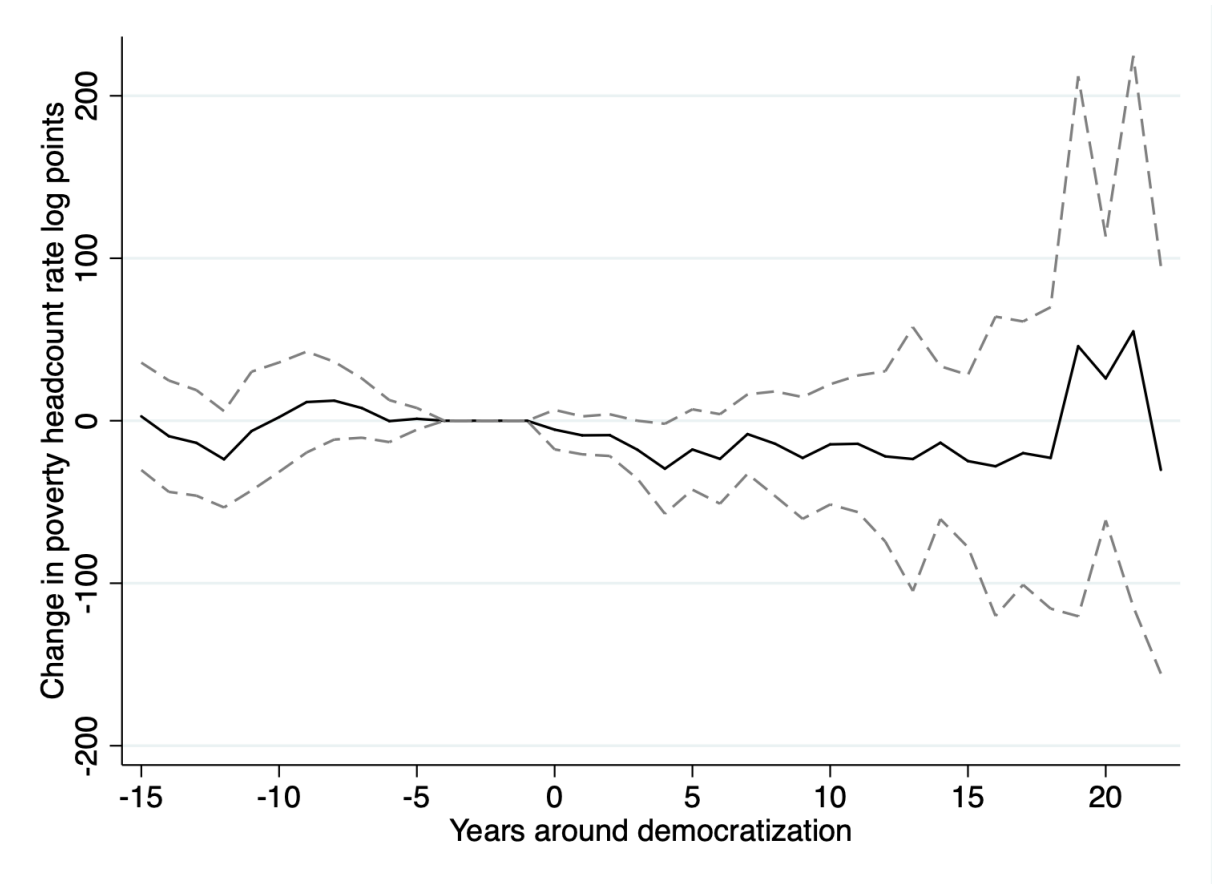
This weighting scheme gives higher weight to countries that are likely to democratize according to their propensity score but remained a non-democracy and had similar dynamics in poverty, GDP and inequality as democratizers to match the countries that democratized as closely as possible. Put differently, the inverse probability weighting estimator models the treatment to account for non-random treatment assignment.

Figure 11 shows the estimates of β^s using the regression adjustment and Figure 12 using the inverse probability weighting approach. The estimates for the years before democratization should not be affected by subsequent democratization and are included to check whether the specification can successfully control for the dynamics of poverty, GDP and inequality before democratization (e.g. the large decrease in poverty rates in the years before democratization visible in Figure 10 should not be visible here). The solid line shows the point estimates, and the dashed lines show the 95% confidence intervals based standard errors from 100 bootstrap replications clustered on the country level.

Figure 11 shows that before democratization there is no increase nor decrease in poverty rates; indicating that the estimation procedure successfully controls for the dynamics in poverty rates in the years before democratization. After democratization, point estimates indicate a lower poverty headcount rate in democracies of about 15% after 5 years, and about 17% after 10 and 15 years and an around 40% higher poverty rate after 20 years. However, 95% confidence intervals suggest this effect is not significant at any point after democratization. After 15 years confidence intervals become very large (both in Figures 11 and 12) which is in part due to smaller sample sizes for estimations with longer time frames.

Figure 12 shows estimates of β^s using the second approach (inverse probability weighting based on propensity scores). The downward trend of decreasing poverty rates is even more pronounced as in Figure 11. Poverty rates in democracies are round 25% lower after 5 years around 23% lower after 10 years, around 23% lower after 15 years. After that, points estimate of poverty rates decline steeply suggesting a very large decrease of poverty. However, as in Figure 11, 95% confidence intervals suggest

Figure 11: Estimate of the Treatment Effect of Democracy on the Poverty Headcount Rate Using a Regression Model to Estimate the Counterfactual

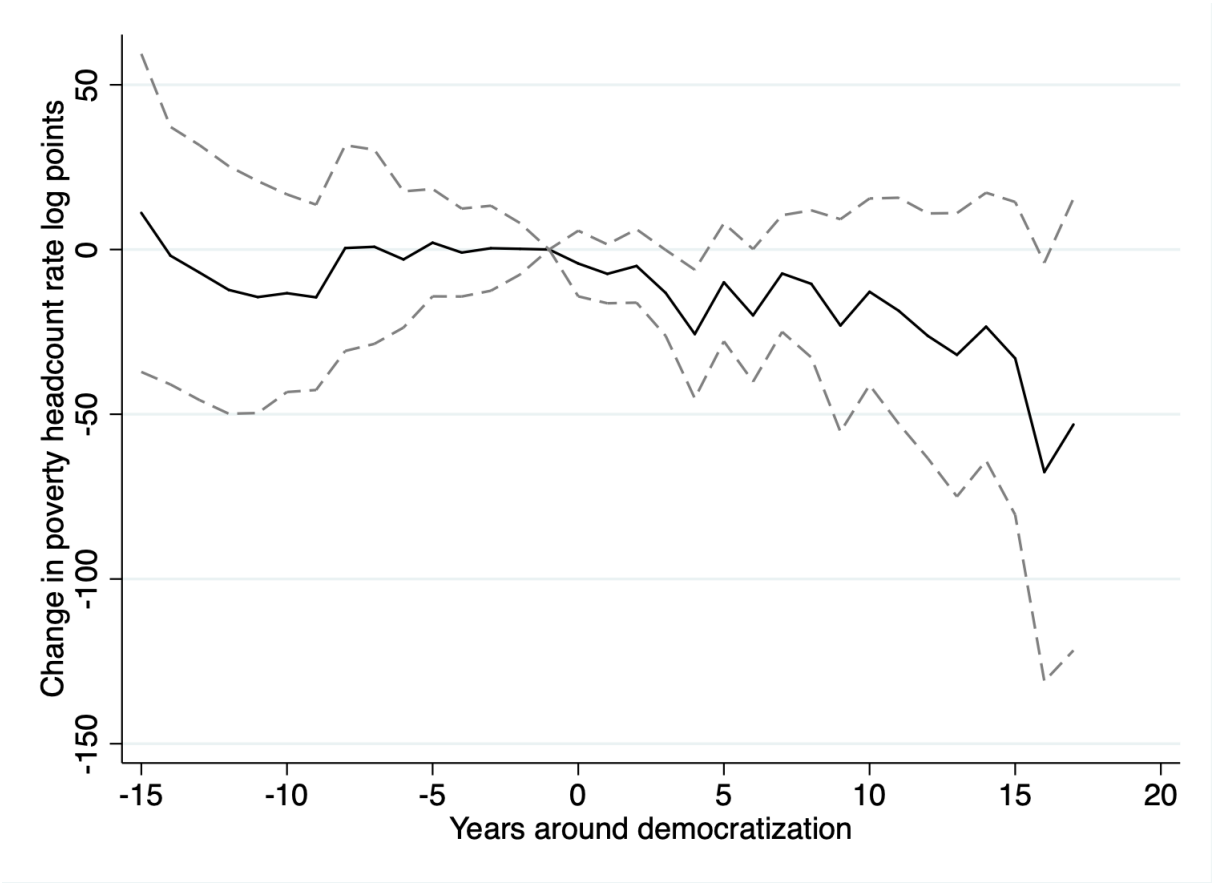


this effect is not significant throughout, especially after 15 years and later confidence intervals become very large.

Overall, this supports evidence from estimations of dynamic panels models shown above, that democratization does not have a significant impact on poverty reduction.

However, when we recalculate Figures 11 and 12 with 90% confidence intervals (see Figure C1 and C2 in Appendix C), we see some significant effects for the first five to ten years after democratization. This is supported by Table 11, where we report the average effects we see in Figures 11 and 12 in 5-year intervals (i.e., for the first 5 years after democratization, years 5-9 after democratization and so on) with their respective bootstrapped standard errors. These estimates propose that poverty rates are significantly lower at the 95% level in the 5 years after democratization using

Figure 12: Estimate of the Treatment Effect of Democracy on the Poverty Headcount Rate Using Inverse Propensity Score Weighting



the regression adjustment and significantly lower for up to 19 years using inverse probability weighting. These estimations suggest that poverty rates decrease between 11 and 14 percent in the first five years after democratization and around 14% in the second five-year interval, over 20 percent in years 10-14 and around 50% after about 20 years. However, these estimations are not very robust since the regression adjustment estimations do not confirm this. Nonetheless, we take this as a small suggestion that new democracies are likely to decrease poverty rates. There are several reasons why we are rather optimistic about this. First, these treatment effects estimates include countries where democracies might have reverted to a non-democracy at some point. While TWFE and GMM estimations capture a permanent transition effect, Kapstein and Converse (2008) have shown that they often reverse. Thus, we would consider

Table 11: Estimates of the Effect of Democratization on the Poverty Headcount Rate for Different Time Horizons

Average Effects from	(1) -5 to -1 years	(2) 0 to 4 years	(3) 5 to 9 years	(4) 10 to 14 years	(5) 15 to 19 years	(6) 20 to 22 years
Panel A: Regression Adjustment						
Average effect of democracy on log poverty	0.237 (0.680)	-14.135** (6.502)	-17.293 (13.847)	-17.551 (23.705)	-9.958 (36.947)	16.949 (47.443)
Panel B: Inverse Probability Weighting Adjustment						
Average effect of democracy on log poverty	0.352 (4.867)	-11.090** (4.985)	14.142* (10.238)	-22.598* (17.371)	-51.232* (28.341)	

Note: This table presents treatment effects estimates of democratization on the log poverty headcount rate (non-parametric) for different time horizons using regression adjustment and inverse probability weighting to account for selection into democracy (parametric). We report estimates of the average effect on the treated (ATET). Robust standard errors in parenthesis obtained via bootstrapping. ***p<0.01, **p<0.05, *p>0.1.

these estimations as “lower bounds” since they would likely be larger when countries transition permanently. In addition, there may be other drivers of poverty that are relevant in the long run.

Second, data availability is still a major constraint. The longer the time horizon, the less instances of democratic transitions are available to estimate β^s . For example, for 5 years after democratization, β^s is estimated with 23 instances of democratization but to calculate β^s for 15 years after transition, there are data from only 12 instances.⁷⁹ Naturally, the standard errors are large, especially for the estimations for longer time horizons, making identification of the effect more difficult.

5.4 Discussion

In this section we discuss our results in relation to the literature. The previous empirical literature has not yet analyzed this relationship between democratization and poverty rates directly; therefore, we can draw no direct comparison of our estimations to others. Our empirical results suggest that a mix of forces are at play. It is likely that many democracies redistribute income, decrease inequality, and enact pro-poor policies at least to some extent so that poverty rates decrease more compared to non-democracies. On the other hand, as anecdotal evidence suggests, many democracies are also plagued by corruption, the influence of rich elites, or the middle-class using their electoral power to redistribute incomes and wealth to themselves.

⁷⁹The data for the control is 426 observations for 5 years after and 172 15 years after. 10 years after democratization there are 17 transitions and 286 non-transitions. 20 years after there are 5 transitions and 92 non-transitions.

One might argue that the non-effect in TWFE estimates is due to reversal in democracy. Kapstein and Converse (2008) indicate that many democracies revert, which could also be a reason for a non-effect. When democratizations occur in a volatile situation, no matter if politically or economically, redistribution might not even be a viable policy option because the government is focused on stabilizing the situation. However, if this would be the case, we would see the insignificance in treatment effects estimates rather than TWFE estimates, since the former includes reversal in the sample and the latter does not. Therefore, we are confident that reversals do not drive our results.

Some part of the literature argues that democracy and human capital are highly correlated (Acemoglu et al. 2019; Doucouliagos and Ulubaşoğlu, 2008; Tavares and Wacziarg, 2001), i.e. that the effect of democracy is channeled through human capital. We argue that our results do not depend on human capital. Since we do not control for human capital, we leave the possibility open that it affects poverty rates indirectly.

Many authors highlight country heterogeneity in processes of democratization and institutional change (Bermeo, 2009; Bourguignon, 2004; Colagrossi et al. 2020) which can cause the non-significance in TWFE estimations. This means that although we might be able to identify shocks in political institutions (of electoral democracy) by changes in the democracy metric we use, simultaneous changes in other political institutions, economic institutions and society in general are heterogeneous in a way that may not allow for generalizations from political institutions towards poverty reduction. Similarly, Varshney (2005) argues that heterogeneity within dictatorships is high – they have the best and worst track records in poverty reduction while democracies lie somewhere in the middle. This underlines that heterogeneity in institutions might cause the non-effect. Bourguignon (2004, p. 17) argues that “social conflict and political stability are other channels which relate inequality to efficiency or growth.” This further points toward other institutional aspects (that are not in the scope of our analysis) playing a role for poverty reduction.

According to Acemoglu et al. (2015), democratization increases the share of GDP and population not in agriculture, and secondary school enrollment. This indicates

that democratization does trigger structural transformation in the economy. The effect of democratization on poverty still being absent indicates that this structural transformation does not trigger higher wages or redistribution towards the poor but is rather likely to put pressure on people with low wages. Their finding that democratization increases inequality in places with lower share of population in agriculture corroborates this. Thus, structural transformation may induce expansion of opportunities that counteract any redistribution.

Acemoglu et al. (2015) investigate several further channels through which poverty rates could be affected indirectly. They find that democratization increases government taxation and revenue as fraction of GDP, confirming the previous literature. This points towards a lack of changes redistribution and pro-poor policies and would rather suggest that the increased government revenue funds public goods or other programs that benefit the middle-class or richer segment of society rather than the poorer part. Additionally, in support of our findings, Acemoglu et al. (2015) find no effect of democratization on inequality (while the previous literature is ambiguous). However, they do find some evidence that democratization in the presence of powerful land-elites increases inequality, and that democracy redistributes from the rich and the poor to the middle. That is, the effect on inequality may depend on the relative position of the middle class relative to the poor.

This is rather strong evidence that rules out one channel through which democratization can impact poverty rates (namely changes in the income distribution) which might be a possible reason for our results. Dorsch and Maarek (2019) qualify this non-result of inequality on democratization. They show that the inequality effect of democratization is dependent on the level of inequality before the transition. Non-democracies with high level of inequality tend to decrease inequality afterwards while non-democracies with low levels of inequality tend to increase inequality. Thus, democracies tend to

take the middle ground and are not unequivocally pro-poor.⁸⁰ This supports the view, that democracies do not unconditionally redistribute to the poor such that poverty rates decrease. Perhaps, as Bermeo (2009, p. 26) puts it: “democratization is not a redistribution game at all – that is, it is not about ‘whether the median voter can soak the rich’ but rather ‘about whether all voters can obtain impartial protections from the state against violations of contracts and property rights.’ ”

Lastly, Acemoglu et al. (2015) survey of the literature finds positive effects of democratization on education expenditure and enrollment rates and health outcomes in terms of higher life expectancy, calories consumed and less infant mortality – although much of literature does not properly account for endogeneity as argued by Acemoglu et al. (2015) or Ross (2006). Notwithstanding, this and higher government revenues (as argued above) are evidently not enough to effectively reduce poverty in democracies. The literature suggests that redistribution in democracy seems too weak to counter possible inequality increasing effects and reduce poverty rates more than in non-democracies. However, these results rely on estimates that require a rather immediate change in outcomes after the events of democratization. Thus, we want to point out again that our treatment effects estimates, which allow for medium- and long-run effects; suggest that the democracies are not completely ineffective in tackling poverty (in the medium-run). They also suggest that long-run effects are difficult to estimate with the given data.

Although other authors find positive effects of democratization on education expenditure, school enrollment rates, higher life expectancy, infant mortality as well as tax revenue, this does not seem to be enough to unequivocally reduce poverty in democra-

⁸⁰They take this as evidence that democratization does not lead to fiscal redistribution as suggested by theory. They show that democratization leads to different kinds of structural reforms, depending on the initial degree of inequality. In high inequality countries, democratization leads to an increase in the states’ fiscal capacity and provision of pro-poor public goods. In low inequality countries, democratization leads to economic liberalizations and opening of the economy, which might lead to increases in inequality and enrichment of upper segments of society (see Dorsch and Maarek, 2019, p. 3). Based on their reasoning, we also estimated a similar specification (not shown) that include the interaction terms of democracy and inequality, and democracy and poverty to account for possible non-linearities (dependence on the initial levels) in the relationship. We were not able to reproduce their main findings that democracy and inequality are significant after including their interaction nor when replacing inequality by poverty in this relationship, accounting for non-linearities in poverty reduction.

cies. The most plausible explanation is that democratization does not lead to sufficient changes in income redistribution and the implementation of pro-poor policies.

5.5 Conclusion

We examined the question of interrelatedness between regime types in the form of democracy and non-democracy and poverty reduction. The relevance of this question stems from the importance of poverty reduction for the global development agenda as embodied by the SDGs as well as some discontent in recent years with the liberal international order and the democratic principles it is based on. Specifically, we wanted to find out whether countries with democratic institutions are better at poverty reduction than non-democracies. This research is especially valuable against the background of poverty reduction being an important goal of the development agenda, foreign aid often being conditioned on democratic intuitions in the form of good governance, and the diminishing public resistance to let democratic norms and practices slide.

Our contribution to the literature is that we are the first who analyze the dependence of poverty reduction on different types of political institutions (democratic and non-democratic ones) and support this with rigorous empirical work to estimate unbiased correlations and causal effects.

Our theoretical framework relates democratizations to considerations on poverty, wealth redistribution and poverty. Overall, theory is ambiguous about the impact on poverty. Positive impacts might occur when democratic institutions encourage redistribution to the lower part of the income distribution, lift barriers for economic activities for poor people and allow broad society access to institutions and to the mechanisms that determine these institutions. Negative impacts might occur when institutions get captured by the elite or be dysfunctional in way that prevents pro-poor policies and redistribution; Democratization increases inequality and poverty due to increased market opportunities that put pressure on wages; incomes might be redistributed from the poor to middle class; or social and ethnic cleavages might prevent coalescing behind pro-poor policies as a political goal.

To address our research question, we use a large dataset covers years from 1980 to 2018 for around 140 countries. We use a democracy measure from Acemoglu et al. (2019) that proxies institutions connected to electoral democracy. Our empirical strategy extends and refines the previous literature by looking directly at poverty rates and not at other proxies of poverty such as health outcomes, as well as by using a mixture of estimation methods to deal with endogeneity issues, each of them with different advantages and disadvantages, that complement rather than oppose each other. First, we estimate a dynamic panel model using the TWFE estimator to account for unobserved heterogeneity and GMM estimations to correct of Nickel bias. We control for selection into democracy by including lags of poverty, GDP and inequality. Secondly, we estimate non-parametric treatment effects. As opposed to TWFE and GMM they allow more flexibility in the timing of when democratization affects poverty rates and does not impose a linearity in the effect. Treatment effects estimations can be deemed causal under some plausible assumptions while the goal of TWFE and GMM estimations is to obtain unbiased correlations.

Our TWFE and GMM results show that democratization does not significantly impact poverty rates. They show an insignificant impact of democratization throughout a variety of specifications. In robustness checks, which support the main result, we address (i) the use of other poverty lines and poverty measures, (ii) the use of other democracy measures, (iii) possible dependence on subsamples, (iv) timing of the effect by using a 5-year panel structure instead of an annual structure. Estimating causal effects with treatment effects estimations we find democratization reduces poverty rates by about 11-14% in the first five years after democratization on a 95% significance level and about 20% 10-14 years after democratization on a 90% significance level. Confidence bands get extremely wide after this due to limited data restrictions in time dimension. Although our regression estimates are insignificant we argue that there likely is an effect of democracy on poverty reduction as the treatments effects estimates suggest, which is the superior estimator because of its higher flexibility and allowing the estimation of causal effects.

Although our results concerning the effect of electoral democracy poverty are mixed, we are still convinced that democratic political institutions matter, and societies are better off when the political system is more inclusive and vulnerable people in particular get heard. The fact that our results do not find clear support for this suggest that this is too often not the case, even in democracies.

Future research could firstly look at more specific institutions and their impact on poverty (i.e., whether specifically redistributive or pro-poor institutions impact poverty in a meaningful way), and secondly, how these sorts of institutions that encourage redistribution and pro-poor policies emerge.

6 The Poverty Effect of Democratization: Disaggregating Democratic Institutions

This chapter is based on a working paper titled ‘The Poverty Effect of Democratization: Disaggregating Democratic Institutions’ (*JERP Working Paper 2021-018*)⁸¹

6.1 Introduction

Democracy is often portrayed as a desirable political system because it is associated not only with more individual freedoms and enjoyed liberties, but also with higher living standards and less poverty. Thus, it is important to understand the mechanism through which democracy contributes to the welfare of individuals (if it does at all). However, there is still only a rudimentary understanding of how democratic institutions contribute to human welfare and poverty. Economically, this relates to the question of whether stronger institutions are associated with better economic and welfare outcomes. The research in this chapter analyzes the effect of democratization on human welfare in terms of the poverty rate (fraction of the population living below \$1.90). Although SDG No. 1 explicitly targets poverty rates (United Nations, 2015), which makes it directly relevant for policy-makers, it has received only minor attention in the academic literature.

The research in this paper is connected to recent research presented in the previous chapter by Dörffel and Freytag (2021) who look at the effect of democratization on poverty rates and find that democracy leads to a reduction in poverty rates after about 10-15 years.⁸² In this chapter, I build on Dörffel and Freytag (2021) but disaggregate institutional features into a finer set of mid- and low-level institutions to see which democratic institutions are associated the most with poverty reduction. To illustrate

⁸¹In this chapter “I” is used since the research presented has been conducted without co-authors. See also the Statement of Co-Authorship on page vi

⁸²Other effects of democratization include higher levels of education (in terms of higher education expenditure and enrollment rates) better health outcomes, higher government taxation and revenue, structural transformation (share of GDP and population not in agriculture) and redistribution towards the middle (Acemoglu et al. 2015). Doucouliagos and Ulubaşoğlu (2008) and Tavares and Wacziarg (2001) find positive evidence for the effects of democratization on growth being channeled mostly through increasing human capital.

this, Dörffel and Freytag (2021) and most other papers in the literature use measures that capture high-level institutions (namely democracy). For example, Gerring et al. (2005) and Ross (2006) use the Polity2 index from the Polity IV dataset, which aggregates many different aspects of democratic institutions into one index; Acemoglu et al. (2019) and Dörffel and Freytag (2021) use a dichotomous democracy dummy (based on the Polity2 index and the Freedom House index) that captures the electoral aspect of democracy and civil liberties. However, using these aggregated indices limits the insights to be gained because they are quite general rather than specific. Thus, to broaden our understanding, I analyze mid- and low-level democratic institutions and analyze which institutional aspects are associated with changes in poverty rates. The mid-level institutions stem from different theories of democracy and are institutions that are related to electoral, liberal, participatory, deliberative and egalitarian democracy (Coppedge et al. 2016; Cunningham, 2002; Held, 2006). The low-level institutions dissect each of these five mid-level institutions into even more specific institutional aspects. For example, according to democracy theory, electoral democracy can be divided into institutional aspects of free and fair elections without fraud or systematic irregularities, freedom of association, freedom of expression, suffrage and the whether chief executive and the legislature is appointed through elections. Data from the V-Dem project delivers direct measurements of these mid- and low-level institutions which allows to investigate this empirically.

Section 6.2 of the chapter puts the topic in perspective to the literature, explains theories of democratic institutions, mechanisms for poverty reduction and develops hypotheses. Section 6.3 introduces the method and data. Section 6.4 presents and discusses the results and section 6.5 concludes.

6.2 Democracy Theory and Mechanisms for Poverty Reduction

6.2.1 Related Literature

As part of the literature that researches the effects of institutions, democratization is an important and well researched topic. A large body of literature exists on the effects

of democratizations.⁸³ The link between democracy and growth/GDP has received the most attention (Doucouliagos and Ulubaşoğlu, 2008; Gerring et al. 2005; Przeworski et al. 1995, 2000; Rodrik and Wacziarg, 2005 and more recently Acemoglu et al. 2019 and Colagrossi et al. 2020) with mixed results but often with weak empirical strategies that are unlikely to capture causal effects, though there are some exceptions.

Other strands of the literature look at effects other than on GDP/growth. There is a long standing critique of GDP as a meaningful measure for welfare and human development, especially for the poorer parts of societies. Many studies look more directly at outcomes that are associated with human well-being or human development. This literature finds democracy to be associated with less infant mortality (Gerring et al. 2021; Ross, 2006), higher life expectancy and more calories consumed, higher school enrollment rates, higher education spending (see Acemoglu et al. 2015; Besley and Kudamatsu, 2006; Blaydes and Kayser, 2011; Brown and Hunter, 1999; Deacon, 2009; Gerring et al. 2012, 2021; Navia and Zweifel, 2003; Przeworski et al. 2000; Ross, 2006; Stasavage, 2005). Similar to the literature on GDP, not all of these studies find positive effects of democracy (e.g. Halleröd et al. 2013; Holmberg and Rothstein, 2011; Miller, 2015; Norris, 2012; Ross, 2006) and many have problems regarding clear causal identification. Besides this, poverty rates, capturing the fraction of the population living below the poverty line, have not received much attention as an outcome variable in this literature. This is in spite of being the target of SDG No. 1 which makes poverty rates a likely policy target, and poverty are an important policy issue for citizens (Bermeo, 2009). As an illustration, Gerring et al. (2021) take an extensive look at the connection between electoral democracy and human development (which they capture by infant mortality rates) and do not even mention poverty rates as possible candidate.

6.2.2 Theories of Democracy

Table 12 gives an overview over the theories of mid- and low institutions and specifically which low-level institutions make up the mid-level institutions of electoral, liberal,

⁸³A small selection is: Acemoglu and Robinson (2006), Bernhard et al. (2001), Boix (2003), Haggard and Kaufman (2020), Miller (2016), Ross (2006), Svobik (2008), and Teorell (2010).

participatory, deliberative, and egalitarian democracy. Table D2 in Appendix D additionally includes a description of what each low-level institutional feature captures.⁸⁴

Below, I briefly describe each democracy theory.

Table 12: Overview Over Disaggregation of Democracy into Mid- and Low-Level Institutions

Mid-level institution	Low-level institutions
Electoral Democracy	Clean elections (index) Elected officials (index) Freedom of association Freedom of Expression and Alternative Sources of Information index Share of population with suffrage
Liberal democracy	Equality before the law and individual liberties (index) Judicial constraints on the executive (index) Legislative constraints on the executive (index)
Participatory democracy	Civil society participation (index) Local government (index) Regional government (index) Direct popular vote (index)
Deliberative Democracy	Reasoned justification Common good Respect counterarguments Range of consultation Engaged society
Egalitarian Democracy	Equal protection (index) Equal access (index) Equal distribution of resources (index)

Note: Grouping roughly based on (Coppedge et al. 2016); Variable descriptions from V-Dem 11.1 Handbook (Coppedge et al. 2021).

Electoral Democracy

Electoral democracy is the concept that is most fundamentally and most widely associated with democracy. It evolves around citizens electing their leaders. According to Dahl (1989)’s formulation of this democracy theory, elections have to be free, fair and held regularly; citizens must have freedom of expression and access to multiple sources of information, as well as freedom of association and universal suffrage (Coppedge et

⁸⁴Note that many low-level institutions are themselves aggregated indices from even finer data. However, analyzing an even more disaggregated level of institutions is beyond the scope of this chapter.

al. 2016, p. 582).

Liberal Democracy

The theory of liberal democracy evolves around the idea that elections alone are not sufficient but that the state must guarantee extensive citizen rights and civil liberties such that the individual is protected against arbitrary repression from the state and other citizens to make those who govern pursue policies in the interest of all citizens. This is associated with a strong rule of law, checks and balances that limit executive power as well as constitutionally protected civil liberties (Coppedge et al. 2016, p. 582; Cunningham, 2002, pp. 27-29; Held, 2006, pp. 44, 48).

Participatory Democracy

The theory of participatory democracy emphasizes direct and active participation by citizens as opposed to delegating the decision-making to representatives. Important here is participation in the political process by civil society organizations and elements of direct decision making by direct democracy, developing political efficacy and a natural concern for collective problems to make citizen able to participate in the governing process (Coppedge et al. 2016, p. 583; Cunningham, 2002, p. 123; Held, 2006, p. 253).

Deliberative Democracy

The concept of deliberative democracy evolves around the ideal that political decisions are reached by free and reasoned dialogue and consent among citizens. To reach a decision to a collective problem, the proposed solution must be justifiable to the citizenry. Decision and institutions are legitimate if they are the outcome of process where those involved in the process could participate free and equally in discursive will formation (Coppedge et al. 2016, p. 583; Cunningham, 2002, p. 163; Held, 2006, p. 253).

Egalitarian Democracy

Egalitarian democracy focuses on how distributional aspects influence political decisions. When material and immaterial inequalities influence the exercise of power on political decisions, equalizing it improves political decisions. Inequalities can be based on class, ethnicity, sexual orientation, or social groups. Equality of resources,

education and health are major aspects that influence equal exercise of political power (Coppedge et al. 2016, p. 583; Cunningham, 2002, p. 95f.; Sigman and Lindberg, 2019).

6.2.3 Mechanisms for Poverty Reduction, Counterarguments and Hypotheses

In this subsection I briefly explain why the improvement in certain democratic institutions can be expected to reduce poverty, and why there might be a reason be skeptical.

Electoral Democracy

As argued in section 5.2.2, based on the model by Meltzer and Richard (1981) more pro-poor policies after an extension of voting rights are predicted. Furthermore, the electoral process that has not existed before democratization should enable poor people to directly punish governments that do not produce public goods and redistribute to them (Sen, 1981, cited by Ross, 2006).

Many authors argue that electoral institutions, because elections induce accountability, lead to governments producing more public goods and to redistribute more (Deacon, 2003; Lake and Baum, 2001; McGuire and Olson, 1996; Niskanen, 1997; Ross, 2006). Furthermore, freedom of the press allows better information flow in democracies. This makes it easier for political decision-makers to be informed about the needs of the poor and this will lead to more pro-poor policies (Sen, 1981, cited by Ross, 2006).

Gerring et al. (2021) argue that two features of electoral democracy affect human development and should thus affect poverty rates.⁸⁵ These two elements are the selection of leaders and under which incentives they operate. They argue first that leaders who put a relatively higher weight on human development are more likely to succeed in a democratic regime than in an autocratic one. Second, accountability enforced by regular elections will lead to leaders orienting their policies towards their constituencies once they are in office. Then, if the electorate is interested in reducing poverty, leaders will implement redistributive policies or provide public goods to that end.

One core element of electoral democracy is freedom of association, which explicitly includes the freedom to form and organize political parties. Naturally, parties should

⁸⁵They explicitly theorize that the other institutional features therefore have a weaker connection to human development.

exert less influence on policies in autocracies than in democracies. Bizzarro et al. (2018) argue that the strength of political parties is connected to policy outcomes. Stronger parties constrain leaders from implementing predatory policies and they are more likely to favor public goods and services that benefit the larger parts of society (e.g. health and education). Thus, democratization should lead to stronger parties which then put a higher weight on poverty reduction.

H1: As outlined, theory predicts positive effects are likely to come from institutions of electoral democracy (because elections shift political power relatively towards the poorer part of society)

Liberal and Egalitarian Democracy

Liberal democracy highlights equal protection against repression from powerful actors. As argued in more detail section 5.2.2, without this protection, barriers to mobility for the poorer part of society working in the agricultural sector might keep wages down and thus exacerbate inequality and poverty. Lifting these barriers (after democratization) would lead to reduced poverty (Acemoglu et al. 2015, pp. 1888, 1893).

Olson (1993) argues that the protection of private property rights (rule of law) leads to higher economic output which in turn can result in poverty reduction. Bermeo (2009) argues that foreign aid is often conditional on good governance or institutional change, which can be linked to the concept of liberal democracy.⁸⁶ Hence, after a transition to democracy, countries are likely to receive more funds through foreign aid which can be used to directly reduce poverty, or to be invested in public goods that indirectly reduce poverty.

On the other hand, a more egalitarian society may lead to an alleviation of poverty in two ways: one is through material distribution and second through immaterial distribution. A more equal material distribution (of incomes and wealth to acquire material possessions) has a mechanical effect on poverty rates because a more equal

⁸⁶There is no universal definition of good governance, but it can be linked to the absence of corruption, rule of law (and also to democracy and government efficiency) (Rothstein, 2012). Hence, it can be linked to the concept of liberal democracy described above and its ideals of rule of law and protection of rights and liberties.

distribution means fewer individuals under the poverty line (Bourguignon, 2004). Reducing immaterial inequalities based on ethnicity, sexual orientation, or social groups increases the relative power of these marginalized groups of people in the political process. When policies are responsive to his relative shift in power, this should lead to less poverty as marginalization is also often associated with poverty.

However, there is also reason to be skeptical about whether democratization leads to better institutions. Most of these arguments developed in the literature rely on some variation of powerful actors being able to side-step rules or set rules in their favor. This class of arguments is connected to liberal democracy (weak rule of law) but also to idea of egalitarian democracy because of the unequal power distribution. They have been extensively discussed in section 5.2.2 and will therefore be addressed only briefly in this chapter.

Acemoglu and Robinson (2008) argue that powerful actors, who favor less redistribution, can capture democracy. The wealthier part of society can make investments to keep their *de facto* power after democratization even if they might lose their *de jure* powers (Acemoglu et al. 2015, p. 1895). Similarly, institutional sclerosis can limit the scope for redistribution (Olson, 1982) and the costs of redistribution can be increased by a threat of capital flight (Acemoglu et al. 2015, p. 1897). Furthermore, when old elites can influence the architecture of the democracy during the transition process towards democracy, the new democracy might be dysfunctional or captured in the worst case (Acemoglu et al. 2015, p. 1896).

Based on “Director’s law” it is argued that democratization mostly empowers the middle-class which uses its power to redistribute resources towards them rather than to the poorer parts (Acemoglu et al. 2015, p. 1898). Consequently, this would decrease the likelihood of poverty reduction.

Another argument proposes that increasing market opportunities after democratization leads to lower wages in the low-skilled (poorer) part of society (Acemoglu et al. 2015, p. 1897). Higher income inequality in the lower part of the distribution would then lead to an increase in the poverty rate (*ceteris paribus*).

A further argument emphasizes social cleavages. Economic classes or ethnic cleavages between groups in society might be aligned in a way that voting blocs for redistributive policies are split because they are often split by ethnic divisions which reduces the likelihood for redistributive policies (Acemoglu et al. 2015, p. 1895; Varshney, 2005).

H2: Theory predicts negative effects (increasing poverty) are attached to weak of liberal and egalitarian democratic institutions (because de facto powerful actors bend the rules in their favor). Reversing the argument, stronger liberal and egalitarian institutions should decrease poverty.

Deliberative and Participatory Democracy

For the remaining mid-level democracy concepts of deliberative and participatory democracy, the literature is less extensive. Regarding participatory democracy, Tavares and Wacziarg (2001) argue that democracies give more weight to interests of labor through unions which leads to higher wages and in turn should lead to lower poverty. Hence, redistribution to poorer people can be a result of civil society organizations, such as unions, having more influence in the political process. Furthermore, Gerring et al. (2021) argue that one channel of democratization affects human development through the empowerment of citizens and civic associations where the mechanisms are free media, civil society, and popular participation in politics. However, they are overall skeptical towards this channel and argue that the main effect relates to electoral institutions (as argued above).

Lastly, a mechanism in which stronger deliberative democratic institutions leads to poverty reduction seems quite natural: In a (stronger) deliberative democracy, political decision-makers have consultations with a larger range of (groups of) citizens, do publicly deliberate policy proposals with the citizens and must be able to justify them. Assuming that reducing poverty is a policy issue for constituents (which it is, as Bermeo (2009) shows) deliberation should lead to policy proposals incorporating the requests for poverty reduction.

H3: Although theoretically less clear, it is likely that better deliberative and participatory democratic institutions are associated with poverty reduction.

Overall, when looking at democracy as a high-level concept, there is no clear hypothesis about whether democratization leads to lower or higher poverty because theory predicts some positive and some negative consequences which can, in practice, cancel each other out. But when disaggregating this high-level concept into mid-level democratic institutions, theory has some observations to offer. This also illustrates the value the approach taken in this chapter analyzing disaggregated mid- and low-level institutional aspects.

6.3 Method and Data

6.3.1 Method

The empirical approach follows Acemoglu et al. (2019) and Dörffel and Freytag (2021) in using semi-parametric treatment effects estimations to causally identify the effect of democratization on poverty rates. In addition, I use data on the quality of mid- and low-level institutions from the V-Dem project (Coppedge et al. 2021) to split the sample of democratizers into two groups, one with above median institutional quality and one with below median institutional quality. This allows an assessment of whether the quality of institutions at the time of democratization affects subsequent poverty reduction paths.

As in chapter 5, the effect is estimated via the equation $\beta^s = E(\Delta H_{it}^s(1) - H_{it}^s(0) | D_{it} = 1, D_{it-1} = 0)$, where β^s is the causal effect of a transition to democracy at time t on the poverty headcount rate s years after the democratization, ΔH_{it}^s is the change in the poverty rate between the year of democratization and s years afterwards. Thus, the equation captures the difference between the change in the poverty rates between the year of democratization and s years afterwards between countries that democratized and countries that remained a non-democracy. In other words, it calculates the **ATET** for democratization.

The advantages of treatment effects estimates, the necessary assumptions and their plausibility have already been discussed in section 5.3.4. Thus, they will only briefly reviewed in this chapter.

Using treatment effects estimations rather than a more traditional regression-based approach has several advantages. First, it does not rely on the assumption of a linear relationship, allowing flexibility in the functional form which makes it robust to misspecification of the data-generating process (Jordà, 2005). Second, it allows for the possibility that countries reverse back to nondemocracy over time and it does not impose that the effect of transitioning to and away from democracy has the same size. Most importantly, this approach does not restrict the time pattern of the effect, i.e., it does not assume that the effect occurs within the one period as in regression-based estimates.

Calculating treatment effects involves forming a counterfactual of non-democratizers for comparison. Following Jordà (2005), this involves specificizing a regression model to adjust for non-random selection into democratization (the estimation of the effect itself is still non-parametric). Like Acemoglu et al. (2019) and Dörffel and Freytag (2021), I use a linear regression adjustment with past levels of poverty, GDP and inequality (all 4 lags) and fixed effects to form a counterfactual for countries that do not transition to democracy to estimate the ATET (Acemoglu et al. 2019; Jordà, 2005; Kline, 2011). Estimating counterfactuals in this way is consistent if the model for selection into democracy is based on fixed effects, and lags of GDP, poverty and inequality is correct (Kline, 2011).

6.3.2 Data and Summary Statistics

Data to identify democratization data are taken from Acemoglu et al. (2019) and are based on the Polity2 index from Polity IV (Marshall et al. 2014) and the Freedom House regime classification (capture electoral institutions and civil liberties) and other sources (Boix et al. 2013; Cheibub et al. 2010) in case the main sources are missing. For poverty data I use the poverty headcount rate, i.e. the fraction of the population living under \$1.90 per day, from the WDI (World Bank, 2016). Inequality data (the Gini coefficient) also comes from the WDI. The dataset contains 40 cases of democratization for which

there is sufficient poverty data.⁸⁷ Because data on poverty and inequality are sparse, (i) they are interpolated to fill gaps and (ii) the sample contains a more recent set of democratizations because poverty rates are only widely available after 1980.⁸⁸

Lastly, data on mid- and low-level institutions comes from the V-Dem dataset (Coppedge et al. 2021). The theoretical features of democratic institutions are disaggregated into over 400 questions which are then coded by experts for each country and year (each country year observation is coded by multiple and different experts). Their answers are aggregated by Bayesian item response modeling techniques into the mid- and low-level indices to account for uncertainty in the experts answers (Coppedge et al. 2016).

For liberal, participatory, deliberative and egalitarian institutions, the respective indices are directly available from the dataset and are simple averages of their respective lower-level institutional features. For electoral institutions, I calculate this simple averaged index. These simple-averaged indices assume perfect substitutability among their lower-level features. For example, a country that has a very low score on clean elections but a high score for freedom of expression can receive the same index value as country with well-functioning elections but no freedom of expression. However, Gerring et al. (2021) make the case that these institutional features complement each other (have interaction effects), i.e. countries should only receive a high value for electoral democracy if they have both clean elections and freedom of expression. Using a multiplicative version of the electoral democracy index they find robust evidence for a positive effect on human development (infant mortality rates), which they do not find for simple averaged indices. Hence, in addition to the five simple averaged mid-level institutional indices that come with the V-Dem dataset, I calculate their multiplicative counterparts.

Table 13 shows the average poverty rates among countries split by their median value of each institutional feature, as well as the minimum, maximum and median

⁸⁷Table D1 in Appendix D lists all 40 cases.

⁸⁸See section 5.3.2 for more details.

Table 13: Poverty Rates at Democratic Transition and Index Values for Mid- and Low-Level Institutions

	Mean poverty rate at transition			Index values		
	Upper half	Lower half	Difference	Min	Max	Median
Mid-level Institutions						
Electoral democracy (additive)	30.91	32.63	-1.72	0.43	0.91	0.73
Electoral democracy (multipl.)	31.05	32.57	-1.52	0.00	0.60	0.12
Liberal (additive)	29.51	34.28	-4.77	0.25	0.82	0.51
Liberal (multiplicative)	34.39	29.15	5.24	0.01	0.56	0.16
Participation (additive)	27.21	36.33	-9.12	0.26	0.65	0.46
Participation (multiplicative)	30.55	32.99	-2.44	0.00	0.08	0.002
Deliberation (additive)	26.61	36.93	-10.32	0.16	0.62	0.27
Deliberation (multiplicative)	30.06	33.48	-3.42	0.00	0.16	0.03
Equalitarian (additive)	25.79	37.15	-11.36	0.23	0.78	0.57
Equalitarian (multiplicative)	27.86	35.28	-7.42	0.01	0.50	0.17
Low-level Institutions						
Freedom of Expr.	38.51	25.03	13.48	0.33	0.91	0.69
Freedom of Ass.	29.98	33.56	-3.58	0.31	0.86	0.67
Suffrage	33.64	9.90	23.74	0.80	1.00	1.00
Free & Fair Elections	30.39	33.30	-2.91	0.00	0.83	0.33
Elected Officials	24.02	48.55	-24.53	0.00	1.00	1.00
Equ. before the law and ind. Lib.	34.18	29.59	4.59	0.30	0.87	0.64
Jud. Constraints	33.80	29.74	4.06	0.12	0.85	0.58
Legal Constraints	30.86	32.78	-1.92	0.06	0.90	0.49
CS Particip.	41.96	21.57	20.39	0.33	0.93	0.72
Direct Democ	31.19	32.41	-1.22	0.00	0.28	0.07
Local Election	27.11	36.43	-9.32	0.00	0.99	0.52
Regional election	26.40	37.74	-11.34	0.00	0.99	0.17
Reasoned justification	31.36	32.18	-0.82	0.25	0.71	0.50
Common good	31.04	32.49	-1.45	0.22	0.83	0.59
Counterarguments	26.89	36.64	-9.75	0.30	0.79	0.60
Consultation	25.89	37.64	-11.75	0.11	0.72	0.48
Engagement	24.97	38.56	-13.59	0.25	0.87	0.57
Equal protection	29.98	33.38	-3.40	0.14	0.86	0.65
Equal access	36.97	26.56	10.41	0.21	0.86	0.60
Equal distribution	22.59	40.95	-18.36	0.12	0.90	0.42

Note: The first two columns of the table show the average poverty rate among countries with a below/above median level of institutions at the time of democratic transitions for each mid-level and low-level institutions separately (shown in the rows). Column three shows the difference between columns 1 and 2. Columns four and five show the minimum and maximum value of each institution among all countries in the sample and column six shows the median value which used to split the sample.

value for each institutional feature itself.⁸⁹ It reveals that for some institutional features (e.g. mid-level electoral democracy), poverty rates do not differ much between the half with better institutions and the lower half with weaker institutions. For others, such as mid-level deliberative or egalitarian institutions, poverty rates differ substantially between the upper and lower half (by around 10 percentage points or 25 percent). The same applies to low-level institutional features: For some (e.g. free and fair elections, legal constraints on the executive, direct democracy) there is basically no difference in poverty rates between the two groups, and for others (such as freedom of expression, suffrage, civil society participation, equal access and distribution) there are highly pronounced differences in poverty rates between subsamples. Table 13 also illustrates the usefulness of looking at the lower-level institutional features: While there is no (big) difference in poverty rates for mid-level institutions (such as electoral democracy), there are differences when the mid-level institutions are disaggregated (such as freedom of expression). Table 13 also shows the effect of different forms of aggregation: Allowing for substitutability results in generally much higher index values and also leads to different sample splits and therefore to different average poverty rates in these subsamples (e.g. for deliberative democracy there is a pronounced difference). Lastly, Table 13 also shows one caveat for the data. The data on suffrage and officials being elected through elections do not allow meaningful sample splits because they are already so prevalent among most countries that the median value coincides with the maximum value.⁹⁰

6.4 Results

6.4.1 Mid-Level Institutions

Table 14 below shows the main results for the mid-level institutions indices. It shows the effect for all 40 cases of democratizations in the first row (for comparison) and for

⁸⁹The average poverty rate for all 40 cases of democratization (at the respective time at democratizations) is 31.8.

⁹⁰For suffrage the lower sample consists of the 3 cases: Brazil and Thailand (twice). For elected officials the lower sample consists of the 10 cases: Bangladesh (twice), Burundi, Cote d'Ivoire, Guinea, Kenya, Lesotho (twice), Nepal, Niger.

the sample splits below. Furthermore, it does not show the coefficient for each year separately, but five-year averages of coefficients and standard errors.

In the first column, the average effect for the five years before democratization is shown. There should be no significant effect of subsequent democratization on poverty rates before democratization. The lack of a significant effect shown in the table indicates that there are no differential trends in poverty rates between democratizers and non-democratizers which indicates that the regression adjustment model is correctly specified and can adequately form a counterfactual. Furthermore, there are no significant effects in columns 3-5 which indicate that estimations reveal no significant long-run effects on poverty rates but only rather immediate effects in the first five years. This does not necessarily mean that there is no effect. First, it can be the result of the sample split having lower sample sizes for estimation which results in larger standard errors (which is likely because Dörffel and Freytag (2021) find effects for longer time horizons for the complete sample) and second, democracy might reverse after some years resulting in poverty reduction in the first few years but not after the reversal (which is unlikely as argued below).

There is no significant effect of **electoral** democracy on poverty rates, irrespective of the method of aggregation (thus Hyp. 1 cannot be confirmed). For liberal democracy there is also no effect when subcomponents are aggregated additively but when they are aggregated multiplicatively. There, poverty rates are 18.5% percent lower for the subsample with stronger liberal democracy but there is no significant effect for the subsample with weaker liberal democracy. This indicates that good liberal democratic institutions (rule of law, protection of freedoms and liberties, etc.) at the time of democratization affects leads to poverty reduction.

Interestingly, liberal **democratic** institutions are the only area where better institutions at the time of democratization lead to lower poverty when aggregated multiplicatively (weakly confirming of hyp. 2). This is also illustrated in Figure 13, showing the impulse response of democratization on poverty for liberal democratic institutions (in their multiplicative version). The green line represents the sample with stronger

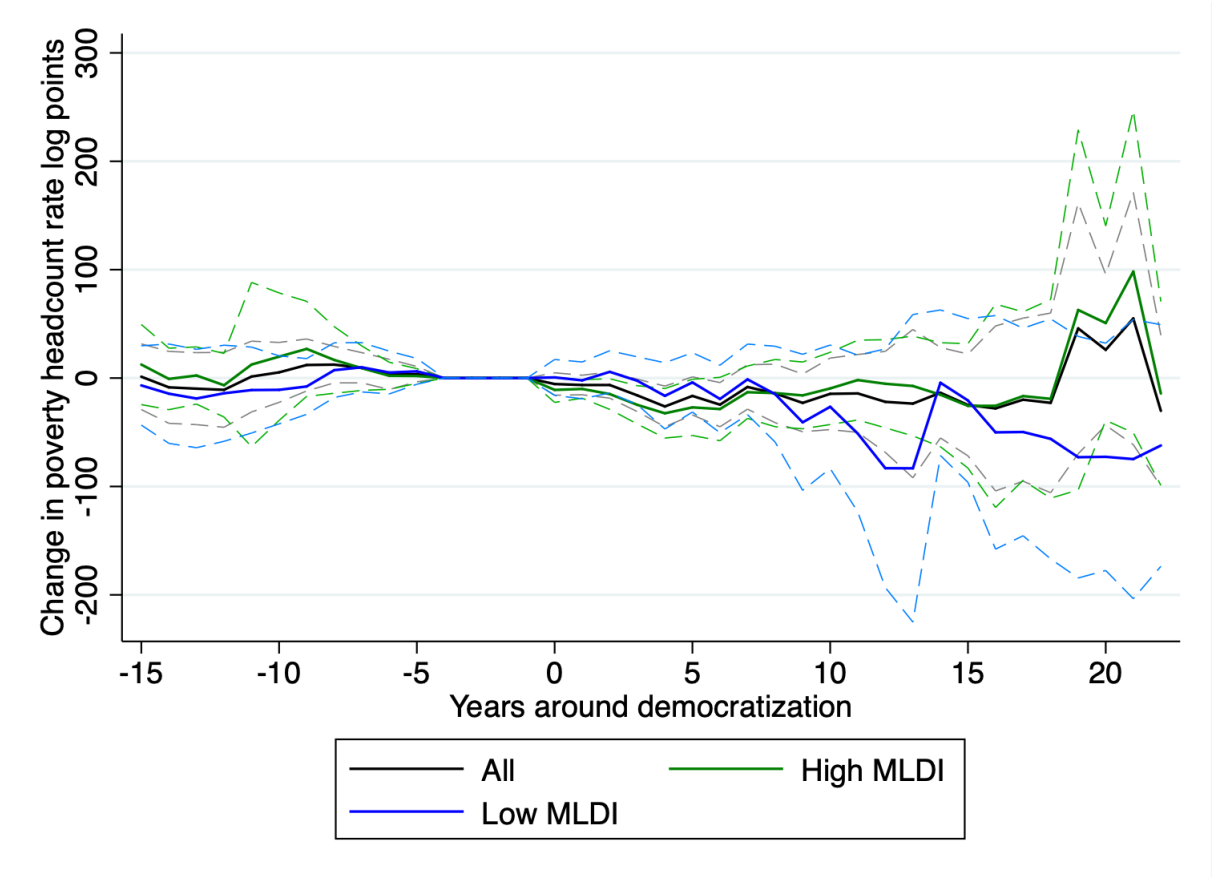
Table 14: Average Effect of Democracy on Log Poverty for Mid-Level Institutions

Average Effects from	(1) -5 to -1 years	(2) 0 to 4 years	(3) 5 to 9 years	(4) 10 to 14 years	(5) 15 to 19 years
All countries	0.727 (0.859)	-12.098* (6.238)	-17.257 (12.408)	-17.551 (24.212)	-9.958 (37.810)
Electoral Democracy					
High additive electoral democracy index	-0.374 (1.627)	-9.177 (9.442)	-21.883 (18.339)	-18.273 (24.483)	2.707 (40.631)
Low additive electoral democracy index	0.776 (1.031)	-16.206 (12.781)	-11.454 (25.047)	-14.841 (52.026)	-79.972 (99.810)
High multiplicative electoral democracy index	0.721 (0.868)	-12.936 (11.345)	-18.470 (19.405)	-20.106 (35.734)	25.766 (46.055)
Low multiplicative electoral democracy index	0.733 (1.321)	-14.329 (12.407)	-11.465 (26.912)	-14.841 (51.856)	-79.972 (97.386)
Liberal Democracy					
High additive liberal component index	1.087 (0.938)	-12.290 (11.029)	-16.731 (20.854)	-19.652 (25.335)	-6.237 (49.557)
Low additive liberal component index	0.316 (1.155)	-11.828 (10.572)	-17.741 (24.761)	-14.131 (36.408)	-19.630 (46.850)
High multiplicative liberal component index	0.386 (0.826)	-18.583* (7.782)	-19.707 (15.921)	-7.863 (23.513)	-4.837 (44.954)
Low multiplicative liberal component index	1.239 (1.444)	-2.939 (8.747)	-16.029 (19.904)	-49.678 (45.689)	-40.163 (54.517)
Participatory Democracy					
High additive participation index	0.189 (0.879)	-5.110 (8.726)	-14.626 (14.914)	-4.218 (28.395)	33.355 (37.612)
Low additive participation index	1.198 (1.032)	-15.485* (8.427)	-20.073 (20.292)	-32.527 (31.305)	-68.851 (51.401)
High multiplicative participation index	1.372 (0.855)	-4.126 (6.483)	-8.212 (14.524)	-2.796 (28.059)	23.688 (38.695)
Low multiplicative participation index	0.082 (0.833)	-19.929 (10.867)	-26.724 (19.956)	-31.773 (27.492)	-52.395 (54.216)
Deliberative Democracy					
High additive deliberation index	1.142 (0.852)	-2.245 (10.866)	-4.523 (19.645)	0.762 (28.061)	-0.832 (55.059)
Low additive deliberation index	0.184 (1.177)	-23.679*** (8.128)	-29.403 (18.738)	-28.876 (28.216)	-25.455 (42.395)
High multiplicative deliberation index	1.119 (0.789)	-5.607 (9.260)	-11.415 (18.787)	-10.002 (28.592)	13.029 (55.788)
Low multiplicative deliberation index	0.214 (1.099)	-20.138* (9.021)	-23.272 (19.718)	-23.811 (34.150)	-41.431 (48.095)
Egalitarian Democracy					
High additive egalitarian index	1.221 (1.067)	-10.499 (8.370)	-7.454 (19.981)	-19.734 (46.694)	11.205 (49.106)
Low additive egalitarian index	0.233 (0.836)	-13.700* (7.980)	-24.705 (17.133)	-15.697 (27.552)	-40.699 (47.317)
High multiplicative egalitarian index	1.537 (1.111)	-14.192 (10.213)	-18.522 (19.070)	-32.240 (38.835)	-9.475 (46.334)
Low multiplicative egalitarian index	-0.082 (0.782)	-9.868 (7.728)	-15.828 (16.303)	-2.976 (26.382)	-24.609 (43.869)

Note: The first row shows effect for all countries in the sample that democratized. From the second row on, countries are split into halves along the median of the institutional feature (e.g. electoral democracy) at the time of democratization).

institutions at the time of democratization, the blue line the weaker sample and the black line the full sample. It shows that the subsample with better institutions can reduce poverty more than the subsample with weaker institutions in the first 5 years. After 5 years, the effect basically reverses but also becomes insignificant.

Figure 13: Impulse-Responses of Democratization on Poverty; Split by Multiplicative Liberal Democratic Institutions (MLDI) with 90% Confidence Intervals



For **participatory, deliberative, and egalitarian** democratic institutions, the subsample with weaker institutions exhibits significant poverty reduction afterwards, while the subsample with better institutions does not (thus hyp. 3 cannot be confirmed). Specifically, weaker participatory institutions (aggregated additively) lead on average to 15.5% poverty reduction, weaker deliberative institutions lead to 23.8% (additive) or 20.1% (multiplicative) lower poverty in the five years after transitioning to democracy, and less egalitarian institutions (aggregated additively) lead to around 13.7% lower

poverty rates. Except for the effect of deliberative democracy, significances are at the 90% level. These effects are also meaningful in size: Taking the lowest effect of 13.7% and the average poverty rate in our sample of 31.8%, the poverty rate would be reduced to 27.44%. In a hypothetical country with a population of one million people this amounts to around 44 thousand people.

The observation that the significant poverty reduction happens in the subsample with weaker institutions is also an observation that recurs when looking at the low-level institutions in the next subsection, where this will also be addressed in more detail.

6.4.2 Low-Level Institutions

Results for low-level institutional features are shown in two tables for a better overview. Table 15 shows the results for electoral and liberal democracy and Table 16 for participatory, deliberative, and egalitarian democracy. Again, the first row shows the effect for all countries without splitting the sample.

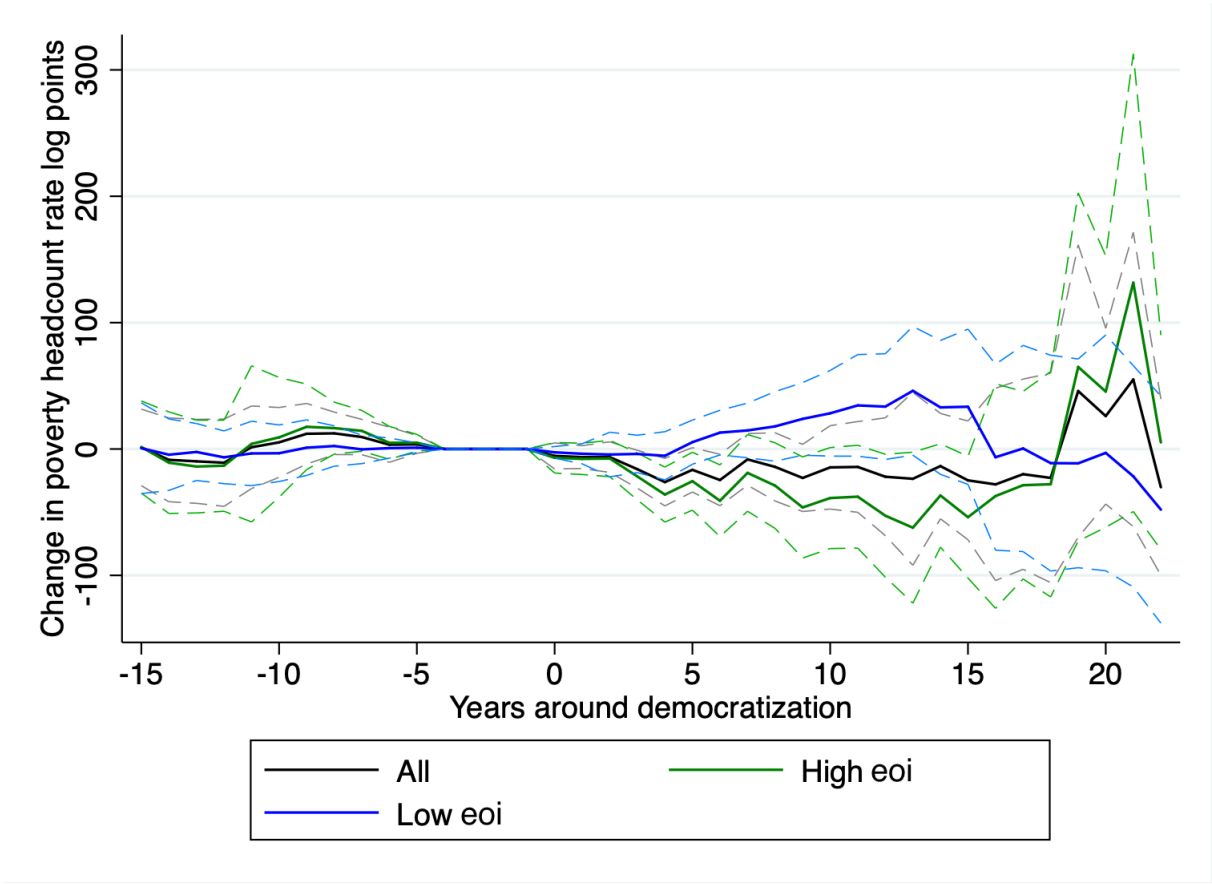
Looking at the low-level institutional features, one can already see that the insignificant results for the mid-level institution of e.g., **electoral** democracy, does not mean electoral institutions are irrelevant for poverty reduction. Rather, disaggregating the institutions suggest differential impacts from different institutional aspects. While clean elections and freedom of expression do not seem to directly impact poverty rates, freedom of association, heads of states being chosen by election and suffrage does. However, suffrage and, to a lesser extent, elected official cannot deliver even split sample because the median is also the maximum value. Ignoring suffrage, the upper subsample for the elected officials index indicates that poverty rates are reduced significantly by 16% in the first five years, by 32% in the second five years and by 45% in years 10-15, while the lower subsample shows no significant results. This is illustrated in Figure 14, showing the impulse response for the elected officials index. Here, the differential impact of weaker vs. stronger institutions at the time of democratization is clearly visible and lasts for around 15 years after democratization, after which estimations become unreliable.

Table 15: Average Effect of Democracy on Log Poverty for Low-level Institutions (Electoral and Liberal Institutions)

Average Effects from	(1) -5 to -1 years	(2) 0 to 4 years	(3) 5 to 9 years	(4) 10 to 14 years	(5) 15 to 19 years
All countries	0.727 (0.859)	-12.098* (6.238)	-17.257 (12.408)	-17.551 (24.212)	-9.958 (37.810)
Electoral Democracy					
High additive clean elections index	1.593 (1.053)	-13.138 (8.917)	-26.940 (18.087)	-27.677 (26.337)	-10.691 (45.301)
Low additive clean elections index	0.065 (0.695)	-11.018 (7.765)	-5.909 (18.965)	-6.114 (38.780)	-32.222 (79.248)
High elected officials index	0.992 (0.801)	-16.012** (7.535)	-32.112* (16.831)	-45.662* (24.598)	-16.564 (42.410)
Low elected officials index	0.197 (0.469)	-4.005 (6.589)	14.961 (12.946)	35.058 (24.823)	9.122 (38.493)
High Freedom of Association	0.958 (0.878)	-0.324 (9.302)	-4.325 (16.879)	-0.218 (25.927)	-1.445 (50.677)
Low Freedom of Association	0.496 (1.036)	-28.768** (11.235)	-37.620* (22.757)	-48.063 (37.768)	-56.318 (72.100)
High Freedom of Expression	0.593 (0.761)	-10.634 (8.649)	-13.093 (15.432)	0.507 (21.877)	-5.541 (51.085)
Low Freedom of Expression	0.881 (1.130)	-14.246 (10.848)	-23.849 (19.935)	-51.620 (44.011)	-20.897 (65.208)
High share of population with suffrage	0.796 (0.636)	-10.180* (5.773)	-14.815 (14.017)	-10.268 (26.111)	7.421 (45.787)
Low share of population with suffrage	-0.232 (2.051)	-51.271*** (11.266)	-67.554*** (25.143)	-114.203*** (38.353)	-224.070*** (59.276)
Liberal Democracy					
High equality before the law and individual liberty	0.651 (0.832)	-10.756 (9.196)	-7.327 (18.344)	6.842 (25.062)	13.500 (39.508)
Low equality before the law and individual liberty	0.815 (1.173)	-13.899 (9.653)	-28.419 (21.409)	-52.012 (45.150)	-62.663 (68.536)
High judicial constraints on executive	0.370 (0.803)	-20.617** (9.438)	-19.236 (17.681)	-16.394 (27.323)	-16.043 (39.978)
High judicial constraints on executive	1.135 (1.119)	-1.495 (8.792)	-16.411 (21.244)	-19.272 (31.501)	-3.095 (42.372)
High legislative constraints on executive	0.914 (0.651)	-9.023 (9.060)	-6.039 (19.469)	9.688 (31.125)	2.779 (50.755)
Low legislative constraints on executive	0.447 (1.203)	-16.057* (9.154)	-30.554 (21.759)	-53.369* (32.111)	-43.505 (50.744)

Note: The first row shows effect for all countries in the sample that democratized. From the second row on, countries are split into halves along the median of the institutional feature (e.g. clean elections) at the time of democratization).

Figure 14: Impulse-Responses of Democratization on Poverty; Split by Elected Officials Index (eoi) with 90% Confidence Intervals



Returning to Table 15, countries with weaker freedom of association significantly reduce poverty rates by 28.7% in the first five years and by 37.6% in years 5-10. Overall, it seems important that heads of state and the legislature are elected rather than how they are elected (cleanly or not) and that freedom of association plays a larger role than freedom of expression. Furthermore, hypotheses 1 cannot be confirmed since countries with weaker institutions seem to drive poverty reduction rather than those with stronger ones.

Moving on to the institutions of liberal democracy, we again see opposing results. Relatively stronger judicial constrains on the executive and relatively weaker legislative constraints are associated with poverty reduction while the rule of law (equality before the law and individual liberty) is not. Countries in the subsample with lower judicial

constraints were able to reduce poverty rates by around 20% while countries in the subsample with higher legislative constraints reduced poverty by 16% in the first five years. Results beyond the first five years are insignificant throughout.

In Table 16, which contains estimates for participatory, deliberative, and egalitarian democratic institutions, a more consistent pattern is visible. If effects are significant, it is always for the subsample with the weaker institutions. This is the case for (the participatory features of) civil society participation, local government, direct popular vote, (the deliberative features of) range of consultation and engaged society, and (the egalitarian features of) equal protection and equal distribution of incomes. Effects for the subsamples with stronger institutions are insignificant throughout. Furthermore, the significant results are all in the range between 12.3% (equal distribution of resources) to 20.7% (civil society participation) and are only significant for the 5 years immediately after democratization. The only exception is civil society participation where effects are significant also for the periods of 5-10 years and 10-15 years after democratization and the effect size is immense with a poverty reduction of 52.7% in years 5-10 and 90% in years 10-15 after democratization. Civil society participation captures how important civil society organizations are for policymaking and whether they are driven by citizen, as well as whether women are excluded from participation and whether party candidates are chosen by an open or closed process. These results do not occur due to level effects. Table 13 shows that countries with stronger civil society institutions have twice the poverty rate compared to countries with weaker civil society institutions at the time of democratization. Hence, this cannot possibly explain the effect for the subsample with weaker institutions. Furthermore, treatment effect estimates in Tables 14-16 do not directly compare the subsamples to each other, but each subsample is compared to a counterfactual of non-democratizers. This means, the countries with weaker institutions and lower poverty rates can significantly reduce poverty rates after democratization compared to non-democratizers while countries with stronger civil society institutions who also have much higher poverty rates are not. The reason for this pattern is investigated in the next subsection.

Table 16: Average Effect of Democracy on Log Poverty for Low-level Institutions (Participatory, Deliberative and Egalitarian Institutions)

Average Effects from	(1) -5 to -1 years	(2) 0 to 4 years	(3) 5 to 9 years	(4) 10 to 14 years	(5) 15 to 19 years
All countries	0.727 (0.859)	-12.098* (6.238)	-17.257 (12.408)	-17.551 (24.212)	-9.958 (37.810)
Participatory Democracy					
High civil society participation	0.226 (0.546)	-6.159 (7.571)	6.579 (10.424)	22.610 (24.514)	23.979 (40.853)
Low civil society participation	1.383 (1.445)	-20.690** (10.301)	-52.688** (21.895)	-90.466** (38.295)	-87.315 (64.444)
High local gov. index	1.739 (1.104)	-7.951 (9.450)	-25.094 (18.624)	-15.503 (31.491)	19.461 (47.916)
Low local gov. index	-0.158 (0.728)	-15.969** (7.823)	-9.121 (12.794)	-20.431 (26.964)	-51.150 (55.282)
High regional gov. index	1.237 (0.936)	-13.677 (8.616)	-21.182 (17.532)	2.406 (28.999)	30.370 (48.470)
Low regional gov. index	0.218 (0.881)	-10.505 (9.471)	-14.489 (15.963)	-30.080 (30.932)	-47.782 (43.746)
High direct popular vote index	0.492 (0.970)	-6.108 (7.805)	-4.509 (18.096)	-9.501 (30.743)	-12.665 (26.654)
Low direct popular vote index	0.996 (1.006)	-18.851* (9.842)	-28.726 (18.898)	-24.972 (27.799)	-32.445 (55.041)
Deliberative Democracy					
High reasoned justification	1.678 (0.976)	-9.102 (10.937)	-11.955 (19.749)	-8.487 (26.983)	14.759 (45.518)
Low reasoned justificatio	-0.360 (0.721)	-15.123 (10.292)	-23.241 (23.661)	-26.932 (38.890)	-42.356 (43.774)
High common good justification	1.533 (1.052)	-16.647 (9.271)	-28.944 (19.996)	-26.033 (29.353)	-16.368 (63.756)
Lpw common good justification	0.022 (0.792)	-7.497 (8.053)	-6.608 (18.672)	-11.366 (37.562)	-20.112 (43.646)
Low respect for counterarguments	0.006 (0.676)	-7.505 (9.248)	0.671 (15.714)	18.165 (29.775)	-8.517 (62.625)
Average effect of democracy on log poverty	1.808 (1.465)	-17.515 (9.769)	-34.992 (19.579)	-45.278 (35.999)	-17.761 (56.614)
High range of consultation	0.741 (0.673)	-5.375 (10.579)	-2.351 (21.651)	-8.776 (36.918)	-33.274 (54.257)
Low range of consultation	0.707 (1.200)	-18.314* (8.444)	-27.803 (21.241)	-22.657 (33.626)	-12.394 (39.376)
High engaged society	1.129 (0.637)	-4.957 (9.345)	-6.440 (20.733)	-0.223 (35.661)	-0.832 (60.046)
Low engaged society	0.202 (1.249)	-20.592* (9.669)	-25.929 (19.420)	-27.524 (32.402)	-25.455 (46.683)
Egalitarian Democracy					
High equal protection	0.948 (0.780)	-8.147 (8.103)	-16.235 (19.572)	-32.086 (37.108)	-9.475 (48.044)
Low equal protection	0.506 (1.025)	-15.823* (9.112)	-18.293 (14.425)	-2.976 (24.447)	-24.609 (55.960)
High equal access	0.835 (0.834)	-12.049 (7.881)	-7.351 (15.762)	3.981 (21.872)	-3.892 (39.262)
Low equal access	0.619 (1.129)	-12.148 (9.986)	-27.876 (20.687)	-40.892 (37.752)	-36.036 (52.398)
High equal distr. of resources	1.544 (1.097)	-11.846 (9.594)	-15.019 (19.098)	-24.671 (36.745)	-11.208 (47.264)
Low equal distr. of resources	-0.089 (0.603)	-12.301* (7.237)	-19.202 (15.128)	-11.405 (23.483)	-23.688 (46.413)

Note: The first row shows effect for all countries in the sample that democratized. From the second row on, countries are split into halves along the median of the institutional feature (e.g. civil society participation elections) at the time of democratization).

Among the other low-level institutions of participatory democracy, local governments (are there elected local representations?) and direct popular vote (is it possible to conduct ballot measures?) are significant for the subsamples with the weaker institutions while regional government is not. Thus, participatory institutions that let citizen directly influence policy-making and policy measures can lead to poverty reduction after democratization (if these institutions are relatively weak at the time of democratization).

For deliberative institutions, the range of consultations (do elites consult a wide range of actors?) and engaged society (are there wide and independent public deliberations?) are significant for the subsamples with the weaker institutions while the institutions of reasoned justification for policy proposals, justification of policies in terms of the common good and respect for counterarguments do not seem to play a role. This suggests, similar to the results from participatory institutions, that the influence of the public on policymakers can drive poverty reduction. However, the quality of such deliberations in terms of reasoning and justification of policy proposals is not as important.

Thus, hypothesis 3 cannot be confirmed, because for participatory and deliberative institutions, significant effects are only in the subsamples with weaker institutions but not in those with stronger ones.

Lastly, within egalitarian democratic institutions, the subsamples with weaker institutions of equal protection (of rights and freedoms across social groups) and equal distribution of resources (material and immaterial) show a significant effect while the effect of equal access (to power across groups in society) is not significant. Hence, *de facto* access to power has no influence while *de jure* protection and an equal distribution of resources does.

Thus, hypothesis 2 can be mostly rejected, except for judicial constraints on the executive, since all other significant effects are in the subsamples with weaker liberal and egalitarian institutions, for which theory predicts poverty increases rather than decreases.

Tables 14-16 show that many for many of the mid- and low-level institutions there is no significant effect of democratization on poverty reduction. This is, on the one hand, likely due to a small sample which results in large confidence bands and on the other hand, theory predicts many reasons why democratizations fail to deliver significant changes in terms of redistribution, income changes or spending on public goods. Most of the arguments argue in some form that powerful actors in society can influence the rules in their favor or side-step them, thus “capturing democracy”. Kavasoglu (2020) and Miller (2021) find empirical support for this theory. Kavasoglu (2020) finds evidence that strong autocratic rulers implement reforms to pre-empt opposition to stay in power or exercise a large amount of control after transitioning to democracy. In his sample, 26% of democratizations are such incumbent-led democratizing while rest is sparked by protest, civil war, etc.. Similarly, Miller (2021) argues that in two thirds of democratizations, the ruling party stays in power. In those cases where the transition is incumbent-led and old elites are able to grasp a significant amount of power after the transition it is more likely that democracy is “captured” and redistribution effects are small or non-existent because extractive institutions remain after democratization.

6.4.3 Discussion: Why Do Weaker Institutions Lead to Poverty Reduction?

The observed pattern, especially in low-level institutions, that the subsamples with weaker institutions experience poverty reduction while the subsamples with stronger institutions do not requires further exploration.

Firstly, as argued before, these results are not driven by level effect of poverty, i.e. that the subsample with a significant effect has higher poverty rates at the time of democratization and thus reap “low hanging fruit” of poverty reduction.⁹¹ This is in contrast the rationale found by Dorsch and Maarek (2019) who find that inequality

⁹¹ Apart from the treatment effects estimates excluding this possibility by design because the adjustment model includes lags of the poverty rates, this can also be seen in Table 13 above: Among low-level the 20 low-level institutions I find 12 significant effects (10 for the subsamples with the weaker institutions and 2 for the subsample with the stronger institution). Of those with weaker institutions, poverty rates are sometimes much larger than the other subsample (e.g. for suffrage, civil society participation), sometimes much lower (e.g. for range of consultation, equal distribution of resources or engaged society) and sometimes almost equal (e.g. for direct popular vote or legal constraints).

effects of democratization depend on the level of inequality before democratization because nondemocracies tend to have very high or very low inequality while democracies tend to take the middle ground. The empirical tests conducted in this chapter do not test for this mechanism but exclude the possibility that results are driven by it.

Secondly, these results are also not driven by reversals of democratizations. If many of the democratizations would end up in reversals, one could argue that the “true” effect of permanent democratization would be higher in terms of poverty reduction. However, in the sample of 40 democratizations, only 3 are reversed after 5 years. Hence, the results are likely not impacted much by these few reversals. Mean institutional level at the time of democratization for reversers and non-reversers is on average 0.01 points higher for non-reversers.⁹²

Rather, these results are most likely due to changes in institutions triggered by democratization in the subsample with weaker institutions at the time of transition but not in the subsample with stronger institutions. Table 17 shows some reasoning for this. When calculating the change in institutions from the time of democratization to five-year afterwards separately for all 30 sample splits of mid- and low-level institutions from Tables 14-16, I find that countries with stronger institutions at the time of democratization do essentially not improve their level of institutions during the first five years but the countries with weaker institutions do.⁹³ The subsamples with the stronger institutions improve their institutions by 0.032 in the first five years after democratization while the subsamples with the weaker institutions improve them by 0.111 (on a 0 to 1 scale). A T-test on the difference between these two groups is statistically significant on the 99% level (see Table 17).⁹⁴ Additionally, Table 17 shows that the found effect of poverty reduction is not indirectly going through GDP or inequality changes: (negative) GDP changes are higher in the subsamples with weaker institutions (which should lead to more poverty, c.p.) but the difference between groups is not

⁹²Mean institutional level at the time of democratization for reversers and non-reversers is on average 0.01 points higher for non-reversers.

⁹³The general pattern also holds for other time horizons, e.g. to 10 years after transition (tests not shown).

⁹⁴Using an “unpaired” version of the T-test that assumes independent samples because by splitting the sample beforehand we create basically independent subsets of the data.

significant according to the T-test. The same holds for inequality: in subsamples with stronger institutions income inequality increases a bit more (which should lead to more poverty, c.p.) than in subsamples with weaker institutions but the difference is not significant. Although this is not causal proof, the most plausible explanation according to the data presented is that poverty reductions in subsamples with weaker institutions found in main results are triggered by institutional changes after democratization.

Table 17: T-Tests for Differences in 5-Year Changes in Institutions, GDP p.c. and Inequality After Democratization

Variables	Observations	Mean	Mean	Difference	90% CI	
	Group 1 + 2	Group 1	Group 2			
Institutions (Δ 5-year)	60	0.111	0.032	0.072	0.491	0.11
log GDP p.c. (Δ 5-year)	60	-23.365	-18.694	-4.67	-13.31	3.964
log Gini coeff. (Δ 5-year)	60	7.021	7.653	0.631	-1.605	0.343
	t-value	Pr(T > t) (Diff. \neq 0)	Pr(T < t) (Diff. < 0)	Pr(T > t) (Diff. > 0)		
Institutions (Δ 5-year)	4.38	0	1	0		
log GDP p.c. (Δ 5-year)	-0.904	0.37	0.185	0.815		
log Gini coeff. (Δ 5-year)	-1.084	0.283	0.1415	0.8585		

Note: log GDP and Gini coeff. are multiplied by 100. Group 1 contains countries with below median level institutions at the time of democratization, Group 2 countries with above median level of institutions. The 5-year changes of variables correspond to changes from the time of democratization to 5 years afterwards.

To offer an interpretation for this result it is helpful to recall what the split into weak and strong institutions at the time of democratization implies. Since democratizations are identified with a dummy variable, this dummy change can be considered the event of formal democratization. However, even in non-democracies, the democratic ideals inherent to electoral, liberal, participatory, deliberative and egalitarian democratic institutions can be achieved to varying degrees; independent from the formal status of democracy. These different degrees are captured by the sample split. Thus, the subsamples with stronger institutions already have relatively well-functioning democratic institutions before formal democratization. In subsamples with weaker institutions however, democratic ideals are less ingrained into day-to-day functioning of society. Thus, democratizations in subsamples with weaker democratic institutions can be seen as a bigger leap forward where the strengthening of underlying democratic institutions and ideals will likely come in the years after the formal event of democratization.

Thus, all the benefits of democratizations that the literature finds are more likely to occur when democratic institutions are relatively weak at the time of formal democratization, while gains are more likely to have already been realized when democratic institutions are already strong at the time of formal democratization. To summarize, these benefits are increased tax revenues, less population in working in agriculture, higher education spending and school enrollment rates, higher life expectancy, more calories consumed, less infant mortality (Acemoglu et al. 2015) and lower poverty rates (Dörffel and Freytag, 2021). This offers a rationale for the finding that poverty rates tend to decrease in the subsamples with weaker institutions.

This is also in line with findings from Dorsch and Maarek (2019) who find that inequality changes after democratization are actually caused by redistribution of market opportunities rather than fiscal redistribution. Arguably, weak institutions leave more scope for an increase in market opportunities that can result in higher incomes and poverty reduction. In countries with strong institutions on the other hand, there are stricter rules and constraints for market activity which leaves less scope for a dynamic realignment that increases market changes. At the same time, poverty reduction through fiscal redistribution does not seem to play an important role.

6.5 Conclusion

The research in this chapter analyzed which institutional features contribute to poverty reduction when countries democratize. For this, theories and data are used that distinguish between different kinds of democratic institutions – namely electoral, liberal, participatory, deliberative, and egalitarian democratic institutions. The data analysis applies semi-parametric treatment effects estimates which reveal no clear pattern of some institutions being predominant while others are not. In each area of institutions some of its features contributes to poverty reduction and some do not.⁹⁵ Especially, the hypotheses that stronger institutions lead to poverty reduction cannot be confirmed. This can be due to small sample sizes as well as democracies being captured by elites

⁹⁵This also indicates that institutions on an aggregate level (or high-level institutions) consist of institutional feature that work well together and reinforce each other (as also argued by e.g. Gerring et al. 2021).

leading to persistence in extractive institutions. Only for the institutions of executive and legislative and judicial constraints on the executive, stronger institutions lead to significant poverty reduction. For all other significant effects, weaker institutions lead to poverty reduction. When the effect of democratization on poverty reduction is significant, it is meaningful in size (ranging from around 12 to 25 percent during the first five years after democratization, depending on the mid- and low-level institution). This is likely due to triggered changes in institutions due to democratization which only occur when institutions are still relatively weak, rather than due to growth or inequality changes. Reaping the benefits that come along with democratization are more likely to occur when democratic institutions are relatively weak at the time of formal democratization, while they are more likely to have already been realized when democratic institutions are already strong at the time of formal democratization. This pattern is the clearest with deliberative, participatory, and egalitarian institutions but less clear with electoral and liberal democratic institutions. This illustrates that institutions which capture how responsive policymaking is to its constituencies are more important for poverty reduction than the institutions which capture more formal aspects of democracy.

As already mentioned, sparse data is one of the biggest limitations of this chapter and the largest obstacle for future research. With time progressing, future research can benefit from more data being available which means estimates are likely to become more reliable. Conceptionally, future research could also not only make use of more democratizations but make an effort to identify differences between successful and failed episodes of democratizations. Wilson et al. (2020) provide a useful conceptualization and dataset on successful and failed democratizations that might be helpful for this avenue.

7 Conclusion

In this conclusion, it will firstly be addressed which lessons can be learned from chapters 5 and 6 about institutions and their effect on human well-being (specifically poverty). Secondly, national policy and global governance policy responses for improving inclusiveness overall will be proposed.

Chapter 5 showed that institutions of electoral democracy impact poverty rates (in treatment effects estimates). Although the theoretical literature is quite ambiguous about the effects of democratization on outcomes related to human well-being because there are many ways in which powerful actors can influence politics in their favor, the empirical literature finds positive effects of democratization in many instances. Examples are positive effects on income growth, literacy rates, infant mortality rates, education spending. The empirical results presented in chapter 5 are mostly in line with this. Although our dynamic panel estimates find no significant effects on poverty rates, this can be the result of the inflexibility of regression estimators not allowing for sufficient time to pass until the effect becomes visible. When we estimate treatment effects of democratization on poverty reduction with a more flexible and causal estimator, we find significant effects that suggest that democratization leads to poverty reduction of more than 10% in the first five years and about 20% in the first ten years. Data limitations of poverty data prevents confident estimations for longer time horizons and are also likely to impede dynamic panel estimates. Nonetheless, this provides evidence that democratization contributes positively to poverty reduction. As argued in chapter 5, this can lift a substantial number of people out of extreme poverty who are then able to meet a basic threshold of having food, shelter and other basic living requirements. This also means that capabilities are vastly expanded because after basic needs are met individuals are able to pursue other goals.

Chapter 6 showed that some institutional features are related to poverty reduction while others are not. Democracy can be disaggregated into different institutional aspects of democracy. All of them, in different degrees, relate to the concept of inclusive institutions introduced in chapter 1. For example, electoral institutions directly en-

compass the inclusion of broad society in the electoral process of electing their leaders. Participatory and deliberative institutions capture aspects of how well inclusive institutions work, i.e. if citizens are to effectively participate in the political process beyond only electing their leaders. Egalitarian institutions capture how power and commodities are distributed in society and thus directly relate to inclusiveness, while liberal democratic institutions have a more indirect relation to inclusiveness. This relation lies in the fact that they encompass whether or not citizens' rights are effectively protected. The rights of minorities and marginalized groups are especially important because the threat in a democracy is the "tyranny of the majority" and state repression. This shows that, while democracy, neither in its aggregate nor individual features, can perfectly capture inclusive institutions as all of them are connected to each other.

To make causal estimations possible, the sample of all democratizations is split at the median of each institutional feature outlined in chapter 6. There is no support for the hypothesis that stronger institutions lead to more poverty reduction. Rather, only for the institutions of heads of state and the parliament being elected, and judicial constraints on the executive, stronger institutional features lead to more poverty reduction. All other significant effects of poverty reduction occur with weaker institutions at the time of democratization (in similar magnitude as seen in chapter 5). Specifically, if institutions of freedom of association, legislative constraints, civil society participation, local government representation, direct popular vote, range of consultation in the political process, engaged society, equal protection and equal distribution of resources are relatively weak at the time of democratization, this leads to subsequent poverty reduction. These poverty reductions occur because democratizations lead to meaningful improvements in institutions when institutions are relatively weak. For those countries that already have relatively strong institutions at the time of democratization, there is almost no improvement in the quality of institutions in the years after democratization. The result is not due to changes in growth nor inequality. Reaping the benefits that come along with democratization are more likely to have already been realized when democratic institutions are already strong at the time of formal democratization. This

pattern is the clearest with deliberative, participatory, and egalitarian institutions but less clear with electoral and liberal democratic institutions.

The research in chapters 5 and 6 contributes to the literature the effect of institutions on human well-being. While many human well-being related outcomes have been analyzed, research on poverty rates are an addition to the literature. This research also extends the literature on inclusive institutions, since democratic institutions are, by definition, designed to include society into the political process and thus are inclusive. In this context, chapter 5 shows that improving inclusive institutions is likely to contribute to poverty reduction. Chapter 6 adds that countries that already have strong (inclusive) institutions are less likely to reduce poverty; but, when countries improve their inclusive institutions (as in those countries with relatively weak institutions at the time of democratization) they also often significantly reduce poverty.

The research conducted in chapters 5 and 6 have some limitations. Specifically, in chapter 5 it is difficult to draw policy conclusions. Although treatment effects estimates of democratization on poverty rates are causal, the mechanism behind that is opaque. Democratization itself is not a policy option because historically it depends on very specific circumstances in societies. Theory suggests many possible mechanisms through which democracy affects poverty rates and thus many policy-options are conceivable. However, the way the empirical research in chapter 5 is designed leaves open questions about which specific mechanism affects poverty rates. However, chapter 6 addresses this to some extent. It indicates more specific low-level institutions whose improvements are likely to lead to poverty reduction. Furthermore, in chapter 6, results are not significant for all institutional features that are analyzed. For the subcategories of low-level institutions of clean elections, freedom of expression, rule of law, regional government representation, reasoned justification, common good justification, respect for counterarguments, equal access effects are insignificant. This does not necessarily mean that they are irrelevant for poverty reduction but that at the time of democratization it does not play a role whether they are relatively strong or weak. This holds similarly for the mid-level institutions analyzed in chapter 6 where not all areas of

democracy are significant, but results depend on how indices are aggregated (i.e. allowing for substitutability among components or not). Another likely explanation is that democracy gets captured or constrained in some way, as theory suggests. This can result in insignificant effects. This also matches with the result that weaker institutions lead to poverty reduction.

In consideration of the above summation of my research and methods, I will now address possible policy responses which can promote inclusive development in countries, effectively coalescing the ideas presented in the first four chapters with the concepts of inclusive development proposed in the introduction. These considerations are mainly based on Draper et al. (2018) who also elaborate this in more detail. These Policy responses can be divided into domestic policies and international policies.

Domestic policies shape inclusiveness and can promote inclusive development in many ways. First, it must be considered that all growth policies that do not diametrically oppose inclusiveness by marginalizing some groups or impairing sustainability and already have a good track record should be pursued further. Among these are education policies, social policies, labor market policies or policies that promote R&D, the provision of infrastructure (said more generally: public goods). Of importance are domestic policies that cushion asymmetrical effects of the market economy on people. One such area would be labor market policies that accompany the workforce in coping with technological changes. Another is that, due to the integrated nature of international trade (which contributes immensely to growth and technological change), the competition on world markets continues to create negative shocks for firms and workers that lose to their competition. Thus, policies that support these workers in ways that deal with structural changes in local economies and global value chains can contribute to more inclusive development. Furthermore, policies that directly induce changes in institutions can influence inclusiveness domestically. Reforms to elements of the judiciary, legislative, executive are possible in a way that contributes to more inclusive institutions. Chapter 6 pointed out that institutions that capture how responsive policy-making are to their constituencies (participatory, deliberative and egalitarian

institutions) are more important for poverty reduction than the institutions that capture more formal aspects of democracy (electoral and liberal institutions). Thus, by implementing elements of direct democracy, policy-makers more actively seeking civil society participation, improving the protection of marginalized groups or by equalizing the distributions of resources it is likely to improve inclusiveness. However, specific policy choices and recommendations must be tailored to the specific country or even regional circumstances to have the proper impact.

Shifting the focus from domestic policy to international policy coordination, a couple of observations can be made. The SDGs and the Agenda 2030 by the United Nations are more oriented towards inclusive development than previous development frameworks and thus are likely to have a positive impact on inclusiveness, if national governments and world leaders are willing to implement them. However, effective enforcement mechanisms are still absent and ultimately rely on nation states. A further obstacle to more inclusive policies is the wave of populism observed during the last decades in many countries, voicing fears of losing national sovereignty to international organizations and institutions. Thus, it seems unlikely that a majority of countries in the world will agree to implement a global enforcement mechanism to push inclusive development in the near future.

However, there are still established ways for global policy coordination. The World Bank, International Monetary Fund (IMF), [G20](#), [WTO](#), [OECD](#) are all established organizations and play important roles in coordinating global policies. They could incentivize a shift of policy orientation towards inclusive development, e.g. through coordinating funds and foreign aid flows. Within the IMF and World Bank, emerging economies have received greater vote shares since 2008 which gives them a greater voice and may increase the likelihood for implementing an inclusive development agenda. Furthermore, international policy coordination within the G20, OECD and WTO are important to create a conducive environment for technological spillovers that are beneficial and not counterproductive to inclusive development. Open trade and [FDI](#) frameworks can help in this regard. They can promote cooperation and an exchange of ideas and knowl-

edge between the richer and the poorer parts of the world (while also raising incomes) so long as exchanges do not reinforce or create new marginalization in poorer countries. Lastly, to bolster inclusive development foreign aid flows from OECD countries could be conditioned on reforms that promote inclusiveness development.

The research conducted in this dissertation can show that past inclusive development is mainly induced by improving development achievements and that classical growth-enhancing elements in development strategies are important drivers for inclusive development. It also shows that structural change has negative consequences for inclusiveness and that equity improvements contributed only slightly to inclusive development. Thus, to strengthen human well-being in the future, both classical elements, as well as increased efforts to improve equity and to cushion structural changes are needed in development strategies. As for democracy, we can show that inclusive institutions inherent to democracy shape political and economic incentives for individuals such that poverty is likely to be reduced. However, democracy is by no means a “silver bullet” that unequivocally solves the problem of poverty in societies. Democratic institutions tend to be more responsive than non-democratic ones and tend to marginalize fewer people. However, they are under constant pressure, and citizens must engage to bolster democratic institutions lest they get captured by powerful groups that set the rules in their favor.

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Appendices

A Appendix Chapter 2 “What is Inclusive Development? Proposing a Multidimensional Inclusiveness Index”

Table A1: Ratings of Multidimensional Inclusive Development

Rank	Country	MDI basic score 2018	MDI basic score 1993	Δ 1993-2018 (abs.)	Δ 1993-2018 (%)
1	Norway	75.2	72.5	2.7	3.70%
2	Slovak Republic	71.3	66.2	5.1	7.70%
3	Denmark	70.7	70	0.8	1.10%
4	Slovenia	70.7	63.6	7.1	11.10%
5	Iceland	70.3	58	12.4	21.30%
6	Czech Republic	70.3	66.5	3.8	5.70%
7	Sweden	70.3	69.4	0.9	1.20%
8	Finland	70.3	68	2.3	3.30%
9	Switzerland	69.3	63	6.3	10.00%
10	Netherlands	68.1	63.5	4.6	7.20%
11	Luxembourg	67.9	65.4	2.6	3.90%
12	Belgium	67.9	63.3	4.5	7.10%
13	Austria	66.2	61.6	4.6	7.50%
14	Germany	65.8	66.9	-1	-1.50%
15	Canada	64.5	61.2	3.3	5.30%
16	Malta	63.8	53.5	10.3	19.30%
17	Ireland	63	49.4	13.6	27.40%
18	France	61.5	57	4.4	7.80%
19	Japan	60.8	61.2	-0.4	-0.60%
20	Croatia	60.7			
21	Hungary	60.6	52.4	8.2	15.70%
22	Australia	59.9	61.3	-1.4	-2.30%
23	United Kingdom	59.6	51.8	7.8	15.00%
24	Poland	59.6	51.2	8.3	16.20%
25	Korea, Rep.	58.9	52.8	6.1	11.60%
26	Kazakhstan	58.5	45.2	13.3	29.50%
27	Estonia	56.4	44.5	11.8	26.60%
28	New Zealand	56.4	54.3	2.1	3.80%
29	Cyprus	56.3	50.2	6.1	12.20%
30	Israel	56.1	53.8	2.4	4.40%
31	Italy	53.8	49.2	4.6	9.30%
32	Ukraine	53.1	47.6	5.5	11.50%
33	Greece	52.9	45.1	7.8	17.20%
34	Singapore	52.7	38.2	14.5	37.90%
35	Spain	52.3	49.5	2.8	5.70%
36	United States	50	51.3	-1.2	-2.40%
37	Russian Federation	50	42.3	7.7	18.30%
38	Romania	49.2	52.5	-3.3	-6.30%
39	Serbia	48.6			
40	Lithuania	47.6			
41	Portugal	47.2	40.5	6.7	16.50%
42	Latvia	46.7			
43	Moldova	46.1			
44	Bulgaria	46	44.6	1.4	3.20%
45	Qatar	44.4			

Table continues on next page

Rank	Country	MDI basic score 2018	MDI basic score 1993	Δ 1993-2018 (abs.)	Δ 1993-2018 (%)
46	Kuwait	44.3	42.2	2.1	5.10%
47	Uruguay	43.2	34.1	9.1	26.70%
48	Hong Kong SAR, China	42.8	39	3.8	9.90%
49	Kyrgyz Republic	42.7	33.7	9	26.60%
50	Mongolia	42.1	32.8	9.3	28.30%
51	Argentina	41.8	30.4	11.4	37.50%
52	United Arab Emirates	41.2	37.3	3.8	10.30%
53	Iraq	40.9	33	7.9	24.00%
54	Armenia	39.8	33.2	6.7	20.10%
55	Belarus	39.7	33.4	6.3	18.90%
56	Vietnam	38.6	27.2	11.4	41.80%
57	Albania	38.4	30.6	7.8	25.50%
58	Algeria	38.4	28	10.4	37.20%
59	Jordan	38.4	29.2	9.2	31.50%
60	Malaysia	37.7	26.7	11	41.00%
61	Mauritius	37.6	31.9	5.7	17.80%
62	Thailand	36.1	23.5	12.6	53.60%
63	Turkey	35.8	24.2	11.7	48.20%
64	Montenegro	35.7			
65	Tunisia	34.9	24	10.8	45.10%
66	Gabon	34	27.1	6.9	25.60%
67	Chile	33.5	24.4	9.1	37.40%
68	China	33.5	29.7	3.8	12.60%
69	Oman	33.1	30.4	2.7	8.80%
70	Azerbaijan	32.9	24.9	7.9	31.80%
71	Ecuador	32.4	20.1	12.3	61.40%
72	Jamaica	32	30.4	1.6	5.40%
73	El Salvador	31.8	18.1	13.7	75.90%
74	Philippines	31.8	26.1	5.7	21.80%
75	Bangladesh	31.1	22.4	8.6	38.50%
76	Dominican Republic	30.7	20.8	9.9	47.70%
77	Peru	30.4	14.8	15.6	105.30%
78	Bolivia	30.1	16.3	13.7	84.20%
79	North Macedonia	30	29.2	0.8	2.60%
80	Mexico	29.5	22.9	6.6	28.90%
81	Myanmar	29.2	18	11.2	62.00%
82	Barbados	29	28.5	0.5	1.80%
83	Panama	28.9	18.9	10	52.90%
84	Cambodia	28.4	17.9	10.5	58.50%
85	Costa Rica	28.2	30.1	-2	-6.50%
86	Pakistan	28.2	22.7	5.4	23.90%
87	Lebanon	28.1	23.7	4.4	18.50%
88	Brazil	27.9	14.3	13.6	95.20%
89	Morocco	27.7	21.1	6.6	31.30%
90	Uzbekistan	27.4	23.1	4.3	18.60%

Table continues on next pages

Rank	Country	MDI basic score 2018	MDI basic score 1993	Δ 1993-2018 (abs.)	Δ 1993-2018 (%)
91	Paraguay	27.3	20	7.3	36.80%
92	Egypt, Arab Rep.	27	23.2	3.8	16.40%
93	Colombia	26.6	16.6	10	60.10%
94	Mauritania	25.6	18.8	6.8	36.20%
95	Nicaragua	25.5	14.1	11.4	80.80%
96	Belize	25.3	18.8	6.5	34.50%
97	Bosnia and Herzegovina	25.3			
98	Seychelles	25.1	23	2.1	9.10%
99	Brunei Darussalam	25	23.3	1.6	6.90%
100	Bahrain	24.8	23.8	1	4.40%
101	Sudan	24.5	17.8	6.7	37.70%
102	Nepal	24.4	15.6	8.8	56.40%
103	Ghana	24.3	21	3.3	15.50%
104	Guatemala	24.3	13.9	10.4	75.10%
105	Georgia	23.8	22.2	1.6	7.40%
106	Sri Lanka	23.6	24.6	-1	-4.20%
107	Ethiopia	23.5	11.9	11.6	97.90%
108	Bahamas, The	23.4	22.2	1.2	5.40%
109	Indonesia	23.1	22.2	0.9	4.10%
110	Saudi Arabia	22.9	19.6	3.3	17.00%
111	Timor-Leste	22.3			
112	Liberia	22.1			
113	Bhutan	21.6			
114	Senegal	21.5	15.3	6.2	40.50%
115	Honduras	21.5	16.2	5.3	32.60%
116	Uganda	21.3	12.3	9.1	73.90%
117	Afghanistan	21.2			
118	Zimbabwe	20.2	15	5.2	34.60%
119	Kenya	20.1	13.7	6.3	46.00%
120	India	19.7	18.1	1.6	9.00%
121	Kiribati	19.5	18.5	1	5.60%
122	Nigeria	19.5	13.9	5.6	40.50%
123	Congo, Rep.	18.7	16.4	2.2	13.40%
124	Cameroon	18.2	15.5	2.8	17.80%
125	Niger	18.1	11.8	6.3	53.00%
126	Mali	17.8	11.6	6.2	53.70%
127	Madagascar	17.5	13.3	4.2	31.10%
128	Togo	17.4	14.8	2.6	17.80%
129	Benin	17.2	14	3.2	22.90%
130	Guyana	17	15.2	1.8	11.90%
131	Puerto Rico	16.9	17	-0.1	-0.60%
132	Guinea	16.9	11.5	5.4	47.00%
133	Gambia, The	16.8	12.3	4.6	37.30%
134	Malawi	16.8	8.4	8.4	99.50%
135	Burkina Faso	16.4	8.9	7.5	83.80%

Note: Table continues on next page

Rank	Country	MDI basic score 2018	MDI basic score 1993	Δ 1993-2018 (abs.)	Δ 1993-2018 (%)
136	Sierra Leone	16	8.6	7.4	85.90%
137	Congo, Dem. Rep.	15.8	12.6	3.3	25.90%
138	Burundi	15.8	11.8	4	34.40%
139	Angola	14.8	10	4.8	48.00%
140	Rwanda	14.5	6.3	8.2	129.00%
141	Cabo Verde	14.2			
142	Equatorial Guinea	13.7			
143	Chad	13.2	10.6	2.6	24.60%
144	Guinea-Bissau	12.4	11.7	0.8	6.50%
145	Mozambique	12	8.1	3.9	47.60%
146	Cote d'Ivoire	11.7	12.6	-0.9	-7.00%
147	Zambia	11.7	9.4	2.3	24.40%
148	Botswana	11.4	9.1	2.3	25.20%
149	Lesotho	10.8	9.6	1.2	12.10%
150	Haiti	10.5	8.9	1.6	18.40%
151	South Africa	8.4	8	0.4	5.20%
152	Eswatini	8.1	9	-0.9	-9.80%
153	Central African Republic	8	7	1	14.90%
154	Comoros	8	6.9	1.1	16.60%
155	Namibia	1.7	0	1.7	
156	Fiji		24.1		
157	Lao PDR		20.3		
158	Papua New Guinea		11.2		
159	Solomon Islands				
160	Syrian Arab Republic		22.6		
161	Tajikistan		29.1		
162	Turkmenistan		27.1		
163	Tonga		23.4		
164	Trinidad and Tobago		28.5		
165	Tanzania		13.4		
166	Venezuela, RB		29.4		
167	Vanuatu		19.6		
168	Yemen, Rep.		16.1		

Note: Empty cells indicate missing values.

B Appendix Chapter 3 “Drivers of Inclusive Development: An Empirical Investigation”

Table B1: Descriptive Statistics

VARIABLES	N	Mean	Std. Dev.	Min.	Max.
MDI basic	696	31.38	17.27	0.83	76.06
MDI_{A+}	696	31.95	14.13	0.95	66.51
MDI_{E+}	689	33.33	17.12	6.53	72.74
I_A	696	55.58	17.04	16.88	90.83
I_{A+}	696	57.68	10.73	33.72	82.57
I_{E+}	689	56.20	14.57	27.21	88.98
I_E	696	53.93	16.72	1.71	92.00
Exports/GDP	694	37.69	25.01	5.90	217.20
Imports/GDP	694	41.88	22.90	5.71	190.00
FDI inflow/GDP	694	3.93	9.05	-3.15	176.00
FDI outflow/GDP	693	2.32	9.32	-8.41	201.40
Investment/GDP	691	23.56	7.41	5.70	60.44
Gov. consumption/GDP	690	15.13	5.32	1.15	48.06
Fertility rate	696	3.29	1.69	1.14	7.83
Inflation	695	18.96	133.00	-3.02	2414.00
Population growth	696	1.66	1.40	-4.07	15.74
Credit/GDP	691	46.55	43.25	1.69	247.20
coups	696	0.03	0.09	0.00	0.80
SVMDI	696	0.66	0.35	0.00	1.00
Ethnic frac. Index	561	0.47	0.26	0.00	0.89
Bank Depos Gdp	691	42.69	40.44	2.57	597.70
KOF Glob. Index	693	57.71	15.97	20.98	90.99
KOF GJob. Index de facto	693	55.27	16.13	19.85	91.42
KOF GJob. Index de jure	693	60.17	16.69	20.47	93.07
Econ.Freedom of the World	641	6.41	1.14	2.65	8.82
EFW gov. size	640	6.35	1.22	2.66	9.45
EFW legal & prop. rights	631	4.96	1.69	1.22	8.97
EFW sound money	641	7.60	1.87	0.00	9.89
EFW freedom to trade	627	6.65	1.64	0.24	9.85
EFW regulations	639	6.58	1.17	2.51	9.15
Structural change	696	15.01	9.68	0.87	101.90
ICT density	696	75.68	67.59	0.05	252.30
Trade volume	694	79.57	45.84	16.23	407.10
Africa	696	0.33	0.47	0.00	1.00
EA	696	0.03	0.17	0.00	1.00
LA	696	0.06	0.24	0.00	1.00
FDI volume	693	6.25	18.02	-9.60	377.30

Table B2: TWFE Results for MDI Versions MDI_{A+} and MDI_{E+} with 5-Year Panel

VARIABLES	(1) MDI_{A+}	(2) MDI_{A+}	(3) MDI_{A+}	(4) MDI_{E+}	(5) MDI_{E+}	(6) MDI_{E+}
Lag MDI version	0.825*** (0.0372)	0.843*** (0.0323)	0.774*** (0.0388)	0.950*** (0.0571)	0.988*** (0.0538)	0.931*** (0.0500)
Lag trade/GDP	0.00393 (0.00332)	0.00264 (0.00275)		0.00328 (0.00448)	0.00163 (0.00382)	
Lag investment/GDP	-0.0112 (0.00894)	-0.00934 (0.00789)		0.00277 (0.0125)	0.00575 (0.0113)	
Lag credit/GDP	-0.0157*** (0.00395)	-0.00863 (0.00600)		-0.0135*** (0.00465)	-0.0133*** (0.00372)	
Lag bank deposits/GDP	0.00491*** (0.00173)	0.00280* (0.00149)		0.00348** (0.00163)	0.00203 (0.00214)	
Lag FDI inflow/GDP	0.00821 (0.00715)	0.00160 (0.00301)		0.00329 (0.0100)	0.00100 (0.00325)	
Lag ICT density	0.00117 (0.00282)		0.000283 (0.00277)	-0.00620* (0.00336)		-0.00996*** (0.00267)
Lag Coups	-0.0802 (0.346)		-0.0808 (0.321)	0.204 (0.312)		0.267 (0.250)
Lag ethnic fract. index	-2.525 (2.691)		-8.377*** (2.692)	-2.943 (3.049)		-8.037*** (2.295)
Lag SVM DI	-0.0651 (0.337)		0.117 (0.259)	-0.505 (0.319)		0.0895 (0.252)
Lag inflation	-0.00139*** (0.000263)	-0.00141*** (0.000246)		-0.000561*** (0.000156)	-0.000667*** (0.000153)	
Lag gov. cons.	0.0326*** (0.0103)	0.0324*** (0.00950)		0.0371** (0.0184)	0.0325* (0.0180)	
Lag struct. ch.	0.00611 (0.00489)		-0.00551 (0.00403)	-0.00270 (0.00523)		-0.00681** (0.00330)
Observations	708	839	947	707	831	940
R-squared	0.823	0.806	0.772	0.867	0.857	0.869
Number of countries	138	164	145	137	162	144
Adj. R-squared	0.818	0.802	0.769	0.864	0.855	0.867

Note: *** p<0.01, ** p<0.05, * p<0.1; Robust clustered standard errors in parentheses.

Table B3: System-GMM Results for MDI Versions MDI_{A+} and MDI_{E+} with 5-Year Panel

VARIABLES	(1) MDI_{A+}	(2) MDI_{A+}	(3) MDI_{A+}	(4) MDI_{E+}	(5) MDI_{E+}	(6) MDI_{E+}
Lag MDI version	0.929*** (0.0402)	0.924*** (0.0581)	0.999*** (0.0327)	0.934*** (0.0726)	1.021*** (0.0207)	0.932*** (0.0590)
Lag trade/GDP	-0.00709 (0.00844)	-2.05e-05 (0.00994)		0.0140 (0.0108)	0.00284 (0.00464)	
Lag investment/GDP	-0.0378 (0.0478)	-0.112** (0.0477)		0.0623 (0.0750)	-0.0361 (0.0278)	
Lag credit/GDP	-0.0116 (0.0105)	-0.01000 (0.0149)		-0.00285 (0.0153)	-0.00807 (0.00516)	
Lag bank deposits/GDP	0.00591 (0.00638)	0.00361 (0.0136)		0.00249 (0.00826)	-0.00156 (0.00302)	
Lag FDI inflow/GDP	0.0176 (0.0152)	-0.0176 (0.0119)		-0.0188 (0.0197)	-0.0132 (0.0123)	
Lag ICT density	0.00397 (0.00846)		-0.00910* (0.00522)	-0.00459 (0.0140)		-0.0185 (0.0132)
Lag Coups	-1.131 (3.619)		-0.848 (3.827)	-1.464 (6.412)		13.02* (7.914)
Lag ethnic fract. index	-1.918 (2.826)		-2.759 (2.462)	-3.144* (1.716)		-2.048 (7.711)
Lag SVMDI	-0.232 (1.211)		-1.372** (0.694)	0.394 (1.216)		6.801** (3.420)
Lag inflation	-0.0109 (0.0169)	-0.0146 (0.0326)		-0.00123 (0.0234)	-0.00188* (0.00111)	
Lag gov. cons.	-0.0268 (0.0791)	-0.0542 (0.0663)		0.0178 (0.0877)	-0.00905 (0.0307)	
Lag struct. ch.	-0.0389 (0.0425)		-0.0181 (0.0151)	-0.0491 (0.0334)		0.0946 (0.0662)
LA	-1.440 (1.109)	-1.828 (1.352)	0.716 (0.690)	-0.998 (1.381)	0.131 (0.320)	-1.477** (0.680)
EA	-0.160 (1.350)	0.381 (1.288)	-0.347 (0.815)	-0.302 (1.158)	1.462*** (0.427)	0.920 (1.716)
Africa	-1.970* (1.027)	-2.686* (1.612)	-0.149 (0.473)	-0.982 (1.739)	-0.0952 (0.383)	-1.308 (1.027)
Observations	708	839	947	707	831	940
Number of countries	138	164	145	137	162	144
Lags:	6-6	6-6	5-5	6-6	4-5	7-7
No. of Instr.	58	38	40	58	87	20
Hansen test p-val	0.243	0.328	0.0899	0.101	0.139	0.104
AB-AR(2) test	0.495	0.618	0.000152	0.619	0.125	0.0544

Note: *** p<0.01, ** p<0.05, * p<0.1; Robust clustered standard errors in parentheses.

Table B4: TWFE Results for MDI subindices I_{A+} , I_A , I_{E+} and I_E for 5-Year Panel

VARIABLES	I_{A+}			I_A			I_{E+}			I_E		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	FE baseline	FE policy specification	FE structural specification	FE baseline	FE policy specification	FE structural specification	FE baseline	FE policy specification	FE structural specification	FE baseline	FE policy specification	FE structural specification
Lag MDI sub-index	0.747*** (0.0364)	0.753*** (0.0292)	0.751*** (0.0288)	0.796*** (0.0361)	0.824*** (0.0307)	0.781*** (0.0350)	1.023*** (0.0658)	1.058*** (0.0656)	1.076*** (0.0603)	0.867*** (0.0354)	0.873*** (0.0350)	0.820*** (0.0367)
Lag trade/GDP	0.00254 (0.00242)	0.00146 (0.00245)	0.000951 (0.00331)	0.000951 (0.00369)	0.00112 (0.00331)	0.00141 (0.00343)	0.00329 (0.00543)	0.00141 (0.00497)	0.00102 (0.00362)	0.000837 (0.00504)	0.00102 (0.00362)	0.00102 (0.00362)
Lag investment/GDP	-0.0171* (0.00950)	-0.0146 (0.00882)	-0.0146 (0.00882)	-0.00507 (0.0123)	-0.00320 (0.0113)	0.0160 (0.0160)	0.0160 (0.0160)	0.0211 (0.0157)	0.0108 (0.0105)	-2.096-05 (0.0105)	0.00108 (0.00951)	0.00108 (0.00951)
Lag credit/GDP	-0.00939*** (0.00260)	-0.00991*** (0.00220)	-0.00991*** (0.00220)	-0.00698** (0.00315)	-0.0105** (0.00253)	-0.0105** (0.00253)	-0.00953* (0.00306)	-0.0114*** (0.00413)	-0.00378 (0.00640)	-0.0119* (0.00640)	-0.00378 (0.00640)	-0.00378 (0.00640)
Lag bank deposits/GDP	0.00484*** (0.00161)	0.00305 (0.00231)	0.00305 (0.00231)	0.00682*** (0.00196)	0.00375 (0.00308)	0.00375 (0.00308)	0.00177 (0.00187)	0.00153 (0.00210)	0.00241 (0.00223)	0.00241 (0.00223)	0.00140 (0.00223)	0.00140 (0.00223)
Lag FDI inflow/GDP	0.00765 (0.00823)	0.00196 (0.00359)	0.00196 (0.00359)	0.0143 (0.0121)	0.00444 (0.00559)	0.00444 (0.00559)	-0.00748 (0.00827)	-0.00136 (0.00567)	-0.000707 (0.00251)	-0.000707 (0.00251)	-0.000707 (0.00251)	-0.000707 (0.00251)
Lag ICT density	-0.00594** (0.00244)	-0.00797*** (0.00193)	-0.00797*** (0.00193)	-0.0099*** (0.00343)	-0.0104*** (0.00269)	-0.0104*** (0.00269)	-0.011*** (0.00376)	-0.0115*** (0.00376)	-0.0115*** (0.00275)	0.00574 (0.00406)	0.00574 (0.00406)	0.00574 (0.00352)
Lag Coups	-0.00824 (0.392)	-0.00390 (0.291)	-0.00390 (0.291)	0.495 (0.439)	0.251 (0.359)	0.251 (0.359)	0.208 (0.420)	0.208 (0.420)	0.208 (0.268)	-0.410 (0.492)	-0.410 (0.492)	-0.172 (0.469)
Lag ethnic fract. index	0.446 (1.802)	-3.524** (1.591)	-3.524** (1.591)	-1.418 (2.337)	-4.349** (1.774)	-4.349** (1.774)	-5.749* (3.210)	-5.749* (3.210)	-8.187*** (2.279)	-4.610 (3.463)	-4.610 (3.463)	-10.07*** (3.402)
Lag SVMDI	-0.126 (0.263)	0.186 (0.234)	0.186 (0.234)	-0.173 (0.411)	-0.173 (0.411)	-0.152 (0.298)	-0.857** (0.298)	-0.857** (0.298)	-0.0792 (0.259)	0.0570 (0.578)	0.0570 (0.578)	0.0318 (0.389)
Lag inflation	-0.00086*** (0.000238)	-0.00081*** (0.000218)	-0.00081*** (0.000218)	-0.00061** (0.000249)	-0.00067*** (0.000222)	-0.00067*** (0.000222)	2.79e-05 (0.000227)	-0.000222 (0.000220)	-0.0012*** (0.000274)	-0.0012*** (0.000274)	-0.0012*** (0.000274)	-0.0012*** (0.000274)
Lag gov. cons.	0.0267** (0.0114)	0.0294** (0.0115)	0.0294** (0.0115)	0.0746** (0.0291)	0.0671** (0.0276)	0.0671** (0.0276)	0.0127 (0.0157)	0.00353 (0.0144)	0.0308** (0.0155)	0.0308** (0.0155)	0.0308** (0.0155)	0.0253** (0.0123)
Lag struct. ch.	0.00317 (0.00542)	-0.00578 (0.00422)	-0.00578 (0.00422)	-0.00245 (0.00713)	-0.00245 (0.00713)	-0.00474 (0.00497)	-0.0106 (0.00714)	-0.0106 (0.00714)	-0.00825*** (0.00310)	0.00493 (0.00773)	0.00493 (0.00773)	-0.00350 (0.00513)
Observations	697	827	971	696	829	964	690	810	959	697	817	966
R-squared	0.917	0.913	0.900	0.939	0.937	0.934	0.583	0.539	0.610	0.753	0.753	0.699
Number of countries	140	166	149	139	166	148	139	163	147	140	164	148
Adj. R-squared	0.914	0.912	0.899	0.937	0.936	0.933	0.571	0.531	0.606	0.746	0.748	0.695

Note: ***, p<0.01, **, p<0.05, *, p<0.1; Robust clustered standard errors in parentheses.

Table B5: System GMM Results for MDI subindices I_{A+} , I_A , I_{E+} and I_E for 5-Year Panel

VARIABLES	I_{A+}			I_A			I_{E+}			I_E		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	FE baseline	FE policy specification	FE structural specification	FE baseline	FE policy specification	FE structural specification	FE baseline	FE policy specification	FE structural specification	FE baseline	FE policy specification	FE structural specification
Lag MDI sub-index	0.902*** (0.0849)	0.955*** (0.0437)	1.007*** (0.0168)	0.972*** (0.0416)	0.931*** (0.0289)	0.978*** (0.0225)	0.923*** (0.0474)	0.986*** (0.0267)	0.921*** (0.119)	0.924*** (0.0377)	0.914*** (0.0690)	0.946*** (0.0734)
Lag trade/GDP	0.00368 (0.0186)	0.00194 (0.00985)		0.00211 (0.00449)	0.00274 (0.00334)		0.00480 (0.00875)	0.00146 (0.00596)		-0.000835 (0.0169)	0.0128 (0.0188)	
Lag investment/GDP	-0.154* (0.0784)	-0.0567 (0.0496)		-0.00110 (0.0296)	-0.0201 (0.0222)		0.0529 (0.0488)	-0.0136 (0.0406)		-0.0850 (0.0636)	-0.152* (0.0901)	
Lag credit/GDP	0.0163 (0.0198)	0.0116 (0.00783)		-0.000249 (0.00381)	0.00411 (0.00381)		-0.0149** (0.00707)	-0.00334 (0.00569)		-0.00432 (0.0139)	-0.0201 (0.0295)	
Lag bank deposits/GDP	0.00958 (0.00966)	-0.00385 (0.0113)		-0.00136 (0.00510)	0.000263 (0.00177)		0.00455 (0.00487)	0.000301 (0.00333)		0.000157 (0.00703)	0.00427 (0.0389)	
Lag FDI inflow/GDP	-0.0153 (0.0226)	-0.00850 (0.0164)		-0.0130 (0.0218)	-0.00804 (0.00790)		-0.0232 (0.0391)	-0.0191 (0.0206)		0.00528 (0.0133)	-0.0128 (0.0281)	
Lag ICT density	0.00516 (0.0118)		-0.0139*** (0.00415)	-0.00768 (0.00527)		-0.00776* (0.00405)	0.00677 (0.00751)		-0.0325** (0.0152)	0.000170 (0.00959)		-0.00467 (0.0105)
Lag Coups	-4.661 (5.213)		-1.524 (3.937)	0.452 (2.880)		-5.057 (4.522)	1.813 (3.132)		13.27 (11.85)	0.935 (4.010)		11.10 (9.306)
Lag ethnic fract. index	-0.0503 (2.694)		-0.533 (2.111)	-1.315 (0.988)		-1.519 (1.832)	-1.435 (1.489)		1.342 (11.99)	1.321 (2.900)		1.088 (3.562)
Lag SVMDI	0.231 (1.669)		1.125* (0.638)	0.207 (0.677)		0.00454 (0.520)	0.495 (1.153)		9.194** (4.655)	1.084 (1.411)		2.206 (1.777)
Lag inflation	0.0168 (0.0178)	0.00238 (0.0255)		-0.00308 (0.00919)	-0.00108 (0.00791)		0.00880 (0.0101)	-0.000581 (0.000642)		-0.0168 (0.0467)	-0.0194 (0.0591)	
Lag gov. cons.	-0.215* (0.121)	-0.0947 (0.0740)		0.0272 (0.0585)	0.00456 (0.0246)		0.00168 (0.0440)	0.00624 (0.0349)		-0.0380 (0.0964)	-0.115 (0.0939)	
Lag struct. ch.	0.0301 (0.0500)		0.00348 (0.0222)	-0.00142 (0.0212)		0.00162 (0.0255)	-0.0268 (0.0220)		0.126 (0.112)	-0.0150 (0.0442)		0.0439 (0.0604)
Africa	-0.719 (1.844)	-0.886 (1.383)	-0.0711 (0.443)	-0.846 (0.747)	-1.197** (0.507)	-0.278 (0.435)	-0.456 (0.879)	-0.0742 (0.598)	-1.455 (1.983)	-2.956 (1.935)	-4.985*** (1.566)	-1.284 (1.102)
Observations	696	829	964	697	827	971	690	810	959	697	817	966
Number of countries	139	166	148	140	166	149	139	163	147	140	164	148
Lags:	7-7	6-6	5-5	6-7	5-5	5-5	2-7	4-4	7-7	6-6*	6-6*	7-7
No. of Instr.	34	38	40	70	52	40	106	66	20	49	29	20
Hansen test p-val	0.876	0.496	0.124	0.102	0.184	0.0383	0.271	0.118	0.0675	0.147	0.262	0.446
AB-AR(2) test	0.0904	0.172	3.35e-06	0.909	0.264	0.0449	0.183	0.239	0.243	0.511	0.529	0.00155

Note: *** p<0.01, ** p<0.05, * p<0.1. Robust clustered standard errors in parentheses; EA and LA dummies included in regression but not reported; * additional restrictions of lags of year and region dummies identify the estimation.

Table B6: Robustness Checks: TWFE Estimations of Trade Channel

VARIABLES	(1) FE policy specification		(2)	(3)	(4)	(5)	(6)	(7)	(8)
	baseline	base							
Lag MDI basic	0.849*** (0.0325)	0.852*** (0.0330)	0.848*** (0.0318)	0.853*** (0.0325)	0.853*** (0.0325)	0.853*** (0.0325)	0.853*** (0.0325)	0.863*** (0.0333)	0.864*** (0.0332)
Lag trade/GDP	0.00308 (0.00322)	0.00379** (0.00147)	0.00134 (0.00174)	0.00374** (0.00160)	0.00366** (0.00150)	0.00366** (0.00154)	0.00366** (0.00154)	0.00285 (0.00218)	-0.000141 (0.00187)
Lag investment/GDP	-0.00152 (0.00809)	0.000724 (0.00788)	-0.00684 (0.00831)	-8.53e-05 (0.00787)	0.000255 (0.00799)	0.000135 (0.00795)	0.000135 (0.00795)	-0.0194** (0.00810)	-0.0191** (0.00823)
Lag credit/GDP	-0.00804 (0.00622)	-0.00770 (0.00614)	-0.00797 (0.00625)	-0.00786 (0.00611)	-0.00772 (0.00609)	-0.00780 (0.00610)	-0.00780 (0.00610)	-0.00726 (0.00625)	-0.00738 (0.00628)
Lag bank deposits/GDP	0.00301* (0.00173)	0.00379** (0.00147)	0.00134 (0.00174)	0.00374** (0.00160)	0.00366** (0.00150)	0.00366** (0.00154)	0.00366** (0.00154)	0.00285 (0.00218)	-0.000141 (0.00187)
Lag FDI inflow/GDP	0.00292 (0.00364)	0.00289 (0.00388)	0.00289 (0.00388)	0.00289 (0.00388)	0.00289 (0.00388)	0.00289 (0.00388)	0.00289 (0.00388)	0.00957 (0.0146)	0.00166 (0.00303)
Lag inflation	-0.00139*** (0.000260)	-0.0014*** (0.000268)	-0.0014*** (0.000250)	-0.0014*** (0.000267)	-0.0014*** (0.000267)	-0.0014*** (0.000267)	-0.0014*** (0.000267)	-0.0014*** (0.000246)	-0.00136*** (0.000249)
Lag gov. cons.	0.0547*** (0.0179)	0.0557*** (0.0172)	0.0452*** (0.0172)	0.0560*** (0.0175)	0.0561*** (0.0175)	0.0561*** (0.0175)	0.0561*** (0.0175)	0.0234 (0.0148)	0.0231 (0.0147)
Lag exports/GDP	-0.000799 (0.00555)	-0.000799 (0.00555)	-0.000799 (0.00555)	-0.000799 (0.00555)	-0.000799 (0.00555)	-0.000799 (0.00555)	-0.000799 (0.00555)	-0.0226*** (0.00776)	-0.0230*** (0.00766)
Lag imports/GDP	0.0145** (0.00631)	0.0145** (0.00631)	0.0145** (0.00631)	0.0145** (0.00631)	0.0145** (0.00631)	0.0145** (0.00631)	0.0145** (0.00631)	0.0329*** (0.00835)	0.0337*** (0.00820)
Lag FDI outflow/GDP					0.000585 (0.00242)			-0.00865 (0.0145)	
Lag FDI volume						0.000913 (0.00153)			
Observations	816	820	820	816	816	816	816	816	816
R-squared	0.863	0.864	0.865	0.863	0.863	0.863	0.863	0.867	0.867
Number of countries	163	163	163	163	163	163	163	163	163
Adj. R-squared	0.861	0.861	0.863	0.861	0.861	0.861	0.861	0.864	0.864

Note: *** p<0.01, ** p<0.05, * p<0.1; Robust clustered standard errors in parentheses.

Table B7: Robustness Checks: TWFE Estimations of Globalization

VARIABLES	(1) FE structural specification baseline	(2) KOF Globalization Index	(3) KOF De Facto Globalization Index	(4) KOF De Jure Globalization Index
Lag MDI basic	0.764*** (0.0393)	0.768*** (0.0378)	0.768*** (0.0382)	0.772*** (0.0378)
Lag KOF Glob. Index		0.0469** (0.0182)		
Lag ICT density	0.00113 (0.00297)	-0.00122 (0.00307)	-0.00108 (0.00300)	-8.06e-05 (0.00305)
Lag Coups	-0.0458 (0.304)	0.0455 (0.290)	0.0423 (0.285)	0.0218 (0.301)
Lag ethnic fract. index	-8.871*** (2.624)	-7.543*** (2.604)	-7.471*** (2.521)	-8.399*** (2.664)
Lag SVMDI	0.0788 (0.276)	-0.0562 (0.267)	0.00881 (0.268)	-0.0134 (0.273)
Lag struct. ch.	-0.00532 (0.00432)	-0.00581 (0.00383)	-0.00693* (0.00384)	-0.00602 (0.00390)
Lag KOF Glob. Index de facto			0.0420*** (0.0131)	
Lag KOF Glob. Index de jure				0.0217 (0.0160)
Observations	954	951	951	951
R-squared	0.846	0.854	0.854	0.852
Number of countries	146	145	145	145
Adj. R-squared	0.844	0.852	0.852	0.850

Note: *** p<0.01, ** p<0.05, * p<0.1; Robust clustered standard errors in parentheses.

Table B8: Robustness Checks: TWFE Estimations of Fertility Rate and Population Growth

VARIABLES	(1) FE baseline	(2) FE policy specification	(3) FE structural specification
Lag MDI basic	0.809*** (0.0379)	0.842*** (0.0336)	0.759*** (0.0408)
Lag trade/GDP	0.00437 (0.00375)	0.00315 (0.00319)	
Lag investment/GDP	-0.00169 (0.00866)	-0.000892 (0.00836)	
Lag credit/GDP	-0.0129*** (0.00418)	-0.00645 (0.00626)	
Lag bank deposits/GDP	0.00525*** (0.00167)	0.00305* (0.00174)	
Lag FDI inflow/GDP	0.0110 (0.00824)	0.00269 (0.00375)	
Lag ICT density	0.00280 (0.00295)		0.00254 (0.00313)
Lag Coups	0.0803 (0.340)		-0.0674 (0.303)
Lag ethnic fract. index	-4.011 (2.765)		-9.136*** (2.664)
Lag SVMDI	-0.0787 (0.373)		0.0791 (0.278)
Lag inflation	-0.00130*** (0.000273)	-0.00141*** (0.000260)	
Lag gov. cons.	0.0595*** (0.0182)	0.0529*** (0.0195)	
Lag struct. ch.	0.00177 (0.00599)		-0.00416 (0.00427)
Lag population growth	-0.0734 (0.0456)	-0.0836* (0.0450)	-0.0860** (0.0415)
Lag fertility rate	-0.227 (0.145)	-0.169 (0.133)	-0.126 (0.112)
Observations	696	816	952
R-squared	0.879	0.865	0.847
Number of countries	139	163	146
Adj. R-squared	0.875	0.862	0.845

Note: *** p<0.01, ** p<0.05, * p<0.1; Robust clustered standard errors in parentheses.

Table B9: List of Papers Included in the Literature Review Categorized By Types of Drivers

Type	Dalgaard et al., 2004	Sala-i-Martin, 1997	Roubini and Sala-i-Martin, 1992	Barro, 1996	Barro, 2003	Barro, 2000	Roine et al., 2009	Vanhout, 2000	Burnside and Dollar, 2000	Dollar and Kraay, 2004	Anand et al., 2013
Economic Development	x	x	x	x	x	x	x	x	x	x	x
Social and Political Stability	x	x	x						x		
Institutional Quality	x	x		x	x	x			x	x	
Economic Policies	x	x	x	x	x	x	x		x	x	x
Human Capital and Health		x	x	x		x		x			x
Regional heterogeneities	x	x	x	x		x			x	x	
Other determinants (e.g. Aid, Fertility, Population growth), Religion		x		x	x	x	x	x		x	

Note: If a cell is marked by an x, the type of driver is included in the respective paper.

C Appendix Chapter 5 “The Poverty Effect of Democratization”

Table C1: Interaction Terms for Regressions in Columns 10-12 in Tables 9 and 10 (Main Results)

	(1)	(2)	(3)	(4)	(5)	(6)
Democracy	78.969 (42.581)	13.564 (39.633)	-52.265 (63.417)	3.671 (4.465)	63.428 (55.996)	-118.266 (62.398)
Democracy x lag one Poverty	-0.068* (0.029)	-0.156 (0.163)	-0.313* (0.142)		-0.120 (0.183)	-0.304* (0.119)
Democracy x lag two Poverty		-0.103 (0.264)	0.021 (0.221)		-0.175 (0.285)	-0.026 (0.215)
Democracy x lag three Poverty		0.234 (0.237)	0.468 (0.308)		0.264 (0.216)	0.442 (0.296)
Democracy x lag four Poverty		-0.004 (0.126)	-0.335 (0.303)		-0.059 (0.138)	-0.303 (0.286)
Democracy x lag one GDP	-0.060 (0.033)	0.125 (0.263)	-0.557 (0.308)		0.024 (0.344)	-0.681* (0.314)
Democracy x lag two GDP		-0.365 (0.339)	-0.218 (0.481)		-0.551 (0.421)	-0.094 (0.491)
Democracy x lag three GDP		0.498 (0.333)	0.919 (0.544)		0.291 (0.409)	0.910 (0.512)
Democracy x lag four GDP		-0.308 (0.297)	-0.763 (0.519)		0.137 (0.302)	-0.621 (0.524)
Democracy x lag one Gini	-0.036 (0.118)	1.614 (1.185)	3.247** (1.186)		1.329 (1.064)	3.249** (1.138)
Democracy x lag two Gini		-1.911 (1.418)	-3.250* (1.452)		-2.153 (1.553)	-3.148* (1.376)
Democracy x lag three Gini		1.005 (1.439)	0.262 (1.838)		1.416 (1.587)	0.350 (1.746)
Democracy x lag four Gini		-0.629 (0.693)	0.300 (1.266)		-0.491 (0.839)	0.375 (1.318)
lag one Poverty x lag one GDP	-0.000* (0.000)	-0.000 (0.000)	0.001 (0.000)	-0.000 (0.000)	0.000 (0.001)	0.001 (0.000)
lag two Poverty x lag two GDP		0.001 (0.001)	0.000 (0.001)		0.000 (0.001)	0.000 (0.001)
lag three Poverty x lag three GDP		-0.001* (0.001)	-0.001 (0.001)		-0.001 (0.001)	-0.001 (0.001)
lag four Poverty x lag four GDP		0.000 (0.000)	-0.000 (0.001)		0.000 (0.000)	-0.000 (0.001)
lag one Poverty x lag one Gini	0.001 (0.001)	0.002 (0.002)	0.001 (0.002)	0.001 (0.001)	0.002 (0.002)	0.002 (0.002)
lag two Poverty x lag two Gini		-0.002 (0.004)	-0.002 (0.003)		-0.003 (0.004)	-0.002 (0.003)
lag three Poverty x lag three Gini		-0.001 (0.003)	0.000 (0.003)		-0.002 (0.003)	-0.000 (0.003)
lag four Poverty x lag four Gini		0.002 (0.001)	0.001 (0.003)		0.002 (0.001)	0.001 (0.003)
Lag one GDP x Lag one Gini	0.001 (0.001)	0.002 (0.004)	0.000 (0.003)	0.002 (0.002)	0.005 (0.003)	0.002 (0.003)
Lag two GDP x Lag two Gini		-0.006 (0.007)	-0.005 (0.006)		-0.008 (0.007)	-0.005 (0.006)
Lag three GDP x Lag three Gini		0.003 (0.007)	0.005 (0.006)		0.004 (0.007)	0.005 (0.006)
Lag four GDP x Lag four Gini		0.001 (0.003)	-0.001 (0.005)		0.001 (0.003)	-0.002 (0.004)
AR2 test p-value				0.44	0.26	0.49
Observations	2209	1778	1285	2058	1642	1181
Countries in sample	141	132	103	135	123	100

Note: This table presents the results of the effect of democracy on the poverty headcount ratio. The reported coefficient on democracy is multiplied by 100. In all specifications we control for a full set of country and year fixed effects. Columns 3 and 6 include 8 lags of all independent variables as controls but we do not report the coefficients. Standard errors are robust against heteroscedasticity and serial correlation at the country level are reported in parenthesis. *** p<0.01, **p<0.05, *p>0.1.

Table C2: Main Results With Alternative Poverty Lines and the Poverty Gap as Alternative Poverty Measure

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Poverty Measure: Poverty Headcount Rate Poverty Line: \$3.20												
	TWFE Estimates											
Democracy	1.450 (1.883)	1.486 (1.744)	1.079 (1.505)	0.337 (1.789)	1.261 (1.678)	1.637 (1.859)	0.533 (1.914)	1.198 (1.733)	1.603 (1.953)	2.485 (2.131)	36.018 (40.096)	-21.754 (58.951)
	GMM Estimates											
Democracy	1.262 (2.049)	2.049 (2.142)	-0.065 (1.864)	-0.107 (1.981)	1.760 (2.079)	0.338 (1.998)	-0.335 (2.063)	1.139 (2.181)	0.838 (2.277)	1.264 (2.197)	90.421 (55.406)	-129.836 (88.861)
AR2 test p-value	0.06	0.56	0.42	0.06	0.56	0.39	0.06	0.54	0.41	0.06	0.43	0.27
Poverty Line: \$5.50												
	TWFE Estimates											
Democracy	2.283 (1.349)	2.522 (1.351)	1.108 (0.954)	1.601 (1.275)	2.223 (1.248)	1.310 (0.996)	1.898 (1.382)	2.872* (1.370)	2.507 (1.324)	1.728 (1.074)	40.710 (33.826)	-24.205 (43.006)
	GMM Estimates											
Democracy	1.464 (1.433)	1.770 (1.519)	0.638 (1.317)	0.703 (1.404)	1.500 (1.434)	0.997 (1.357)	1.031 (1.485)	2.071 (1.626)	2.831 (1.746)	0.368 (1.409)	37.110 (45.008)	-11.469 (65.304)
AR2 test p-value	0.29	0.99	0.12	0.29	1.00	0.09	0.29	0.95	0.08	0.28	0.80	0.25
Poverty Measure: Poverty Gap Poverty Line: \$1.90												
	TWFE Estimates											
Democracy	-1.491 (3.235)	-2.940 (2.669)	-5.361 (3.217)	-3.111 (3.182)	-3.735 (2.747)	-6.850 (3.495)	-3.217 (3.340)	-3.683 (2.874)	-6.608 (3.485)	1.855 (5.234)	-20.416 (37.111)	-52.627 (63.428)
	GMM Estimates											
Democracy	3.557 (3.877)	-0.517 (3.694)	-5.517 (3.738)	2.276 (3.843)	-1.632 (3.786)	-7.650 (4.259)	2.171 (4.094)	-2.092 (3.766)	-7.025 (3.951)	5.350 (4.988)	-26.956 (46.227)	-115.554 (72.726)
AR2 test p-value	0.05	0.29	0.81	0.04	0.25	0.78	0.04	0.27	0.86	0.04	0.20	0.31
Poverty Line: \$3.20												
	TWFE Estimates											
Democracy	1.351 (2.386)	0.135 (1.923)	-0.211 (1.853)	-0.019 (2.278)	-0.236 (1.932)	-0.392 (2.110)	0.068 (2.397)	-0.366 (2.009)	-0.500 (2.157)	1.660 (2.771)	1.923 (33.544)	-36.316 (53.904)
	GMM Estimates											
Democracy	3.143 (2.762)	1.553 (2.462)	-0.988 (2.232)	1.967 (2.737)	1.492 (2.506)	-0.595 (2.550)	1.689 (2.922)	1.225 (2.592)	-0.658 (2.646)	3.068 (3.083)	17.451 (40.447)	-77.360 (53.342)
AR2 test p-value	0.96	0.12	1.00	0.95	0.13	0.94	0.94	0.14	0.86	0.91	0.31	0.96
Poverty Line: \$5.50												
	TWFE Estimates											
Democracy	1.451 (1.702)	1.411 (1.647)	0.101 (1.229)	0.652 (1.612)	1.047 (1.571)	0.215 (1.441)	0.848 (1.724)	1.472 (1.639)	0.815 (1.519)	2.064 (1.462)	38.842 (32.985)	-13.779 (46.595)
AR2 test p-value												
	GMM Estimates											
Democracy	1.405 (1.725)	0.289 (1.830)	-0.586 (1.578)	0.485 (1.685)	-0.061 (1.784)	-0.291 (1.763)	0.468 (1.751)	-0.307 (1.838)	0.307 (1.732)	0.977 (1.534)	12.542 (41.070)	-5.173 (63.717)
AR2 test p-value	0.81	0.32	0.31	0.81	0.33	0.34	0.81	0.31	0.26	0.84	0.11	0.25

Note: This table presents TWFE and GMM estimates of the effect of democracy on the poverty headcount ratio. The reported coefficient on democracy is multiplied by 100. In all specifications we control for a full set of country and year fixed effects and 4 lags of poverty, GDP and inequality but coefficients are not shown. The number of observations and countries in sample are not shown but behave similar to columns in Table 9 and 10 (Observations range from about 2200 in column 1 to 1200 in column 12 and countries in the sample range from about 140 in column 1 to 100 in column 12). Standard errors are robust against heteroscedasticity and serial correlation at the country level are reported in parenthesis. *** p<0.01, **p<0.05, *p>0.1.

Table C3: Robustness Checks Using Alternative Democracy Dummies

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Democracy Measure: BMR												
	TWFE Estimates											
Democracy	1.458 (2.206)	-0.210 (2.058)	-1.782 (3.034)	0.489 (2.213)	-0.780 (2.269)	-3.392 (3.460)	0.460 (2.330)	-0.906 (2.502)	-4.195 (3.801)	-6.823 (3.510)	10.491 (45.044)	-77.677 (73.575)
	GMM Estimates											
Democracy	-0.142 (3.366)	0.090 (3.308)	-2.674 (3.587)	-1.194 (3.162)	-0.620 (3.186)	-4.447 (3.872)	-1.627 (3.401)	-1.495 (3.434)	-4.274 (3.872)	-7.260 (3.752)	46.137 (47.218)	-85.114 (75.802)
AR2 test p-value	0.29	0.64	0.47	0.30	0.71	0.47	0.31	0.78	0.44	0.33	0.53	0.23
Democracy Measure: CGV												
	TWFE Estimates											
Democracy	0.324 (2.184)	-0.097 (2.088)	-2.435 (2.768)	-1.658 (2.016)	-1.669 (2.404)	-4.812 (3.522)	-1.423 (2.139)	-1.967 (2.528)	-5.229 (3.713)	-5.282* (2.447)	31.551 (42.431)	-24.375 (74.700)
	GMM Estimates											
Democracy	-1.511 (3.191)	-0.132 (2.943)	-3.360 (3.019)	-3.747 (2.890)	-1.737 (2.743)	-6.890* (3.348)	-4.042 (3.112)	-1.933 (2.859)	-6.205 (3.762)	-6.785* (3.071)	117.431 (70.553)	-42.494 (79.397)
AR2 test p-value	0.29	0.72	0.34	0.29	0.76	0.33	0.29	0.79	0.28	0.32	0.78	0.17
No. of poverty lags incl.	1	4	8	1	4	8	1	4	8	1	4	8
No. of GDP lags incl.	0	0	0	1	4	8	1	4	8	1	4	8
No. of inequality lags incl.	0	0	0	0	0	0	1	4	8	1	4	8

Note: This table presents TWFE and GMM estimates of the effect of democracy on the poverty headcount ratio using alternative democracy dummy measures. The reported coefficient on democracy is multiplied by 100. In all specifications we control for a full set of country and year fixed effects and the number of lags as indicated in the lower part of the Table. The number of observations and countries in sample are not shown but behave similar to columns in Table 9 and 10 (Observations range from about 2200 in column 1 to 1200 in column 12 and countries in the sample range from about 140 in column 1 to 100 in column 12). Standard errors are robust against heteroscedasticity and serial correlation at the country level are reported in parenthesis. *** p<0.01, **p<0.05, *p>0.1.

Table C4: Robustness Checks Using Different Subsamples for the Estimation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	TWFE LDC	TWFE non-LDC	TWFE LMIC	TWFE HIC	GMM LDC	GMM non-LDC	GMM LMIC	GMM HIC
Democracy	-0.545 (0.493)	-0.303 (4.138)	-0.011 (2.387)	-7.101 (6.926)	-0.545 (0.460)	1.127 (4.704)	-0.379 (3.037)	-0.789 (7.925)
Poverty first lag	1.581*** (0.120)	0.848*** (0.064)	0.878*** (0.082)	0.847*** (0.100)	1.581*** (0.111)	0.789*** (0.062)	0.816*** (0.082)	0.770*** (0.088)
Poverty second lag	-0.729*** (0.116)	0.089 (0.094)	-0.010 (0.121)	0.142 (0.129)	-0.729*** (0.108)	0.080 (0.088)	0.012 (0.116)	0.123 (0.112)
Poverty third lag	0.132 (0.083)	-0.035 (0.086)	0.085 (0.092)	-0.119 (0.105)	0.132 (0.077)	-0.028 (0.081)	0.069 (0.084)	-0.112 (0.097)
Poverty fourth lag	-0.004 (0.034)	-0.013 (0.055)	-0.046 (0.042)	-0.004 (0.092)	-0.004 (0.032)	0.011 (0.051)	0.020 (0.048)	0.014 (0.078)
GDP first lag	0.057 (0.047)	-0.743** (0.257)	-0.506* (0.202)	-0.197 (0.620)	0.057 (0.044)	-0.690** (0.258)	-0.533* (0.214)	-0.271 (0.531)
GDP second lag	-0.089 (0.050)	0.060 (0.293)	-0.046 (0.201)	-0.213 (1.076)	-0.089 (0.047)	0.096 (0.281)	-0.040 (0.193)	0.185 (0.845)
GDP third lag	0.052 (0.056)	0.577 (0.311)	0.353 (0.195)	0.753 (1.080)	0.052 (0.052)	0.463 (0.280)	0.331 (0.183)	0.043 (0.877)
GDP fourth lag	-0.049 (0.030)	-0.118 (0.238)	-0.013 (0.149)	-0.346 (0.607)	-0.049 (0.028)	-0.058 (0.241)	0.019 (0.151)	0.395 (0.534)
Gini first lag	0.126 (0.108)	0.248 (0.527)	-0.040 (0.500)	2.094* (0.931)	0.126 (0.100)	0.231 (0.517)	-0.181 (0.516)	2.114* (0.913)
Gini second lag	-0.307 (0.223)	-0.651 (0.612)	0.035 (0.668)	-3.524* (1.322)	-0.307 (0.208)	-0.529 (0.599)	0.156 (0.673)	-3.327** (1.193)
Gini third lag	0.361 (0.200)	0.720 (0.492)	0.203 (0.417)	2.481 (1.333)	0.361 (0.186)	0.753 (0.471)	0.164 (0.390)	2.442* (1.179)
Gini fourth lag	-0.229* (0.089)	-0.241 (0.300)	-0.275 (0.233)	-0.637 (0.762)	-0.229** (0.083)	-0.399 (0.327)	-0.287 (0.250)	-0.687 (0.716)
AR2 test p-value					0.19	0.52	0.87	0.41
Observations	376	1402	1282	496	344	1298	1183	459
Countries in sample	32	100	99	33	31	92	95	28

Note: This table presents TWFE and GMM estimates of the effect of democracy on the poverty headcount ratio using different subsamples for the Estimation. The main sample is split into Least Developed Countries (LDCs) and non-LDCs and Low- and Middle-Income Countries (LMICs) and High-Income Countries (HICs). The reported coefficient on democracy is multiplied by 100. In all specifications we control for a full set of country and year fixed effects and 4 lags of poverty, GDP and inequality. Standard errors are robust against heteroscedasticity and serial correlation at the country level are reported in parenthesis. *** p<0.01, **p<0.05, *p>0.1.

Table C5: Robustness Checks Using Different Panel Length (5-Year Panel)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
TWFE Estimates								
Democracy	1.799 (13.980)	6.806 (20.780)	1.202 (15.027)	4.672 (18.641)	0.468 (15.214)	3.036 (16.923)	-2.058 (15.077)	-251.830 (208.142)
Poverty first lag	0.570*** (0.100)	0.511*** (0.127)	0.565*** (0.087)	0.499*** (0.122)	0.555*** (0.090)	0.481*** (0.114)	1.344 (1.086)	-0.688 (1.448)
Poverty second lag		-0.053 (0.111)		-0.068 (0.109)		-0.110 (0.126)		5.911*** (1.515)
GDP first lag			-0.072 (0.436)	-0.602 (0.669)	-0.096 (0.467)	-0.720 (0.699)	-1.837 (1.571)	-2.547 (1.997)
GDP second lag				0.037 (0.708)		-0.072 (0.752)		2.863 (3.126)
Gini first lag					0.193 (0.615)	0.156 (0.758)	-2.760 (3.686)	-1.846 (4.649)
Gini second lag						0.888 (0.855)		3.287 (6.534)
Observations	342	226	341	226	337	223	337	223
Countries in sample	115	90	114	90	113	89	113	89
GMM Estimates								
Democracy	16.335 (20.454)	-5.471 (19.692)	15.916 (20.352)	-26.469 (19.156)	12.068 (19.949)	34.395 (38.246)	2.590 (19.255)	0.000 (.)
Poverty first lag	0.513*** (0.135)	0.466** (0.145)	0.494*** (0.123)	0.433*** (0.123)	0.510*** (0.125)	0.304 (0.162)	-2.876 (2.374)	-51.967*** (11.920)
Poverty second lag		-0.001 (0.118)		-0.023 (0.116)		-0.008 (0.400)		25.678*** (4.181)
GDP first lag			0.118 (0.700)	0.157 (0.983)	0.060 (0.707)	1.852 (1.763)	-7.170* (3.301)	-29.002* (11.383)
GDP second lag				-0.571 (0.684)		-1.933 (3.169)		0.000 (.)
Gini first lag					-0.070 (0.736)	1.788 (2.430)	-16.617* (7.255)	-23.640 (18.904)
Gini second lag						5.168 (3.951)		-18.264 (13.826)
AR2 test p-value	0.40	0.22	0.41	0.13	0.40	0.74	0.45	0.25
Observations	226	136	226	130	223	25	223	25
Countries in sample	90	69	90	64	89	17	89	17

Note: This table presents TWFE and GMM estimates of the effect of democracy on the poverty headcount ratio using a 5-year panel for the estimation. The reported coefficient on democracy is multiplied by 100. In all specifications we control for a full set of country and year fixed effects. Standard errors are robust against heteroscedasticity and serial correlation at the country level are reported in parenthesis. *** p<0.01, **p<0.05, *p>0.1.

Figure C1: Estimate of the Treatment Effect of Democracy on the Poverty Headcount Rate Using Regression Adjustment with 90% Confidence Intervals

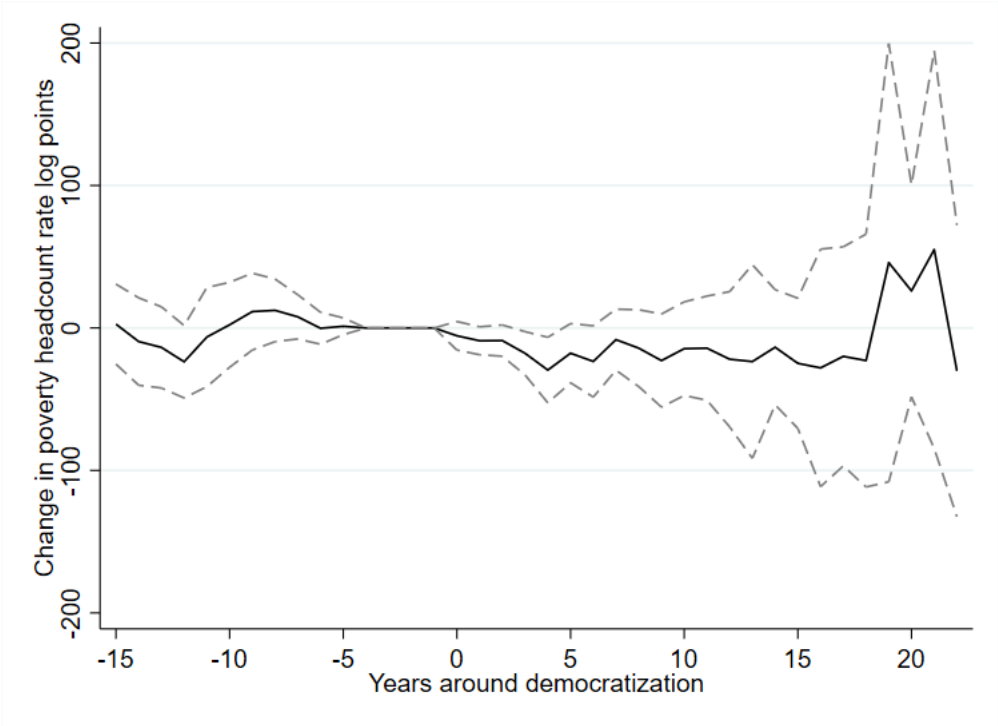


Figure C2: Estimate of the Treatment Effect of Democracy on the Poverty Headcount Rate Using Inverse Propensity Score Weighting Adjustment with 90% Confidence Intervals

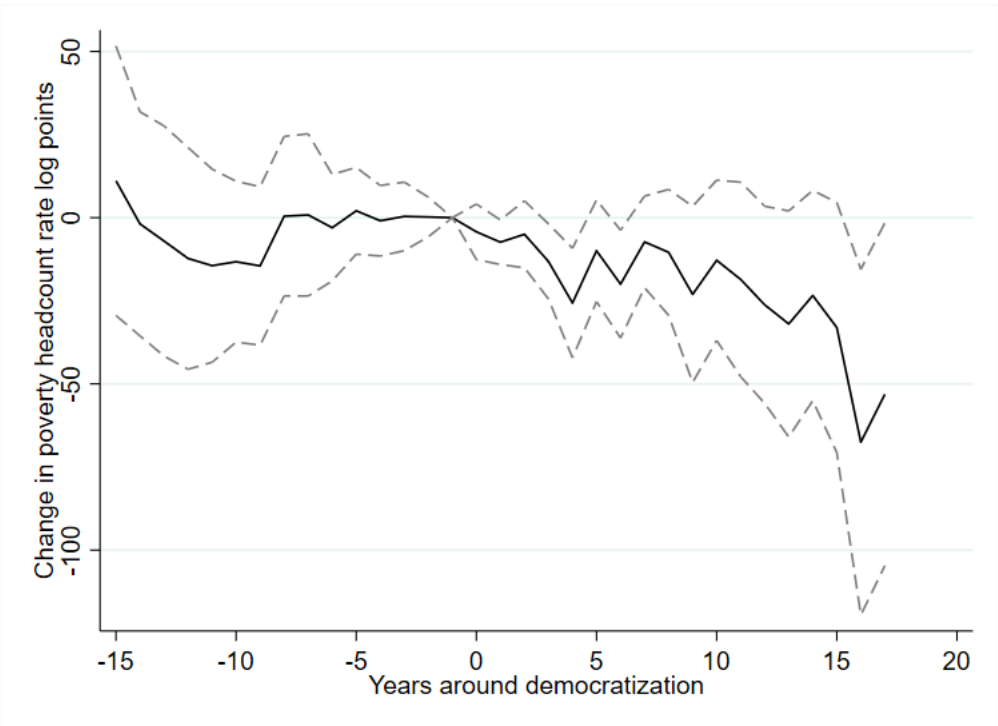


Table C6: Robustness Check Using the Polity2 Index as Alternative Democracy Measure in TWFE Estimations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Democracy	0.046 (0.193)	-0.069 (0.183)	-0.158 (0.229)	-0.110 (0.187)	-0.143 (0.198)	-0.258 (0.262)	-0.099 (0.195)	-0.146 (0.205)	-0.264 (0.264)	-0.265 (0.330)	-0.250 (0.393)	-0.363 (0.443)	-0.105 (0.308)	1.508 (3.531)	-1.547 (6.198)
Democracy first lag															
Democracy second lag															
Democracy third lag															
Democracy fourth lag															
Poverty first lag	0.886*** (0.025)	0.887*** (0.060)	0.847*** (0.063)	0.867*** (0.026)	0.865*** (0.062)	0.821*** (0.065)	0.864*** (0.026)	0.857*** (0.064)	0.810*** (0.064)	0.864*** (0.026)	0.859*** (0.064)	0.815*** (0.063)	0.978*** (0.360)	0.948 (0.907)	0.846 (0.820)
Poverty second lag															
Poverty third lag															
Poverty fourth lag															
GDP first lag															
GDP second lag															
GDP third lag															
GDP fourth lag															
Gini first lag															
Gini second lag															
Gini third lag															
Gini fourth lag															
Observations	2170	1765	1294	2162	1760	1293	2132	1733	1269	2131	1732	1269	2131	1733	1269
Countries in sample	133	125	99	132	124	98	131	123	97	130	122	97	130	123	97
p-value poverty lags 5 to 8			[0.906]			[0.880]			[0.903]			[0.901]			[0.091]
p-value poverty lags 5 to 8						[0.485]			[0.436]			[0.408]			[0.480]
p-value poverty lags 5 to 8									[0.807]			[0.781]			[0.454]

Note: This table presents the results of the effect of democracy on the poverty headcount ratio. The reported coefficient on democracy is multiplied by 100. In all specifications we control for a full set of country and year fixed effects. Columns 3, 6, 8, 12 and 15 include 8 lags of poverty as controls but we report only the p-value of a joint significance test for lags 5 to 8 in the lower part of the table. Columns 10-12 include additional interaction terms between democracy and one lag (column 10), 4 lags (column 11) and 8 lags (column 12) of poverty. GDP and inequality but coefficients are not shown. Standard errors are robust against heteroscedasticity and serial correlation at the country level are reported in parenthesis. *** p<0.01, ** p<0.05, * p>0.1.

Table C7: Robustness Check Using the Polity2 Index as Alternative Democracy Measure in GMM Estimations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Democracy	0.071 (0.232)	0.078 (0.236)	-0.108 (0.247)	-0.035 (0.222)	0.009 (0.235)	-0.301 (0.264)	0.012 (0.235)	-0.008 (0.231)	-0.255 (0.259)	-0.067 (0.311)	-0.207 (0.372)	-0.360 (0.430)	0.035 (0.290)	1.798 (4.579)	-1.271 (5.887)
Democracy first lag										0.107 (0.361)	0.233 (0.502)	0.327 (0.541)			
Democracy second lag											0.290 (0.345)	0.062 (0.274)			
Democracy third lag											-0.863 (0.534)	-1.214 (0.655)			
Democracy fourth lag											0.777* (0.339)	1.068 (0.577)			
Poverty first lag	0.837*** (0.027)	0.821*** (0.060)	0.835*** (0.061)	0.824*** (0.027)	0.807*** (0.060)	0.810*** (0.063)	0.817*** (0.028)	0.800*** (0.061)	0.808*** (0.061)	0.817*** (0.028)	0.800*** (0.063)	0.811*** (0.060)	0.799** (0.292)	0.883 (0.969)	0.810 (0.781)
Poverty second lag														-0.661 (1.429)	-1.238 (1.669)
Poverty third lag														2.254 (1.441)	1.472 (1.310)
Poverty fourth lag														-1.336* (0.594)	-0.712 (1.112)
GDP first lag				-0.222* (0.088)	-0.382* (0.180)	-0.773*** (0.211)	-0.274** (0.091)	-0.425* (0.193)	-0.738** (0.233)	-0.273** (0.090)	-0.422* (0.192)	-0.764** (0.234)	-0.777 (0.523)	-0.777 (1.373)	0.320 (1.131)
GDP second lag														1.616 (0.974)	0.974 (0.974)
GDP third lag														-0.652 (2.812)	-2.109 (2.207)
GDP fourth lag														(2.616) (2.290)	(2.290) (2.290)
Gini first lag							0.196 (0.138)	0.365 (0.154)	0.183 (0.249)	0.204 (0.137)	0.462 (0.411)	0.122 (0.518)	-1.408 (1.167)	-1.076 (3.543)	0.984 (2.980)
Gini second lag														3.510 (6.831)	3.035 (5.310)
Gini third lag														-1.152 (5.576)	-4.333 (4.966)
Gini fourth lag														-1.918 (2.293)	1.721 (3.609)
AR2 test p-value	0.52	0.39	0.75	0.53	0.40	0.78	0.54	0.41	0.69	0.54	0.43	0.68	0.57	0.37	0.40
Observations	2027	1636	1194	2020	1632	1194	1991	1606	1171	1991	1606	1171	1991	1606	1171
Countries in sample	126	118	97	125	117	97	124	116	96	124	116	96	124	116	96
p-value poverty lags 5 to 8			[0.895]	[0.862]	[0.858]	[0.862]	[0.858]	[0.858]	[0.858]	[0.858]	[0.858]	[0.891]	[0.891]	[0.858]	[0.056]
p-value poverty lags 5 to 8				[0.489]	[0.402]	[0.489]	[0.402]	[0.402]	[0.402]	[0.402]	[0.402]	[0.411]	[0.411]	[0.368]	[0.368]
p-value poverty lags 5 to 8					[0.764]	[0.764]	[0.764]	[0.764]	[0.764]	[0.764]	[0.764]	[0.754]	[0.754]	[0.754]	[0.375]

Note: This table presents the results of the effect of democracy on the poverty headcount ratio. The reported coefficient on democracy is multiplied by 100. In all specifications we control for a full set of country and year fixed effects. Columns 3, 6, 8, 12 and 15 include 8 lags of poverty as controls but we report only the p-value of a joint significance test for lags 5 to 8 in the lower part of the table. Columns 10-12 include additional interaction terms between democracy and one lag (column 10), 4 lags (column 11) and 8 lags (column 12) of poverty GDP and inequality but coefficients are not shown. Standard errors are robust against heteroscedasticity and serial correlation at the country level are reported in parenthesis. *** p<0.01, ** p<0.05, * p>0.1.

Table C8: Robustness Check Using the V-Dem Polyarchy Index as Alternative Democracy Measure in TWFE Estimations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Democracy	8.420 (8.850)	1.445 (7.662)	-6.209 (8.821)	5.061 (8.803)	-0.663 (7.469)	-6.293 (9.168)	5.664 (9.198)	-1.343 (7.521)	-6.198 (9.698)	-22.622* (11.077)	-29.002 (14.702)	-38.730 (21.545)	-10.363 (9.397)	0.295 (104.129)	-160.443 (175.223)
Democracy first lag										31.616 (16.244)	19.214 (28.864)	61.191 (39.720)			
Democracy second lag											3.023 (21.745)	-52.781** (18.408)			
Democracy third lag											-2.012 (16.413)	-1.193 (17.094)			
Democracy fourth lag											18.978 (51.003*)	17.003* (22.703)			
Poverty first lag	0.882*** (0.026)	0.887*** (0.060)	0.846*** (0.063)	0.863*** (0.026)	0.866*** (0.062)	0.821*** (0.065)	0.860*** (0.027)	0.857*** (0.064)	0.810*** (0.064)	0.858*** (0.026)	0.851*** (0.063)	0.814*** (0.064)	1.011** (0.353)	0.543 (1.008)	0.355 (0.844)
Poverty second lag		0.081 (0.093)	0.010 (0.069)		0.080 (0.092)	0.010 (0.066)		0.093 (0.095)	0.019 (0.068)		0.095 (0.094)	0.021 (0.067)		0.306 (1.792)	-0.100 (1.547)
Poverty third lag		-0.038 (0.087)	-0.013 (0.079)		-0.028 (0.087)	-0.004 (0.078)		-0.041 (0.085)	-0.016 (0.074)		-0.043 (0.084)	-0.029 (0.072)		1.450 (1.408)	1.230 (1.593)
Poverty fourth lag		-0.015 (0.052)	0.037 (0.072)		-0.018 (0.052)	0.039 (0.071)		-0.009 (0.054)	0.048 (0.077)		-0.005 (0.054)	0.055 (0.077)		-1.211* (0.487)	-0.687 (1.282)
GDP first lag				-0.255*** (0.073)	-0.489** (0.185)	-0.667** (0.215)	-0.270*** (0.075)	-0.321** (0.196)	-0.764** (0.247)	-0.263*** (0.074)	-0.528** (0.193)	-0.768** (0.252)		-0.296 (2.105)	1.033 (1.611)
GDP second lag					-0.049 (0.178)	-0.043 (0.215)		-0.023 (0.200)	-0.037 (0.278)		-0.014 (0.199)	-0.020 (0.281)		1.957 (3.392)	1.414 (2.521)
GDP third lag					0.419* (0.189)	0.676** (0.257)		0.405 (0.206)	0.759*** (0.277)		0.385 (0.200)	0.703* (0.269)		-1.210 (3.473)	-2.051 (3.560)
GDP fourth lag					-0.079 (0.159)	-0.304 (0.236)		-0.055 (0.169)	-0.355 (0.257)		-0.019 (0.158)	-0.286 (0.259)		-0.423 (1.529)	1.480 (2.189)
Gini first lag							0.061 (0.118)	0.390 (0.441)	0.198 (0.531)	0.066 (0.118)	0.397 (0.440)	0.173 (0.522)	-0.486 (1.149)	-0.825 (3.943)	-0.055 (2.952)
Gini second lag								-0.747 (0.578)	-0.193 (0.655)		-0.763 (0.573)	-0.181 (0.642)		4.715 (7.297)	4.882 (5.704)
Gini third lag								0.701 (0.450)	0.170 (0.602)		0.724 (0.450)	0.196 (0.612)		-2.318 (6.185)	-3.826 (5.448)
Gini fourth lag								-0.352 (0.265)	0.113 (0.479)		-0.358 (0.267)	0.110 (0.475)		-1.389 (2.365)	0.674 (3.917)
Observations	2210	1785	1300	2201	1779	1298	2171	1752	1274	2171	1752	1274	2171	1752	1274
Countries in sample	139	130	102	138	129	101	137	128	100	137	128	100	137	128	100
p-value poverty lags 5 to 8			[0.910]			[0.881]			[0.904]			[0.874]			[0.211]
p-value poverty lags 5 to 8						[0.462]			[0.414]			[0.271]			[0.102]
p-value poverty lags 5 to 8									[0.815]			[0.754]			[0.513]

Note: This table presents the results of the effect of democracy on the poverty headcount ratio. The reported coefficient on democracy is multiplied by 100. In all specifications we control for a full set of country and year fixed effects. Columns 3, 6, 8, 12 and 15 include 8 lags of poverty as controls but we report only the p-value of a joint significance test for lags 5 to 8 in the lower part of the table. Columns 10-12 include additional interaction terms between democracy and one lag (column 10), 4 lags (column 11) and 8 lags (column 12) of poverty GDP and inequality but coefficients are not shown. Standard errors are robust against heteroscedasticity and serial correlation at the country level are reported in parenthesis. *** p<0.01, ** p<0.05, * p>0.1.

Table C9: Robustness Check Using the V-Dem Polyarchy as Alternative Democracy Measure in GMM Estimations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Democracy	5.131 (9.041)	1.219 (9.104)	-5.752 (9.186)	1.341 (9.036)	-0.382 (9.241)	-7.533 (9.586)	0.192 (9.119)	-1.370 (9.064)	-6.228 (9.462)	-11.898 (10.935)	-17.409 (17.838)	-38.927 (20.898)	-2.819 (10.533)	15.032 (123.297)	-153.837 (168.497)
Democracy first lag										14.485 (14.072)	18.409 (27.577)	60.408 (38.394)			
Democracy second lag											-9.918 (12.822)	-51.917** (17.807)			
Democracy third lag											-2.555 (15.672)	-1.195 (16.401)			
Democracy fourth lag											18.395 (21.750)	51.123* (21.750)			
Poverty first lag	0.829** (0.026)	0.831*** (0.058)	0.841*** (0.061)	0.814*** (0.027)	0.812*** (0.059)	0.814*** (0.063)	0.811*** (0.028)	0.818*** (0.060)	0.807*** (0.061)	0.810*** (0.028)	0.814*** (0.060)	0.807*** (0.061)	1.019*** (0.288)	0.652 (1.086)	0.316 (0.805)
Poverty second lag		0.074 (0.088)	0.006 (0.068)	0.004 (0.067)	0.074 (0.087)	0.004 (0.067)	0.004 (0.067)	0.083 (0.090)	0.015 (0.066)	0.018 (0.066)	0.083 (0.090)	0.018 (0.066)		0.351 (1.908)	-0.143 (1.479)
Poverty third lag		-0.034 (0.082)	-0.006 (0.078)	0.001 (0.077)	-0.024 (0.082)	0.001 (0.077)	0.001 (0.077)	-0.036 (0.082)	-0.010 (0.073)	-0.040 (0.073)	-0.040 (0.080)	-0.020 (0.071)		1.438 (1.395)	1.306 (1.524)
Poverty fourth lag		-0.004 (0.049)	0.035 (0.071)	0.042 (0.049)	-0.008 (0.049)	0.042 (0.049)	0.042 (0.049)	-0.002 (0.070)	0.045 (0.075)	0.045 (0.075)	0.006 (0.050)	0.055 (0.075)		-1.203* (0.494)	-0.697 (1.213)
GDP first lag				-0.269** (0.090)	-0.463* (0.181)	-0.759*** (0.210)	-0.294** (0.094)	-0.446* (0.190)	-0.749*** (0.238)	-0.292** (0.093)	-0.453* (0.189)	-0.753** (0.242)		0.073 (1.906)	0.986 (1.532)
GDP second lag					-0.010 (0.169)	0.028 (0.204)		-0.008 (0.195)	-0.050 (0.268)		0.008 (0.196)	-0.029 (0.270)		2.312 (3.172)	1.395 (2.388)
GDP third lag					0.356* (0.178)	0.641** (0.247)		0.324 (0.194)	0.756** (0.268)		0.304 (0.190)	0.701** (0.259)		-1.751 (3.164)	-1.901 (3.164)
GDP fourth lag					-0.089 (0.148)	-0.265 (0.234)		-0.046 (0.152)	-0.358 (0.249)		-0.016 (0.149)	-0.284 (0.251)		-0.557 (1.419)	1.427 (2.093)
Gini first lag							0.071 (0.155)			0.090 (0.158)				-0.730 (3.601)	-0.202 (2.796)
Gini second lag								-0.595 (0.590)	-0.211 (0.634)		-0.608 (0.577)	-0.228 (0.616)		5.541 (6.878)	4.781 (5.385)
Gini third lag								0.698 (0.430)	0.187 (0.583)		0.798 (0.416)	0.202 (0.588)		-3.045 (5.686)	-3.558 (5.116)
Gini fourth lag								-0.513 (0.280)	0.103 (0.466)		-0.598* (0.275)	0.079 (0.465)		-1.536 (2.354)	0.608 (3.740)
AR2 test p-value	0.40	0.48	0.76	0.40	0.49	0.79	0.40	0.51	0.69	0.40	0.52	0.65	0.42	0.37	0.54
Observations	2061	1651	1197	2053	1646	1196	2024	1620	1173	2024	1620	1173	2024	1620	1173
Countries in sample	133	121	99	132	120	99	131	119	98	131	119	98	131	119	98
p-value poverty lags 5 to 8			[0.895]			[0.834]			[0.861]			[0.786]			[0.188]
p-value poverty lags 5 to 8						[0.432]			[0.382]			[0.233]			[0.049]
p-value poverty lags 5 to 8									[0.774]			[0.694]			[0.399]

Note: This table presents the results of the effect of democracy on the poverty headcount ratio. The reported coefficient on democracy is multiplied by 100. In all specifications we control for a full set of country and year fixed effects. Columns 3, 6, 8, 12 and 15 include 8 lags of poverty as controls but we report only the p-value of a joint significance test for lags 5 to 8 in the lower part of the table. Columns 10-12 include additional interaction terms between democracy and one lag (column 10), 4 lags (column 11) and 8 lags (column 12) of poverty GDP and inequality but coefficients are not shown. Standard errors are robust against heteroscedasticity and serial correlation at the country level are reported in parenthesis. *** p<0.01, **p<0.05, *p>0.1.

Table C10: Robustness Check Using the SVMDI as Alternative Democracy Measure in TWFE Estimations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Democracy	1.375 (3.191)	-2.076 (3.076)	-5.677 (3.669)	-0.260 (3.162)	-2.408 (3.236)	-5.000 (4.200)	0.016 (3.371)	-2.998 (3.360)	-5.839 (4.322)	-6.656 (3.771)	-9.317 ^{**} (4.392)	-11.027 [*] (5.514)	-4.983 (3.516)	-104.932 (70.302)	-175.655 (110.834)
Democracy first lag										9.283 [*] (4.519)					
Democracy second lag															
Democracy third lag															
Democracy fourth lag															
Poverty first lag	0.882 ^{***} (0.026)	0.887 ^{***} (0.060)	0.846 ^{***} (0.063)	0.863 ^{***} (0.026)	0.865 ^{***} (0.062)	0.821 ^{***} (0.065)	0.860 ^{***} (0.026)	0.858 ^{***} (0.064)	0.810 ^{***} (0.063)	0.859 ^{***} (0.026)	0.855 ^{***} (0.063)	0.810 ^{***} (0.064)	0.992 ^{**} (0.349)	0.450 (1.027)	0.383 (0.755)
Poverty second lag		0.080 (0.093)	0.010 (0.069)		0.080 (0.092)	0.010 (0.068)		0.092 (0.094)	0.020 (0.068)		0.093 (0.095)	0.021 (0.068)		0.370 (1.774)	0.239 (1.392)
Poverty third lag		0.087 (0.087)	-0.013 (0.079)		-0.028 (0.087)	-0.004 (0.078)		-0.042 (0.085)	-0.016 (0.074)		-0.043 (0.085)	-0.021 (0.074)		1.252 (1.320)	0.029 (1.341)
Poverty fourth lag		-0.015 (0.052)	0.038 (0.072)		-0.018 (0.052)	0.040 (0.071)		-0.009 (0.054)	0.049 (0.076)		-0.008 (0.054)	0.054 (0.076)		-1.046 [*] (1.157)	0.335 (1.157)
GDP first lag				-0.259 ^{***} (0.072)	-0.494 ^{**} (0.185)	-0.660 ^{**} (0.215)	-0.272 ^{***} (0.074)	-0.525 ^{**} (0.196)	-0.765 ^{**} (0.240)	-0.267 ^{***} (0.074)	-0.517 ^{**} (0.195)	-0.771 ^{**} (0.237)	-0.269 (0.482)	-1.367 (1.536)	-0.377 (1.273)
GDP second lag					-0.037 (0.174)	-0.048 (0.211)		-0.014 (0.195)	-0.034 (0.268)		-0.046 (0.191)	-0.078 (0.267)		3.436 (2.754)	2.754 (2.445)
GDP third lag					0.409 [*] (0.187)	0.673 ^{***} (0.255)		0.396 (0.204)	0.755 ^{**} (0.274)		0.394 (0.210)	0.790 ^{**} (0.279)		-2.334 (2.645)	-3.483 (2.641)
GDP fourth lag					-0.079 (0.158)	-0.305 (0.234)		-0.054 (0.168)	-0.356 (0.253)		-0.011 (0.164)	-0.315 (0.274)		0.246 (1.089)	2.224 (2.549)
Gini first lag							0.056 (0.116)	0.363 (0.432)	0.189 (0.527)	0.061 (0.116)	0.371 (0.431)	0.209 (0.535)	-0.725 (1.158)	-2.064 (3.437)	-2.589 (2.927)
Gini second lag								-0.727 (0.570)	-0.200 (0.657)		-0.729 (0.569)	-0.229 (0.660)		5.523 (6.226)	6.383 (5.096)
Gini third lag								0.713 (0.447)	0.183 (0.602)		0.730 (0.446)	0.221 (0.606)		-2.724 (4.819)	-4.184 (4.412)
Gini fourth lag								-0.361 (0.264)	0.101 (0.478)		-0.366 (0.264)	0.119 (0.477)		-0.651 (2.002)	1.374 (3.907)
Observations	2248	1811	1311	2239	1805	1309	2209	1778	1285	2209	1778	1285	2209	1778	1285
Countries in sample	143	134	105	142	133	104	141	132	103	141	132	103	141	132	103
P-value poverty lags 5 to 8			[0.917]		[0.890]			[0.918]				[0.908]			[0.114]
P-value poverty lags 5 to 8					[0.486]			[0.438]				[0.535]			[0.595]
P-value poverty lags 5 to 8								[0.827]				[0.776]			[0.577]

Note: This table presents the results of the effect of democracy on the poverty headcount ratio. The reported coefficient on democracy is multiplied by 100. In all specifications we control for a full set of country and year fixed effects. Columns 3, 6, 8, 12 and 15 include 8 lags of poverty as controls but we report only the p-value of a joint significance test for lags 5 to 8 in the lower part of the table. Columns 10-12 include additional interaction terms between democracy and one lag (column 10), 4 lags (column 11) and 8 lags (column 12) of poverty GDP and inequality but coefficients are not shown. Standard errors are robust against heteroscedasticity and serial correlation at the country level are reported in parenthesis. ***, p<0.01, **, p<0.05, *p>0.1.

Table C11: Robustness Check Using the SVMDI as Alternative Democracy Measure in GMM Estimations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Democracy	3.270 (3.896)	-0.117 (4.083)	-5.631 (3.808)	0.877 (3.701)	-1.256 (4.031)	-5.908 (4.098)	0.655 (4.044)	-2.339 (4.140)	-5.832 (4.236)	-3.927 (4.000)	-8.577 (4.587)	-10.700* (5.399)	-2.580 (3.990)	-73.418 (72.809)	-165.566 (107.266)
Democracy first lag															
Democracy second lag															
Democracy third lag															
Democracy fourth lag															
Poverty first lag	0.837*** (0.030)	0.821*** (0.060)	0.832*** (0.064)	0.816*** (0.028)	0.805*** (0.061)	0.812*** (0.062)	0.803*** (0.030)	0.797*** (0.063)	0.806*** (0.016)	0.803*** (0.030)	0.788*** (0.065)	0.805*** (0.061)	0.844*** (0.272)	0.462 (0.987)	0.321 (0.737)
Poverty second lag															
Poverty third lag															
Poverty fourth lag															
GDP first lag				-0.300** (0.092)											
GDP second lag															
GDP third lag															
GDP fourth lag															
Gini first lag							0.216 (0.152)			0.234 (0.153)					
Gini second lag															
Gini third lag															
Gini fourth lag															
AR2 test p-value	0.40	0.40	0.75	0.40	0.43	0.77	0.41	0.44	0.65	0.39	0.43	0.69	0.43	0.33	0.47
Observations	2095	1673	1205	2087	1668	1204	2058	1642	1181	2058	1642	1181	2058	1642	1181
Countries in sample	137	125	101	136	124	101	135	123	100	135	123	100	135	123	100
p-value poverty lags 5 to 8			[0.915]			[0.883]			[0.877]			[0.811]			[0.074]
p-value poverty lags 5 to 8						[0.530]			[0.418]			[0.481]			[0.555]
p-value poverty lags 5 to 8									[0.775]			[0.693]			[0.564]

Note: This table presents the results of the effect of democracy on the poverty headcount ratio. The reported coefficient on democracy is multiplied by 100. In all specifications we control for a full set of country and year fixed effects. Columns 3, 6, 8, 12 and 15 include 8 lags of poverty as controls but we report only the p-value of a joint significance test for lags 5 to 8 in the lower part of the table. Columns 10-12 include additional interaction terms between democracy and one lag (column 10), 4 lags (column 11) and 8 lags (column 12) of poverty GDP and inequality but coefficients are not shown. Standard errors are robust against heteroscedasticity and serial correlation at the country level are reported in parenthesis. *** p<0.01, **p<0.05, *p>0.1.

Table C12: Countries in the Baseline Sample

Country			
Albania	Djibouti	Latvia	Russian Federation
Algeria	Dominican Republic	Lesotho	Rwanda
Angola	Ecuador	Liberia	Samoa
Argentina	Egypt, Arab Rep.	Lithuania	Sao Tome and Principe
Armenia	El Salvador	Madagascar	Senegal
Australia	Estonia	Malawi	Serbia
Austria	Eswatini	Malaysia	Seychelles
Azerbaijan	Ethiopia	Maldives	Sierra Leone
Bangladesh	Fiji	Mali	Slovak Republic
Belarus	Gabon	Malta	Slovenia
Belgium	Gambia, The	Mauritania	Solomon Islands
Belize	Georgia	Mauritius	South Africa
Benin	Germany	Mexico	Spain
Bhutan	Ghana	Micronesia, Fed. Sts.	Sri Lanka
Bolivia	Greece	Moldova	St. Lucia
Bosnia and Herzegovina	Guatemala	Mongolia	Sweden
Botswana	Guinea	Montenegro	Tajikistan
Brazil	Guinea-Bissau	Morocco	Tanzania
Bulgaria	Haiti	Mozambique	Thailand
Burkina Faso	Honduras	Namibia	Timor-Leste
Burundi	Hungary	Nepal	Togo
Cabo Verde	Iceland	Netherlands	Tonga
Cameroon	India	Nicaragua	Tunisia
Canada	Indonesia	Niger	Turkey
Central African Rep.	Iran, Islamic Rep.	Nigeria	Uganda
Chad	Iraq	North Macedonia	Ukraine
Chile	Ireland	Norway	United Kingdom
China	Israel	Pakistan	United States
Colombia	Italy	Panama	Uruguay
Comoros	Jamaica	Papua New Guinea	Uzbekistan
Congo, Dem. Rep.	Jordan	Paraguay	Venezuela, RB
Congo, Rep.	Kazakhstan	Peru	Vietnam
Costa Rica	Kenya	Philippines	West Bank and Gaza
Cote d'Ivoire	Korea, Rep.	Poland	Yemen, Rep.
Croatia	Kosovo	Portugal	Zambia
Czech Republic	Kyrgyz Republic	Romania	
Denmark	Lao PDR		

Note: The tables shows the countries contained in regression in column 1 of Table 9.

D Appendix Chapter 6 “The Poverty Effect of Democratization: Dis-aggregating Democratic Institutions”

Table D1: Sample of Democratizations

Burundi 2003	Lesotho 1993
Burkina Faso 2015	Lesotho 1999
Bangladesh 1991	Madagascar 1993
Bangladesh 2009	Madagascar 2011
Brazil 1985	Mexico 1997
Bhutan 2008	Mauritania 2007
Cote d’Ivoire 2000	Malaysia 2011
Cote d’Ivoire 2011	Niger 1999
Algeria 2011	Niger 2010
Fiji 2014	Nigeria 1999
Gabon 2011	Nepal 2006
Ghana 1996	Pakistan 2008
Guinea 2010	Panama 1994
Guinea-Bissau 1999	Russia 2011
Guinea-Bissau 2005	Senegal 2000
Indonesia 1999	Thailand 1992
Iraq 2011	Thailand 2008
Kenya 2002	Tunisia 2011
Kyrgyz Republic 2005	Tanzania 2015
Kyrgyz Republic 2010	Yemen 2012

Note: The Table shows the countries in the sample of democratizations used in Tables 13, 17 and the corresponding year of democratization.

Table D2: Mid- and Low-Level Institutions and Their Description

Mid-Level	Low-Level	Description
Electoral Democracy	Clean elections index	To what extent are elections free and fair? (Free and fair connotes an absence of registration fraud, systematic irregularities, government intimidation of the opposition, vote buying, and election violence.)
	Elected officials index	Is the chief executive and legislature appointed through popular elections?
	Freedom of association	To what extent are parties, including opposition parties, allowed to form and to participate in elections, and to what extent are civil society organizations able to form and to operate freely?
	Freedom of Expression and Alternative Sources of Information index	To what extent does government respect press and media freedom, the freedom of ordinary people to discuss political matters at home and in the public sphere, as well as the freedom of academic and cultural expression?
Liberal Democracy	Share of population with suffrage	What share of adult citizens as defined by statute has the legal right to vote in national elections?
	Equality before the law and individual liberties index	To what extent are laws transparent and rigorously enforced and public administration impartial, and to what extent do citizens enjoy access to justice, secure property rights, freedom from forced labor, freedom of movement, physical integrity rights, and freedom of religion?
	Judicial constraints on the executive index	To what extent does the executive respect the constitution and comply with court rulings, and to what extent is the judiciary able to act in an independent fashion?
Participatory Democracy	Legislative constraints on the executive index	To what extent are the legislature and government agencies e.g., comptroller general, general prosecutor, or ombudsman capable of questioning, investigating, and exercising oversight over the executive?
	Civil society part. index	Are major CSOs routinely consulted by policymakers; how large is the involvement of people in CSOs; are women prevented from participating; and is legislative candidate nomination within party organization highly decentralized or made through party primaries?
	Local government index	Are there elected local governments, and - if so - to what extent can they operate without interference from unelected bodies at the local level?
	Regional government index	Are there elected regional governments, and - if so - to what extent can they operate without interference from unelected bodies at the regional level?
Deliberative Democracy	Direct popular vote index	To what extent is the direct popular vote utilized? (Direct popular voting refers here to an institutionalized process by which citizens of a region or country register their choice or opinion on specific issues through a ballot.)
	Reasoned justification	When important policy changes are being considered, i.e. before a decision has been made, to what extent do political elites give public and reasoned justifications for their positions?
	Common good	When important policy changes are being considered, to what extent do political elites justify their positions in terms of the common good?
	Respect counterarguments	When important policy changes are being considered, to what extent do political elites acknowledge and respect counterarguments?
	Range of consultation	When important policy changes are being considered, how wide is the range of consultation at elite levels?
Egalitarian Democracy	Engaged society	When important policy changes are being considered, how wide and how independent are public deliberations?
	Equal protection index	How equal is the protection of rights and freedoms across social groups by the state?
	Equal access index	How equal is access to power? (The Equal Access subcomponent is based on the idea that neither the protections of rights and freedoms nor the equal distribution of resources is sufficient to ensure adequate representation. Ideally, all groups should enjoy equal de facto capabilities to participate, to serve in positions of political power, to put issues on the agenda, and to influence policymaking.)
	Equal distribution of resources index	How equal is the distribution of resources? (This component measures the extent to which resources - both tangible and intangible - are distributed in society.)

Note: Grouping roughly based on (Coppedge et al. 2016); Variable descriptions from V-Dem 11.1 Handbook (Coppedge et al. 2021).

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