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September 30, 2021

Abstract

Concerns about socially uneven progress and inequality have regained public attention (including that of many populist politicians). The purpose of this paper is to identify the economic policies as well as economic factors that facilitate inclusive development. This paper is a first attempt to empirically estimate the drivers of inclusive development. For our empirical assessments, we apply the Multidimensional Inclusiveness Index suggested by Dörffel and Schuhmann (2020) in a panel OLS regression setup with fixed effects (FE) and GMM estimations for up to 178 countries and a time frame ranging from 1980 to 2018. In FE regressions, we find robust associations with inflation as well as financial sector development in the short and long-run, trade/GDP in the long-run. The GMM results point only to inflation and trade as significant drivers in the long-run and investment in the short run. These results suggest that accessible and well-functioning financial markets paired with low rates of inflation and high trade openness take on a more critical role than government spending. Our results suggest that rudiments of the Washington consensus could still provide guidance for the promotion of inclusive development.

Keywords: Inclusive development, globalization, trade, institutions, policies

JEL Codes: C23, D63, I31, O15

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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).¹ 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 challenges², 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. 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

¹This has mostly been driven by rising incomes in developing countries (Anand and Segal, 2015), particularly China and India.

²Addressing long-term demographic change – aging societies – in the context of growing sovereign debts amid persistent economic stagnation.

end, Dörffel and Schuhmann (2020) developed the Multidimensional Inclusiveness Index (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 paper is the application of the MDI to empirically explore drivers of inclusive development. This paper 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 analyses the set of the drivers of inclusive development. Section 4 tests the relation of the MDI score and those drivers empirically. Section 5 analyses and discusses the results. Finally, section 6 concludes.

2 Inequality, Inclusiveness and Inclusive Development

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

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 individuals 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).³

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.

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, 1999). The United Nation’s Human Development Index (HDI) is the pioneering attempt to provide an empirical measure of this. It combines 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

³Historically, this is a reversal of a long-term trend. Bourguignon and Morrisson (2002) show that from 1800-1992 world income inequality experienced opposite trends.

human factors when compared to gross national product (Dasgupta and Maeler, 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) tracks 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 gender⁴ 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)”.

2.3 The Measure of Inclusiveness: The Multidimensional Inclusiveness Index

For the empirical analysis following in section 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

⁴Indicators 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).

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 Maeler, 2000).

For our analysis, we use the Multidimensional Inclusiveness Index (MDI) developed by Dörffel and Schuhmann (2020). This measure was developed in three versions and contains a set of up to 13 variables. The MDI exploits principal component analysis (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.⁵

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 equity plus and MDI achievements plus 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 depletion/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

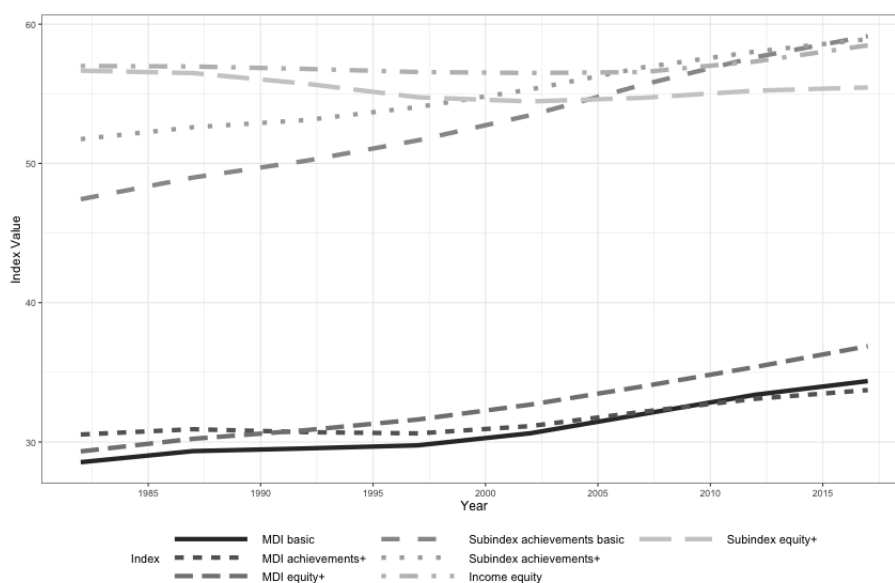
⁵A detailed discussion can be found in Dörffel and Schuhmann (2020)

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 paper. Figure 1 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 2 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 1: The Development of Average MDI Scores and Subindices Over Time



Note: Data from Dörffel and Schuhmann (2020).

3 Drivers of Inclusiveness

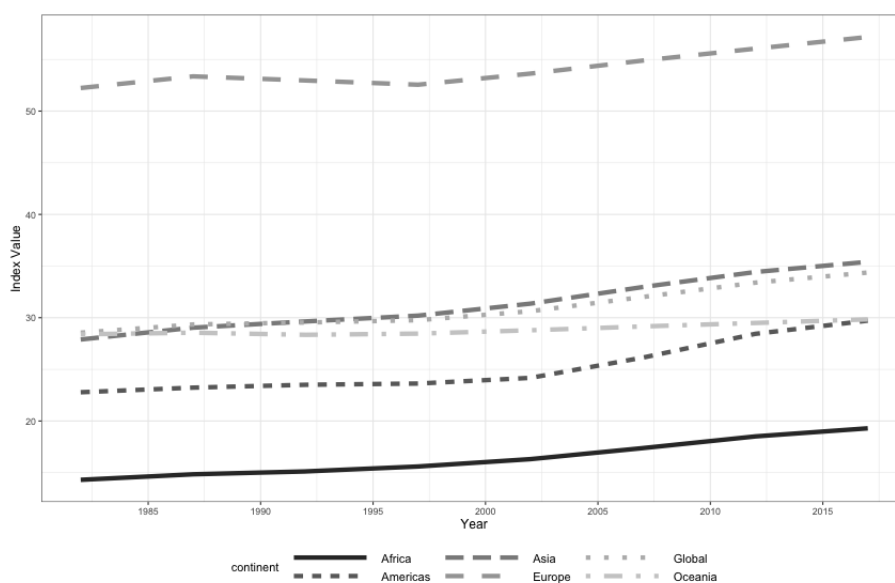
In this section, we identify economic policies and factors that we use for the empirical analysis. For this purpose, we conduct a review of the growth literature.⁶ Subsections 3.1 to 3.8 describe this set of relevant factors grouped by categories. We also describe how we narrow the set of potential drivers of inclusive development down to the set used in the empirical analyses, based on data availability, possible similarities of variables and model parsimoniousness. Table A1 in the Appendix contains descriptive statistics for all variables as well as the MDI.

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

⁶A list of all reviewed papers and the included variables can be found in Table A9 in the Appendix.

Figure 2: The Development of the MDI Basic Index Scores by Continent Averages



Note: Data from Dörffel and Schuhmann (2020).

for inclusive development has been highlighted (Aksoy and Beghin, 2004; Berg and Krueger, 2003; Dollar and Kraay, 2002, 2004; Hoekman et al. 2001; Ravallion, 2007; Sachs et al. 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 “flying geese”⁷ 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,

⁷Originally coined by (akamatsu ‘historical’ 1962).

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 density⁸. 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 World Development Indicators (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.

3.2 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 individuals in a society have different ethnic origins.⁹

⁸I.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).

⁹Ethnic 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.

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 et al. (2001) and Acemoglu and Robinson (2013). 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 Gruendler and Krieger (2016, 2018). This measure captures a broad concept of democracy.

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.¹⁰ 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 WDI database.¹¹ Many other policy variables lack data availability or do not match our research purpose.¹²

¹⁰In the literature, trade openness was discussed as a policy. We considered it a development factor.

¹¹Data 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.

¹²Sala-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

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.

3.6 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.¹³

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 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

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.

¹³Further 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 paper.

WDI database. Lastly, country fixed effects account for differences in religion.

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) 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 “premature 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 gover-

nance (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.

4 Empirical Analysis

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

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 regressions and use internal instruments of GMM estimations to mitigate the problems of endogeneity bias.

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

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

where $MDI_{i,t}$ refers to the MDI index score of country i , at time t . β_k represents vector \mathbf{X}'_i comprising the set of drivers as discussed in section 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 (FE) control for unobserved time-invariant heterogeneities between countries, time FE control for unobserved country-invariant heterogeneities

over time. Eliminating these unobserved heterogeneities mitigates omitted variables 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 variables (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; Gnangoin et al. 2019; Gruendler 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.¹⁴ 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 $1/N$.¹⁵ Chen et al. (2019) derive a small bias condition under which GMM estimates can be considered unbiased.¹⁶ 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 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,

¹⁴In the regression tables below this is abbreviated as “AB-AR(2) test”.

¹⁵Acemoglu 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 don’t have “large T”.

¹⁶The 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 2 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 2 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.

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 FE 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.

4.2 Short-term results

The main results will be presented briefly in this section. Firstly, Table 1 shows the main results of the FE regressions, Table 2 those of the system GMM regressions.¹⁷

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

¹⁷We do not show difference GMM results because all specifications encountered autocorrelation issues, i.e. the AB-AR(2) test rejected the absence of autocorrelation

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).

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 1 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”.¹⁸

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

¹⁸We admit some arbitrariness within this categorization.

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.

Table 2 mirrors Table 1 but employs the system GMM estimator.¹⁹ In the specification in column 1, the number of instruments is very high (334). A common strategy in the literature (Acemoglu et al. 2019; Roodman, 2009) is to truncate the number of lags used for instrumentation. Using lags of the 5th and 6th periods as instruments lowers the number of instruments down in columns 2 to 7.²⁰ 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 FE estimations. Private sector credit to GDP is negatively associated with the MDI with a slightly larger magnitude than in FE 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.

¹⁹We 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.

²⁰We 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 1: Main Results TWFE

VARIABLES	(1) FE baseline	(2) FE	(3) FE	(4) FE policy specification	(5) FE policy specification restricted	(6) FE 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.

Table 2: Main Results System-GMM

VARIABLES	(1) SYS-GMM baseline	(2) SYS-GMM baseline	(3) SYS-GMM	(4) SYS-GMM	(5) SYS-GMM policy specification	(6) SYS-GMM policy specification restricted	(7) 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.

4.3 Long-term results

We repeat the analysis conducted in section 4.2 with 10-year averages to test for longer-run effects. We report FE estimations in Table 3 and difference GMM estimations in Table 4.

In accordance with the previous results, the results from the FE 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 (FE as well as GMM; ranging from 0.013 to 0.026). Inflation is also significant and similar in magnitude as in short-term FE 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 regressions²¹ are well identified according to test statistics.²² 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 FE 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 FE estimations, financial depth and fractionalization is not significant, hence, have no causal effects on inclusive development.

²¹We also ran system GMM estimations. However, instrument sets are slightly weaker and, therefore, we do not report results.

²²For 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 3: TWFE Results with 10-Year Panel

VARIABLES	(1) FE baseline	(2) FE	(3) FE	(4) FE policy specification	(5) FE policy specification restricted	(6) FE 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 SVMDI	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 4: 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.

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 FE specifications (Table A2, see Appendix) 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 A4 in the Appendix 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 FE estimates first (Table A3 in the Appendix). 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 A5, 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.

4.5 Robustness checks

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

First, as motivated in section 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 A6 (see Appendix). 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 A7 (see Appendix), 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 FE specification are largely confirmed. We tested for all three versions of the KOF globalization index.²³ 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 3.8, we control for the fertility rate and population growth in the baseline, policy, and structural specification in Table A8 (see Appendix). 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

²³Le the standard, *de facto* and *de jure* version

associated with lower inclusive development.

5 Discussion

We identify past MDI scores as well as domestic inflation rates as robustly significant variables in most FE 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 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 FE 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 FE 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.

6 Conclusion

This paper 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, 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.

References

- Acemoglu, A.D., S. Johnson, and J.A. Robinson (2001). "The Colonial Origins of Comparative Development: An Empirical Investigation". *The American Economic Review* 91.5, pp. 1369–1401.
- Acemoglu, Daron and James A. Robinson (2013). *Why nations fail: The origins of power, prosperity, and poverty*. Broadway Business.
- Acemoglu, Daron et al. (2019). "Democracy does cause growth". *Journal of Political Economy* 127.1. Publisher: University of Chicago Press Chicago, IL, pp. 47–100.
- Aidt, Toke S., Vitor Castro, and Rodrigo Martins (2018). "Shades of red and blue: government ideology and sustainable development". *Public Choice* 175.3-4, pp. 303–323.
- Aksoy, M. Ataman and John C. Beghin (2004). *Global agricultural trade and developing countries*. Washington, D.C.: World Bank.
- Alesina, Alberto, Stelios Michalopoulos, and Elias Papaioannou (2016). "Ethnic Inequality". *Journal of Political Economy* 124.2. Publisher: The University of Chicago Press, pp. 428–488.
- Alvarez-Cuadrado, Francisco and Markus Poschke (2011). "Structural Change Out of Agriculture: Labor Push versus Labor Pull". *American Economic Journal: Macroeconomics* 3.3, pp. 127–158.
- Anand, Rahul, Saurabh Mishra, and Shanaka J. Peiris (2013). "Inclusive Growth: Measurement and Determinants". *IMF Working Paper* WP/13/135. Washington, DC.
- Anand, Sudhir and Paul Segal (2015). "The Global Distribution of Income". *Handbook of Income Distribution*. Vol. 2. Elsevier, pp. 937–979.
- Anand, Sudhir and Amartya Sen (1994). "Human Development Index: Methodology and Measurement". *HDOCPA-1994-02, Human Development Report Office (HDRO), United Nations Development Programme (UNDP)*.
- Ani, Teodorica G (2015). "Effect of Ease of Doing Business to Economic Growth among Selected Countries in Asia". 3.5, p. 7.
- Antonelli, Cristiano and Claudio Fassio (2014). "The economics of the light economy". *Technological Forecasting and Social Change* 87, pp. 89–107.
- Arellano, M. and S. Bond (1991). "Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations". *The Review of Economic Studies* 58.2, pp. 277–297.
- Arrow, Kenneth J. et al. (2012). "Sustainability and the measurement of wealth". *Environment and Development Economics* 17.3. Publisher: Cambridge University Press, pp. 317–353.
- Asian Development Bank (2014). *Framework of Inclusive Growth Indicators 2014*. Tech. rep. Manila, Philippines, p. 117.
- Aslaksen, Silje (2010). "Oil and democracy: More than a cross-country correlation?". *Journal of Peace Research* 47.4. Publisher: Sage Publications Sage UK: London, England, pp. 421–431.
- Baldwin, Richard (2016). "The World Trade Organization and the Future of Multilateralism". *Journal of Economic Perspectives* 30.1, pp. 95–116.
- Barro, Robert J. (1996). *Determinants of economic growth: A cross-country empirical study*. Tech. rep. National Bureau of Economic Research.
- (2000). "Inequality and Growth in a Panel of Countries". *Journal of economic growth* 5.1. Publisher: Springer, pp. 5–32.

- Barro, Robert J. (2003). "Determinants of economic growth in a panel of countries". *Annals of economics and finance* 4. Publisher: PEKING UNIV. PRESS, pp. 231–274.
- Berg, Andrew and Anne O. Krueger (2003). "Trade, growth, and poverty: A selective survey". *Annual World Bank Conference on Development Economics*. World Bank, pp. 47–91.
- Bittencourt, Manoel (2011). "Inflation and financial development: Evidence from Brazil". *Economic Modelling* 28.1-2. Publisher: North-Holland, pp. 91–99.
- Bjornskov, Christian (2019). "Types of foreign aid". *Lessons on Foreign Aid and Economic Development*. Springer, pp. 33–61.
- Bjornskov, Christian and Martin Rode (2019). "Regime Types and Regime Change: A New Dataset on Democracy, Coups, and Political Institutions". *Review of International Organizations*.
- Blundell, R. and S. Bond (1998). "Initial Conditions and Moment Restrictions in Dynamic Panel Data Models". *Journal of Econometrics* 87.1, pp. 115–143.
- Bourguignon, Francois and Christian Morrisson (2002). "Inequality Among World Citizens: 1820-1992". *American economic review* 92.4, pp. 727–744.
- Bulir, Ales (1998). "Income Inequality: Does Inflation Matter?" *IMF Working Papers* 98.7, p. 1.
- Burnside, C. and D. Dollar (2000). "Aid, Policies, and Growth". *American Economic Review* 90.4, pp. 847–868.
- Camamero, Miriam and Cecilio Tamarit (2004). "Estimating the export and import demand for manufactured goods: The role of FDI". *Review of World Economics* 140.3, pp. 347–375.
- Chen, Shaohua and Martin Ravallion (2013). "More Relatively-Poor People in a Less Absolutely-Poor World". *Review of Income and Wealth* 59.1, pp. 1–28.
- Chen, Shuowen, Victor Chernozhukov, and Ivan Fernández-Val (2019). "Mastering panel metrics: causal impact of democracy on growth". *AEA Papers and Proceedings*. Vol. 109, pp. 77–82.
- Choi, In (2001). "Unit root tests for panel data". *Journal of international money and Finance* 20.2. Publisher: Elsevier, pp. 249–272.
- Corcoran, Adrian and Robert Gillanders (2015). "Foreign direct investment and the ease of doing business". *Review of World Economics* 151.1, pp. 103–126.
- Dalgaard, C.-J., H. Hansen, and F. Tarp (2004). "On the Empirics of Foreign Aid and Growth". *The Economic Journal* 114.496, F191–F216.
- Dasgupta, Partha and Karl-Goeran Maeler (2000). "Net national product, wealth, and social well-being". *Environment and Development Economics* 5.1. Publisher: Cambridge University Press, pp. 69–93.
- Dietrich, Simone (2011). "The politics of public health aid: why corrupt governments have incentives to implement aid effectively". *World Development* 39.1. Publisher: Elsevier, pp. 55–63.
- Dollar, D. and A. Kraay (2003). "Institutions, Trade, and Growth". *Journal of monetary economics* 50.1, pp. 133–162.
- Dollar, David and Aart Kraay (2002). "Spreading the wealth". *Foreign Aff.* 81, p. 120.
- (2004). "Trade, growth, and poverty". *The Economic Journal* 114.493, F22–F49.
- Dollar, David R. et al. (2017). *Global value chain development report 2017: measuring and analyzing the impact of GVCs on economic development*. Tech. rep. The World Bank.

- Dollar, David R. et al. (2019). *Global value chain development report 2019: technological innovation, supply chain trade, and workers in a globalized world*. Tech. rep. The World Bank.
- Drazanova, Lenka (2019). "Historical Index of Ethnic Fractionalization Dataset (HIEF)". Publisher: Harvard Dataverse type: dataset.
- Dreher, Axel, Peter Nunnenkamp, and Rainer Thiele (2008). "Does aid for education educate children? Evidence from panel data". *The World Bank Economic Review* 22.2. Publisher: Oxford University Press, pp. 291–314.
- Duflo, Esther (2012). "Women empowerment and economic development". *Journal of Economic literature* 50.4, pp. 1051–79.
- Dörffel, Christoph and Sebastian Schuhmann (2020). "What is inclusive development? Introducing the multidimensional inclusiveness index". Jena Economic Research Paper No. 2020-15.
- Esteve-Volart, Berta (2004). *Gender Discrimination and Growth: Theory and Evidence from India*. SSRN Scholarly Paper ID 1127011. Rochester, NY: Social Science Research Network.
- Fairhead, James, Melissa Leach, and Ian Scoones (2012). "Green Grabbing: a new appropriation of nature?" *The Journal of Peasant Studies* 39.2, pp. 237–261.
- Felipe, Jesus and Aashish Mehta (2016). "Deindustrialization? A global perspective". *Economics Letters* 149, pp. 148–151.
- Fleurbaey, Marc and Didier Blanchet (2013). *Beyond GDP: Measuring Welfare and Assessing Sustainability*. Google-Books-ID: 3YVoAgAAQBAJ. Oxford University Press.
- Gnangoin, Yobouet Thierry Bienvenu et al. (2019). "Public spending, income inequality and economic growth in Asian countries: a panel GMM approach". *Economies* 7.4. Publisher: Multidisciplinary Digital Publishing Institute, p. 115.
- Gruendler, Klaus and Tommy Krieger (2016). "Democracy and growth: Evidence from a machine learning indicator". *European Journal of Political Economy* 45. Publisher: Elsevier, pp. 85–107.
- (2018). "Machine learning indices, political institutions, and economic development". Publisher: CESifo Working Paper Series.
- Gupta, Joyeeta, Nicky R.M. Pouw, and Mirjam A.F. Ros-Tonen (2015). "Towards an Elaborated Theory of Inclusive Development | SpringerLink". *European Journal of Development Research* 27.4, pp. 541–559.
- Gygli, Savina et al. (2019). "The KOF Globalisation Index – revisited". *The Review of International Organizations* 14.3, pp. 543–574.
- Hahn, Jinyong, Jerry Hausman, and Guido Kuersteiner (2007). "Long difference instrumental variables estimation for dynamic panel models with fixed effects". *Journal of econometrics* 140.2. Publisher: Elsevier, pp. 574–617.
- Hameed, Tahir (2006). *ICT as an enabler of Socio-Economic Development*. Tech. rep. Seoul, Korea.
- Hayakawa, Kazuhiko (2009). "On the effect of mean-nonstationarity in dynamic panel data models". *Journal of Econometrics* 153.2. Publisher: Elsevier, pp. 133–135.
- Herrendorf, Berthold, Richard Rogerson, and Akos Valentinyi (2014). "Growth and Structural Transformation". *Handbook of Economic Growth*. Vol. 2. Elsevier, pp. 855–941.
- Hoekman, Bernard et al. (2001). "Trade policy reform and poverty alleviation". *World Bank Policy Research Working Paper* 2733.

- IMF (2015). *World Economic Outlook: Uneven Growth: Short- and Long-Term Factors*. Tech. rep. Washington, D.C.: International Monetary Fund.
- Kaufmann, D., A. Kraay, and P. Zoido (2002). "Governance Matters II: Updated Indicators for 2000-01". *World Bank Policy Research Working Paper 2772*.
- Klasen, Stephan (2010). "Measuring and Monitoring Inclusive Growth: Multiple Definitions, Open Questions, and Some Constructive Proposals". *Asian Development Bank Working Paper 2010-12*.
- Levin, Andrew, Chien-Fu Lin, and Chia-Shang James Chu (2002). "Unit root tests in panel data: asymptotic and finite-sample properties". *Journal of econometrics* 108.1. Publisher: Elsevier, pp. 1–24.
- Li, Hongyi, Lyn Squire, and Heng-fu Zou (1998). "Explaining International and Intertemporal Variations in Income Inequality". *The Economic Journal* 108.446, pp. 26–43.
- Mauro, P. (1995). "Corruption and Growth". *The quarterly journal of economics*, pp. 681–712.
- Mishra, Saurabh, Susanna Lundstrom, and Rahul Anand (2011). "Service export sophistication and economic growth". *World Bank Policy Research Working Paper 5606*.
- OECD (2011). "An overview of growing income inequalities in OECD countries: main findings". *Divided We Stand: Why Inequality Keeps Rising*.
- (2015). *The Governance of Inclusive Growth*. Tech. rep.
- Pinheiro-Alves, Ricardo and Joao Zambujal-Oliveira (2012). "The Ease of Doing Business Index as a tool for investment location decisions". *Economics Letters* 117.1. Publisher: Elsevier, pp. 66–70.
- Ramey, Garey and Valerie A. Ramey (1995). "Cross-Country Evidence on the Link Between Volatility and Growth". *The American Economic Review* 85.5, pp. 1138–1151.
- Rauniyar, Ganesh and Ravi Kanbur (2009). "Inclusive growth and inclusive development: a review and synthesis of Asian Development Bank literature". *Journal of the Asia Pacific Economy* 15.4, pp. 455–469.
- Ravallion, Martin (2007). "Looking beyond averages in the trade and poverty debate". *The Impact of Globalization on the World's Poor*. Springer, pp. 118–144.
- Rodrik, D., A. Subramanian, and F. Trebbi (2004). "Institutions Rule: The Primacy of Institutions Over Geography and Integration in Economic Development". *Journal of economic growth* 9.2, pp. 131–165.
- Rodrik, Dani (2006). "Goodbye Washington Consensus, Hello Washington Confusion? A Review of the World Bank's "Economic Growth in the 1990s: Learning from a Decade of Reform"". *Journal of Economic Literature* 44.4. Publisher: American Economic Association, pp. 973–987.
- (2011). *The globalization paradox: democracy and the future of the world economy*. WW Norton & Company.
- (2016). "Premature deindustrialization". *Journal of Economic Growth* 21.1, pp. 1–33.
- Roine, Jesper, Jonas Vlachos, and Daniel Waldenström (2009). "The long-run determinants of inequality: What can we learn from top income data?" *Journal of Public Economics* 93.7-8, pp. 974–988.
- Roodman, David (2009). "How to do xtabond2: An introduction to difference and system GMM in Stata". *The stata journal* 9.1. Publisher: SAGE Publications Sage CA: Los Angeles, CA, pp. 86–136.

- Roomi, Muhammad Azam and Guy Parrott (2008). "Barriers to Development and Progression of Women Entrepreneurs in Pakistan". *The Journal of Entrepreneurship* 17.1. Publisher: SAGE Publications India, pp. 59–72.
- Roubini, Nouriel and Xavier Sala-i-Martin (1992). "Financial repression and economic growth". *Journal of development economics* 39.1. Publisher: Elsevier, pp. 5–30.
- Rousseau, Peter L and Paul Wachtel (2002). "Inflation thresholds and the finance–growth nexus". *Journal of International Money and Finance* 21.6, pp. 777–793.
- Rousseau, Peter L. and Hakan Yilmazkuday (2009). "Inflation, financial development, and growth: A trilateral analysis". *Economic Systems* 33.4. Publisher: North-Holland, pp. 310–324.
- Sachs, Jeffrey D. et al. (1995). "Economic reform and the process of global integration". *Brookings papers on economic activity* 1995.1, pp. 1–118.
- Sala-i-Martin, Xavier X. (1997). *I just ran four million regressions*. Tech. rep. National Bureau of Economic Research.
- Samans, Richard (2018). *A new way to measure growth and development: The Inclusive Development Index*.
- Sen, Amartya (1992). *Inequality reexamined*. Oxford University Press.
- (1999). *Development as Freedom*. Google-Books-ID: NQs75PEa618C. Oxford University Press.
- Sridhar, Kala Seetharam and Varadharajan Sridhar (2007). "Telecommunications Infrastructure and Economic Growth: Evidence From Developing Countries". *Applied Econometrics and International Development* 2.7, p. 25.
- Stiglitz, Joseph E. (2012). *The price of inequality: How today's divided society endangers our future*. WW Norton & Company.
- Talmage, Craig and Richard C. Knopf (2017). "Rethinking Diversity, Inclusion, and Inclusiveness: The Quest to Better Understand Indicators of Community Enrichment and Well-Being". *New Dimensions in Community Well-Being*. Ed. by Patsy Kraeger, Scott Cloutier, and Craig Talmage. Community Quality-of-Life and Well-Being. Cham: Springer International Publishing, pp. 7–27.
- United Nations Development Programme (2019). *Human Development Report 2019 Technical notes*. New York.
- Vanhoudt, Patrick (2000). "An assessment of the macroeconomic determinants of inequality". *Applied Economics* 32.7. Publisher: Taylor & Francis, pp. 877–883.
- Williamson, John (1990). "What Washington Means by Policy Reform". *Latin American Adjustment: How Much Has Happened?* Washington, D.C.: Institute for International Economics.
- Windmeijer, Frank (2005). "A finite sample correction for the variance of linear efficient two-step GMM estimators". *Journal of econometrics* 126.1. Publisher: Elsevier, pp. 25–51.
- World Bank (2020). *World Development Report 2020: Trading for Development in the Age of Global Value Chains*. Tech. rep. The World Bank.
- World Economic Forum (2017). *The Inclusive Growth and Development Report 2017*. Tech. rep. World Economic Forum, Geneva.

Appendix A

Table A1: Descriptive Statistics

VARIABLES	N	Mean	Std. Dev.	Min.	Max.
MDI basic	696	31.38	17.27	0.83	76.06
MDI achievements plus	696	31.95	14.13	0.95	66.51
MDI equity plus	689	33.33	17.12	6.53	72.74
Sub-index achievements basic	696	55.58	17.04	16.88	90.83
Sub-index achievements plus	696	57.68	10.73	33.72	82.57
Sub-index equity plus	689	56.20	14.57	27.21	88.98
Income equity	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 Glob. Index de facto	693	55.27	16.13	19.85	91.42
KOF Glob. 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 A2: TWFE Results for MDI Versions Achievements+ and Equity+ with 5-Year Panel

VARIABLES	(1) MDI Achi+	(2) MDI Achi+	(3) MDI Achi+	(4) MDI Equity+	(5) MDI Equity+	(6) MDI Equity+
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 SVMDI	-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 A4: System-GMM Results for MDI Versions Achievements+ and Equity+ with 5-Year Panel

VARIABLES	(1) MDI Achi+	(2) MDI Achi+	(3) MDI Achi+	(4) MDI Equity+	(5) MDI Equity+	(6) MDI Equity+
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 SVM DI	-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 A5: System GMM Results for MDI subindices Achievements+ and Income Equity for 5-Year Panel

VARIABLES	Sub-index achi+			Sub-index achi basic			Sub-index equity+			Sub-index income equity			
	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 (0.00589)	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 (0.00177)	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)		0.00434 (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)		0.00680 (0.0101)	-0.000581 (0.00642)		-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)		-0.846 (0.747)	-1.197** (0.507)		-0.278 (0.435)	-0.456 (0.598)		-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	5-5	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 A6: Robustness Checks: TWFE Estimations of Trade Channel

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	FE policy specification baseline	exports	imports	FDI inflows	FDI outflows	FDI sum	All	All excl. FDI outflow
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)	0.863*** (0.0333)	0.864*** (0.0332)
Lag trade/GDP	0.00308 (0.00322)							
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)	-0.0194** (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)	-0.00726 (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)	0.00363** (0.00150)	0.00366** (0.00154)	0.000285 (0.00218)	-0.000141 (0.00187)
Lag FDI inflow/GDP	0.00292 (0.00364)			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*** (0.000246)	-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)	0.0234 (0.0148)	0.0231 (0.0147)
Lag exports/GDP		-0.000799 (0.00555)					-0.0226*** (0.00776)	-0.0230*** (0.00766)
Lag imports/GDP			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
R-squared	0.863	0.864	0.865	0.863	0.863	0.863	0.867	0.867
Number of countries	163	163	163	163	163	163	163	163
Adj. R-squared	0.861	0.861	0.863	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 A7: 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 A8: 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 A9: 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	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.

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