

# FINANCIAL DEVELOPMENT, GROWTH, AND INEQUALITY

The Role of Institutions  
In Latin America and  
The Caribbean

Thorsten Beck  
M. Carmen Fernández Díez  
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Inter-American Development Bank

**Cataloguing-in-Publication data provided by the  
Inter-American Development Bank  
Felipe Herrera Library**

Beck, Thorsten.

Financial development, growth, and inequality: the role of institutions in Latin America and the Caribbean / Thorsten Beck, M. Carmen Fernández Díez, Alejandro Támara.

p. cm. — (IDB Monography ; 1148)  
Includes bibliographical references.

1. Economic development-Latin America. 2. Economic development-Caribbean Area. 3. Income distribution-Latin America. 4. Income distribution-Caribbean Area. I. Fernández Díez, María Carmen. II. Támara, Alejandro. III. Inter-American Development Bank. Connectivity, Markets and Finance Division. IV. Title. V. Series.

IDB-MG-1148

**JEL Codes:** G20, O16, O19, O43, O54

**Keywords:** financial development, institutions, equity, growth, Latin American and Caribbean countries, reforms, income inequality

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Inter-American Development Bank  
1300 New York Avenue, N.W.  
Washington, D.C. 20577  
[www.iadb.org](http://www.iadb.org)

The Institutions for Development Sector was responsible for the production of this publication.

**External vendors:**

**Production Editor:** Sarah Schineller (A&S Information Partners, LLC)

**Editor:** Leslie Hunter

**Proofreader:** Kira Bermúdez

**Design:** Word Express, Inc.

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## Executive Summary\*

Latin America is the most unequal region in the world when it comes to income distribution. Except for a few important dimensions, it significantly lags other regions in terms of financial development and institutional conditions.

This monograph explores the relationships between institutions, financial development, and income inequality. It evaluates the scope for reforms that can foster financial development with minimal if any trade-offs between growth and income disparity. It argues that the very institutional enhancements capable of augmenting financial development can concurrently mitigate income inequality directly and indirectly by reinforcing the beneficial effects of financial development.

Latin America is an appropriate case for this exploration because of its unequal income distribution and its history of financial underdevelopment and instability. With a few exceptions, the region also trails behind others in institutional quality and conditions.

The main contributions and takeaways can be summarized as follows. First, it reassesses the divergent views in the empirical literature examining the relationship between financial development and income inequality, improving previous attempts in the following aspects: (i) it uses an extensive set of measures of financial development, covering both institutions and markets and traditional and new measures; (ii) the sample is larger in terms of countries and timeframe; (iii) it uses a comprehensive set of inequality indicators and income definitions; (iv) it systematically explores alternative specifications; and (v) it produces a statistically consistent average of the results. As a result, the study establishes the presence of a clear trend linking improved financial development with lower income inequality.

Second, relying on the same econometric approach, the study also explores the relationship between institutional conditions (especially those particularly relevant for the financial sector) and income inequality. It finds that, in general, the same institutions that contribute to financial development also help reduce income inequality. Third, based on

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\* The authors express their deep gratitude to Phil Keefer for his invaluable contribution as coordinator and reviewer of this study, particularly in aspects related to institutions, as well as Arturo Joachin for his work generating information and data.

an econometric model of the financial possibility frontier, using various proxy measures, the study provides country-level estimations for the potential gains from financial development that would follow from counterfactual improvements in institutional conditions closely linked to financial markets.

Thus, the monograph shows that the conjunction of institutional weakness, relatively low financial development, and high income inequality is hardly a coincidence, as there are significant reasons and empirical evidence establishing a link between them. Policy-makers may not have to choose between more development or less inequality, as closing institutional gaps (relative to more advanced regions) can induce substantial beneficial changes in financial development and income distribution.

In summary, these previous results indicate that there is a substantial space for institutional reforms in Latin America and the Caribbean (LAC) that will promote financial development and contribute to reduce income inequality. These reforms must be tailored to each case, as there is substantial regional heterogeneity in all relevant dimensions (institutional conditions, financial development, and income inequality).

Lastly, real-world cases indicate that reforms are difficult, costly, and sometimes reversed beyond the starting point. Therefore, it is important to direct reform efforts to those areas with the highest societal return. This study provides a framework (and specific point estimates) that could be used, on a country-by-country basis, to identify the potential return on alternative reform strategies and, in this way, evaluate the cost and likelihood of reform with the potential benefits in terms of financial development and more equitable income distribution.

# Introduction

Many policymakers and regulators believe that there is an inherent tension between efficiency and equity. They struggle to design strategies that strike a balance between these two concepts. With respect to financial markets, certain conditions can alleviate this perceived tension, offering pathways that could enhance both efficiency and equity.

The framework presented in Greenwald and Stiglitz (1986) posits that, faced with externalities, imperfect information, and incomplete markets, there are opportunities to intervene in financial markets that can enhance both efficiency and equity. A cursory examination of the conditions regarding income inequality, financial development, and institutional factors in the Latin American and Caribbean (LAC) region suggests that such framework may be quite relevant for those countries.

This study examines the status of institutions in the LAC region to explore whether reforms intended to foster financial development (typically aimed at promoting economic and productivity growth) can do so without exacerbating income inequality—and perhaps even reversing it. The question we seek to answer is: Can enhanced institutional conditions drive financial development in a way that promotes growth while either maintaining or reducing income inequality?

The evidence suggests an affirmative response. Contrary to the perception that institutional reforms that promote financial development are detrimental to equitable income distribution, policymakers in the LAC region could be presented with the opportunity to promote reforms that simultaneously boost financial development, promote economic growth, and reduce income inequality. This optimistic conclusion is rooted in both the theoretical literature and empirical findings, as revised in this study.

Section I reviews the literature on the relationships between financial development, growth, and institutional conditions. In this case, the evidence suggests that better institutional conditions can promote financial development and that financial development will also promote growth, particularly productivity growth. The second part of the section reviews the literature on the relationships between institutional conditions, financial development, and inequality. In this case, the connections are less clear, as there are compelling arguments pointing to potentially positive and negative relationships, while previous empirical results do not provide robust support to one or the other conclusion. The section

ends by offering an integrated, nuanced interpretation of the literature, where alternative results are mapped to different institutional conditions and varying stages of financial development.

Section II develops the empirical contribution of the monograph, which takes place in two steps.<sup>1</sup> First, it estimates the financial possibility frontier. A model of potential financial development that can approximate the degree to which financial development is being constrained by specific institutional conditions is used to explore the potential impact of improving specific institutional elements closely tied to financial markets, such as information sharing mechanisms, the strength of legal rights, investor protection, and contract enforcement, among others. Second, it reassesses the empirical literature on financial development and income inequality over a large sample of countries and extended periods, using traditional and non-traditional measures of financial development, multiple measures of income inequality, and a large variety of specifications to compute the statistical average effect across all specifications. In addition, the section explores the direct association between (the same set of) institutions considered for financial development and the multiple measures of income inequality, using the methodology described above. In this way, we account for direct and indirect effects of institutions on inequality. Overall, the results indicate the institutional elements that promote financial development while reducing income inequality. Finally, Section III summarizes and discusses the results and offers policy recommendations based on the empirical evidence.

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<sup>1</sup> The detailed econometric results are presented in annexes A and B.

## SECTION I

# Literature Review: Institutions, Financial Development, Growth, and Inequality

### Financial Development and Economic Growth: Average Effect and Nonlinearities

Is an efficient and well-functioning financial system a precondition for development? Theory provides ambiguous responses to this question. On the one hand, it suggests that efficient financial systems might enhance economic development by (i) providing payment services and reducing transaction costs, thus enabling the efficient exchange of goods and services, (ii) pooling savings from many individual savers, thus helping overcome investment indivisibilities and making it possible to exploit economies of scale (Acemoglu and Zilibotti, 1997; McKinnon, 1973), (iii) economizing on screening and monitoring costs, thus increasing overall investment and improving resource allocation, (iv) helping monitor enterprises and reduce agency problems within firms between management and majority and minority shareholders, again improving resource allocation, and (v) helping reduce liquidity risk, thus enabling long-term investment (Diamond and Dybvig, 1983). On the other hand, better resource allocation may depress savings rates enough such that overall growth rates drop with enhanced financial development (Bencivenga and Smith, 1991). This can happen if the income effect of higher interest rates is larger than the substitution effect. Recent research has pointed to other growth-reducing effects of financial sector deepening. For example, the financial sector might attract too many resources relative to the real sector, with negative repercussions for growth (Bolton, Santos, and Scheinkman, 2016; Philippon, 2010). An extensive empirical literature has tested these theoretical predictions and finds, to a large extent, a positive relationship between financial sector development and economic growth.<sup>2</sup>

While most of the finance and growth literature has focused on the average effect of financial development on economic growth, some research has found a declining effect of

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<sup>2</sup> See Popov (2018) for an in-depth overview of the literature.

finance on growth as countries grow richer (Aghion, Howitt, and Mayer-Foulkes, 2005; Rioja and Valev, 2004a, 2004b).<sup>3</sup> There are several, not exclusive, explanations for such nonlinearities, ranging from measurement problems<sup>4</sup> and the varying composition of lending between consumption and investment (Beck et al., 2012; Chakraborty, Goldstein, and MacKinlay, 2018; Mian, Sufi, and Verner, 2017) to more complex explanations pointing to inherent frictions and imperfections in financial markets. Along with the research uncovering the presence of nonlinearities in the financial development-growth relationship, recent studies have found that the average effects (prior to potential reversions) are strongest in middle-income countries like those in the LAC region. Interestingly, institutional factors may affect the point at which and the strength with which these nonlinearities start to become relevant. For instance, in Philippon (2010), the financial system might grow too large relative to the real economy if it extracts excessively high informational rents; in Beck et al. (2023), traditional banks are less likely to finance intangible assets (and thus sectors in the modern knowledge economy) given their inability to prevent investors from diverting a fraction of the investment return, pointing to the need for non-bank financial intermediaries. In these two cases, arguably, better institutions that improve transparency, accountability, and contract enforcement would, at least, shift the point at which marginal negative effects surpass positive ones.

## Institutional Conditions and Finance

Given the evidence pointing to financial development as a critical element for economic development, it is important to determine how to develop the financial sector, specifically, the role played by institutional and policy reforms. The problem of asymmetric information is, arguably, the most salient obstacle in the operation of financial entities and markets, followed by transaction costs. Institutional conditions and policies that help mitigate these frictions and reduce these costs can therefore promote financial development. This section focuses on two such types of institutions: those that reduce information frictions

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<sup>3</sup> Arcand, Berkes, and Panizza (2015) find that the finance and growth relationship turns negative for high-income countries, identifying a value of 110 percent private credit to GDP as the approximate turning point, with the negative relationship between finance and growth turning significant at around 150 percent private credit to GDP. Some high-income countries reached these levels in the 2000s.

<sup>4</sup> The measurement hypothesis argues that measures of financial depth and intermediation used in the literature might be simply too crude to capture quality improvements at high levels of financial development. Specifically, there is not a clear mapping between the functions of finance as spelled out by theory and the empirical gauges of financial sector development, which capture mostly the size, activity, or efficiency of different financial institutions or markets. A variation on this theme points to the fact that the financial sector has gradually extended its scope beyond the traditional activity of intermediation toward so-called “non-intermediation” financial activities, such as advisory services, asset management, or trading (Demirgüç-Kunt and Huizinga, 2010). As a result, the usual measures of intermediation services have become less and less congruent with the reality of modern financial systems.

and those that secure property rights and contract enforcement. The empirical literature has focused on a subset of these institutions, including credit bureaus and credit registries, creditor rights, and bankruptcy legislation. In many LAC countries, such institutions are missing or deficient, slowing financial sector development.

Two important institutions helping overcome information frictions are credit bureaus and credit registries.<sup>5</sup> The market failure generated by asymmetric information keeps these from emerging spontaneously in free markets. Theory suggests positive effects of credit information sharing on screening accuracy and thus on banks' profitability by improving the identification of the best investment projects. Moreover, sharing positive information enables borrowers to build reputation capital and promote competition among lenders (Pagano and Jappelli, 1993; Padilla and Pagano, 1997). Cross-country studies have confirmed the positive relationship between effective credit information sharing and firms' access to credit henceforth supporting economic development (Brown, Jappelli, and Pagano, 2009; Djankov, McLiesh, and Shleifer, 2007; Love, Martinez Peria, and Singh, 2015; Pagano and Jappelli, 1999). The cross-country literature has been complemented by country studies, such as by De Janvry, McIntosh, and Sadoulet (2006), who studied the behavior of borrowers following the entry of a credit registry for microfinance institutions. Furthermore, there is strong evidence that alleviation information asymmetries through information exchange, credit bureaus, and credit ratings can reduce credit restrictions for micro, small, and medium-sized enterprises (MSMEs) (Berger et al., 2005; Brown et al., 2009; Love and Mylenko, 2003; Martínez Peria and Singh, 2014) since they allow the use of credit information to generate credit scores that predict repayment based on the characteristics of the borrower (Love and Mylenko, 2003; Martínez Peria and Singh, 2014).

An extensive literature has also shown the importance of contractual institutions, such as creditor rights (Djankov, McLiesh and Shleifer, 2007; La Porta et al., 1997; Levine, Loayza and Beck, 2000). Firm-level studies confirm these findings. Qian and Strahan (2007) show that, on average, firms in countries with stronger secured creditor rights have longer-maturity loans and more secured debt. Bae and Goyal (2009) show that banks reduce loan maturities in countries with less efficient contract enforcement. Kirch and Soares Terra (2012) find that the institutional quality of a country has a significant positive effect on the amount of long-term debt in a firm's financial structure. Love, Martinez Peria, and Singh (2016) show that introducing collateral registries for movable assets increases firms' access to bank finance, with a larger effect among smaller firms, while Calomiris et al. (2017) show that loan-to-value

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<sup>5</sup> Credit bureaus are privately owned and privately operated companies, comprising one of the two main types of credit reporting institutions. They collect information from a wide variety of financial and nonfinancial entities and provide comprehensive consumer credit information. The other category of credit reporting institutions are credit registries, which tend to be public entities. They are generally developed to support the state's role as supervisor of financial institutions and tend to monitor loans made by regulated financial institutions.

ratios of loans collateralized with movable assets are lower in countries with weak collateral laws, relative to fixed assets, and that lending is biased toward the use of fixed assets. Visaria (2009) analyses the staggered introduction of debt recovery tribunals in India and finds that improving contract enforcement reduces loan delinquency and the cost of credit. Chemin (2009, 2012) shows that a more efficient court procedure in India resulted in a reduction in case backlog in courts, fewer breaches of contract, and increased investment by firms in fixed assets. Ponticelli and Alencar (2016) gauge the interaction of legal reform and the efficiency of court systems, exploiting municipality-level variation in Brazil and show that the introduction of a bankruptcy reform in 2005 resulted in an increase in secured lending to manufacturing firms and an increase in firm investment in municipalities with less congested courts. Likewise, estimates by Araujo et al. (2012) and Cirmizi, Klapper, and Uttamchandani (2012) suggest that the introduction of the new bankruptcy law in Brazil improved access to financing for companies by 23 percent and reduced their costs by 8 percent. Asuncao, Bemmelech, and Silva (2014) show that the 2004 reform in Brazil that facilitated the repossession of cars used as collateral for car loans increased access to credit by riskier and self-employed borrowers and resulted in larger loans with lower interest rates and longer maturities. However, by expanding the borrower population to include riskier clientele, the reform also led to higher default rates. Thus, financial institutions need to balance the risks that undermine their stability with expansion of credit. Information and enforcement institutions work together to expand access to credit while ensuring efficient allocation.

## Financial Development and Income Inequality

The theoretical literature provides opposing hypotheses on the impact of financial development and income inequality. While most of the empirical literature has shown a negative relationship between finance and income inequality, some studies find a positive and/or nonlinear relationship. It is difficult to establish with certainty the source of the heterogeneity in the empirical results, but one significant explanation can be traced back to heterogeneity in the samples, methodologies, and definitions of both financial development and income inequality. This section considers the arguments and evidence for each case.

Some theoretical models posit a negative relationship between financial development and income inequality.<sup>6</sup> In some models, barriers of indivisibilities and information asymmetries are more binding for those at the lower end of the income distribution, and they stand to benefit most from financial sector development (Aghion and Bolton, 1997; Galor and Moav, 2004; Galor and Zeira, 1993). A more efficient financial system allows a

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<sup>6</sup> A negative relationship indicates that more financial development is associated with less income inequality. Income inequality is typically measured by indicators mapping higher inequality to higher index values.

larger share of the population to invest in their education (or that of their children) and in their businesses, thus reducing inequality. However, there might also be indirect effects of financial development on income inequality, through product and labor market effects, by, for example, pulling a larger share of the population into formal labor markets (Beck, Levine, and Levkov, 2010). The empirical literature provides support for this view. Beck, Demirguc-Kunt, and Levine (2007) show that financial development disproportionately boosts incomes in the poorest quintile, mainly as a result of reduced inequality.<sup>7</sup> Hamori and Hashiguchi (2012) find that financial deepening reduces inequality by increasing incomes at the lower end of the distribution relatively more than at its upper end, arguing that the main effect stems from the easing of credit constraints on the poor.<sup>8</sup> Meniago and Asongu (2018) explore the links between financial depth, efficiency, activity, and stability on various measures of income inequality (Gini, Atkinson, and Palma ratio) in a sample of 48 African countries and find a general equalizing effect. Thornton and Di Tommaso (2020) analyze the relationship using a cointegrating model and find that financial development reduces inequality in the long run.

Country studies confirm these cross-country findings and provide insights into the channels through which financial development lowers income inequality. Giné and Townsend (2004) show that financial liberalization in Thailand resulted in migration flows from rural subsistence agriculture into urban salaried employment. Beck, Levine, and Levkov (2010) show that financial liberalization in the United States in the 1970s and 1980s helped reduce income inequality by pulling previously unemployed and less educated people into the formal labor market. With respect to Latin America, Bittencourt (2010) finds that financial development had a significant and robust effect in reducing inequality in Brazil over the period from 1985 to 1994.

On the other hand, some theoretical arguments point to a positive relationship between financial development and inequality.<sup>9</sup> Greenwood and Jovanovic (1990) develop the argument that, due to barriers to entry, only those in the upper segments of the income distribution will benefit from financial sector development, thus widening income inequality at least in the early stages of financial development. Rajan and Zingales (2003) offer a variation on that argument, finding that in a context of weak institutions, interest groups have privileged access to finance so that financial development may hurt the poor (rent extraction). In both cases, financial institutions may play a relevant role in the context of LAC countries.

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<sup>7</sup> About 40 percent of the long-run impact of financial development on the income growth of the poorest quintile is the result of reductions in income inequality, while 60 percent is due to the impact of financial development on aggregate economic growth.

<sup>8</sup> They also find that economic growth reduces the equalizing effects of financial deepening.

<sup>9</sup> To reiterate, a positive relationship refers to a case where more financial development is associated with increased income inequality.

Empirical studies also provide support for the positive relationship between measures of financial development and income inequality. De Haan and Sturm (2017) find that financial development and financial liberalization increase income inequality, as measured by the Gini coefficient over gross income (that is, not accounting for taxes and transfers).<sup>10,11</sup> Denk and Cournède (2015) use data covering Organisation for Economic Co-operation and Development (OECD) countries over the period 1974–2011 and detect that, on average, more finance, as measured by credit and stock market capitalization, is associated with higher income inequality, a relation that may have negatively impacted those at the lower-middle section of the income distribution via a reduction in income growth. As for the underlying mechanisms, the evidence does not suggest a mediating role for financial crises, and the authors argue that the effect may be mediated by the share of income going to capital (as opposed to labor). Jauch and Watzka (2016) explore the relationship using the ratio of credit to GDP as a proxy for financial development in a sample of 138 countries spanning four decades and find that financial deepening increases income inequality. They point out that, although all income groups may benefit in absolute terms, those already better off appear to benefit relatively more.

In between the previous opposing views, there is a set of studies finding varying and nonlinear relationships. Such a relationship may emerge if, in the early stages of financial development, there is a leveling of incomes as segments of the population (mostly at the lower end of the distribution) increase their earnings due to increased access to finance, while, at higher levels of financial development, the system may be extracting high informational rents, as in Philippon (2010). Makhoulouf, Kellard, and Vinogradov (2020) present a slight variation of this argument, finding that in underdeveloped credit markets, financial development alleviates barriers to entry and expands economic opportunities, thus reducing income inequality. However, financial development also improves the quality of financial services for those who already have access to them, most likely relatively high-income individuals and well-established firms, thus contributing to more income inequality. There is also empirical support for these views. Park and Shin (2017) use three proxies for financial development (ratio of liquid liabilities to GDP, ratio of private credit by deposit money banks to GDP, and ratio of stock market capitalization to GDP) and evaluate the relationship with the income share of the top 1 percent and the Gini coefficient computed over market income and disposable income. They find that financial development contributes to lower inequality up to a point, but as financial development proceeds further, it contributes to higher inequality. Makhoulouf, Kellard, and Vinogradov (2020) find that financial

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<sup>10</sup> They also find that financial crises increase income inequality, which is a result confirmed by other studies in the literature as it will be noted below.

<sup>11</sup> De Haan and Sturm (2017) do not attempt an explanation of the empirical results obtained.

development affects income inequality differently in the short and in the long term, with improvements in financial development tending to reduce inequality in the short run, while increasing it in the long run. Paramati, Reddy, and Nguyen (2019) show that banking sector development is negatively correlated with income inequality in both developed and developing economies, while stock market development is positively correlated with income inequality in advanced economies but negatively in developing countries.

## **Institutional Conditions and Income Inequality**

Institutions matter for growth and distribution. In relation to the financial system, different institutional arrangements may favor inclusion, competition, transparency, and a balanced distribution of risks or, alternatively, can induce more concentration, rent-seeking, and moral hazard. Chong and Gradstein (2007) formulate a model in which rent extraction influences the evolution of individual incomes and income distribution, where the relative importance of rent extraction in total income is determined by the quality of institutions (proxied in the empirical specification by measures of government stability, law and order, and quality of the bureaucracy, among others). Baiardi and Morana (2018) provide a concise overview of the theoretical connections between institutional conditions and income inequality. Financial development can widen income inequality under weak institutional conditions or missing financial regulations. Under these conditions, financial development takes place mostly on the intensive margin (that is, providing more services and resources for those already participating in the financial system) and not in the extensive margin (increasing access for those not in the system). Alternatively, improving institutional conditions to reduce information asymmetries and transaction costs would ease financial restrictions for those at the lower end of the income distribution, enabling them to accumulate physical and human capital, thus reducing income inequality. Kunieda, Okada, and Shibata (2014) explicitly model how elements such as contract enforcement and limits to observability (i.e., poor accounting practices and standards) are instrumental in reversing the relationship between financial development and income inequality when moving from a closed to an open economy, as those institutional elements affect the credit constraints faced by individuals.

## **A Preliminary Integrated Interpretation<sup>12</sup>**

The theoretical and empirical literatures point to a relationship that is affected by the stage (and nature) of financial development and institutional conditions. In the early stages

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<sup>12</sup> Annex C complements this discussion with a simple model formalizing an integrated view of institutional conditions, financial development, growth, and income inequality.

of financial development, most of the expansion in credit and financial services is likely to take place on the extensive margin—that is, mainly improving access, inclusion, and depth—and most likely through entities (banks, insurance companies, and, more recently, Fintech companies). At this stage of development, the expansion of investment opportunities that can be financed (and, therefore, undertaken) and the likely cost reductions appear to benefit relatively more those on the left side of the income distribution. These changes are likely to be reflected in both global and partial measures of inequality (e.g., the Gini coefficient and income ratios, respectively); hence, empirical estimations conducted with data generated mostly under those conditions and over such measures are likely to capture a negative association. Conversely, at higher levels of financial development, further expansion is likely to take place mostly at the intensive margin, thus probably exploiting complex and riskier opportunities. In this situation, efficiency gains and riskier segments may become significant drivers of the expansion, and distribution of benefits may be skewed toward the upper segments of the income distribution. These changes are likely to be reflected mostly on partial measures of inequality (e.g., income ratios) and when computed over pre-tax and transfer income measures. Empirical estimations conducted on corresponding data and measures may point to a positive association between financial development and income inequality.

Finally, institutional conditions become relevant for the emergence of such patterns. At low levels of financial development, institutional and regulatory conditions may affect competition among entities and the contestability of rents; if the conditions encourage entry and competition, and if information and contractual frictions are adequately accounted for so that informational rents can be contested and eroded, then the negative association between financial development and income inequality is more likely to be significant and detectable in the data. Finally, at higher levels of financial development, institutional factors that promote accountability, protection of property rights, judicial independence, and fair and efficient tax schemes may be important to deter the emergence of a positive association. In such conditions, there can be discrepancies when inequality is computed over pre- and post-tax income, and over global or partial measures of inequality.

## SECTION II

# Financial Development and Institutional Conditions in Latin America and the Caribbean

### Financial Development

This section explores the region's financial development using synthetic indicators constructed by the International Monetary Fund (IMF) (Sahay et al., 2015; Svirydzienka, 2016), covering the situation for financial intermediaries (e.g., banks, insurance companies, pension funds, mutual funds) and markets (e.g., stock and bond markets) in terms of depth, access, and efficiency.<sup>13,14,15</sup> The coverage and composition of each of the measures considered is summarized in Table 2.1.

First, we discuss the financial intermediaries development index, which covers banks, insurance companies, mutual funds, and pension funds in terms of three sub-indices: depth, access, and efficiency (Table 2.1). Figure 2.1 shows that the overall development of financial intermediaries in LAC is above that of other developing regions but below the level observed in Europe, high-income countries, and the OECD. At the country level, there is great heterogeneity within the LAC region, as documented in Figure 2.2. The overall development for financial intermediaries ranges from Paraguay, with a level like the average for lower-middle income countries, to The Bahamas and Brazil, with levels like the average of the European Union. Similarly, Chile, together with several Caribbean countries, present levels of development within financial intermediaries like the average of advanced economies.

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<sup>13</sup> Sahay et al. (2015) and Svirydzienka (2016) use the term "institutions" instead of "intermediaries." For the sake of clarity and to avoid confusion in the use of the term "institution," the note adopts the term "financial intermediaries."

<sup>14</sup> One reason to use these composite aggregate indicators is that they can offer a more integrated view of the segments and dimensions of interest. Consider, for example, the case of the stock and bond market in Argentina in the early 1990s until the early 2000s. The composite index for overall development in this segment may offer a better gauge of its actual development than, say, a typical proxy like capitalization, which displayed large short-term swings.

<sup>15</sup> It is important to remember throughout that the concept of financial development is not fully observable, and that these indices and other proposed measures are, in the end, proxies.

**Table 2.1. Financial Intermediaries Development Index**

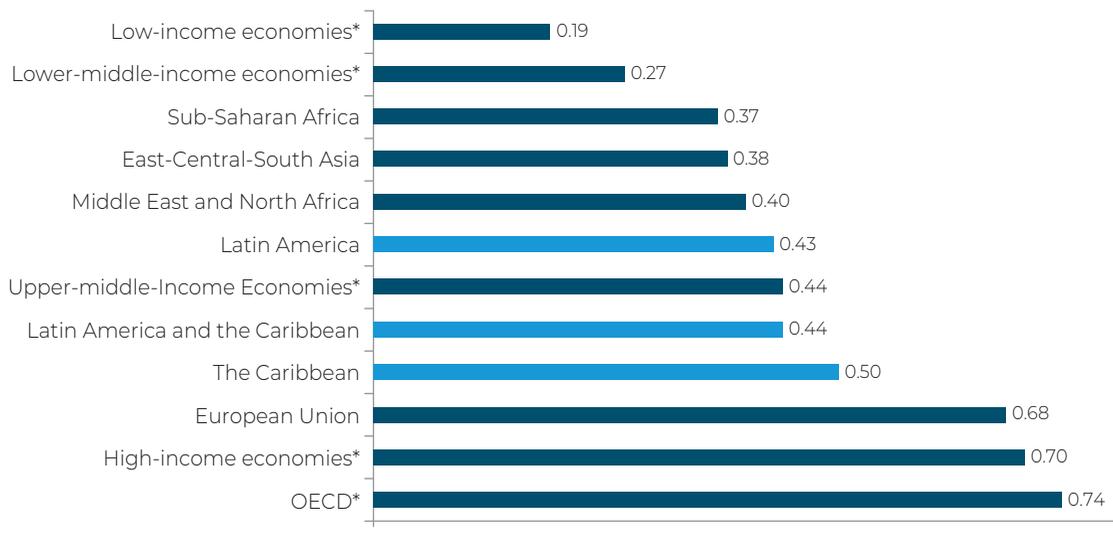
Financial Entities	Financial Markets
<b>Coverage</b>	<b>Coverage</b>
<ul style="list-style-type: none"> <li>Banks, insurance companies, mutual funds, and pension funds.</li> </ul>	<ul style="list-style-type: none"> <li>Stock and Bond Markets</li> </ul>
<b>Depth</b>	<b>Depth</b>
<ul style="list-style-type: none"> <li>Private-sector credit to GDP</li> <li>Pension fund assets to GDP</li> <li>Mutual fund assets to GDP</li> <li>Insurance premiums, life and non-life to GDP</li> </ul>	<ul style="list-style-type: none"> <li>Stock market capitalization to GDP</li> <li>Stocks traded to GDP</li> <li>International debt securities of government to GDP</li> <li>Total debt securities of financial corporations to GDP</li> <li>Total debt securities of nonfinancial corporations to GDP</li> </ul>
<b>Access</b>	<b>Access</b>
<ul style="list-style-type: none"> <li>Bank branches per 100,000 adults</li> <li>ATMs per 100,000 adults</li> </ul>	<ul style="list-style-type: none"> <li>Percent of market capitalization outside of top 10 largest companies</li> <li>Total number of issuers of debt (domestic and external, nonfinancial and financial corporations)</li> </ul>
<b>Efficiency</b>	<b>Efficiency</b>
<ul style="list-style-type: none"> <li>Net interest margin</li> <li>Lending-deposits spread</li> <li>Non-interest income to total income</li> <li>Overhead costs to total assets</li> <li>Return on assets</li> <li>Return on equity</li> </ul>	<ul style="list-style-type: none"> <li>Stock market turnover ratio (stocks traded to capitalization)</li> </ul>

Source: Adapted from Sviryzdenka (2016).

The overall ordering is similar when considering the subdimensions of depth and access, but somewhat different for efficiency. Specifically, Figure 2.3 shows that Latin America and (to a lesser extent) the Caribbean are generally below other developing regions of the world when it comes to the efficiency of financial intermediaries, although the gaps between regions are relatively smaller in this area. To a certain extent, this might be driven by very high interest spreads and margins in the region.

Turning to financial markets, the region clearly lags (and significantly so) behind not only advanced economies but also other developing regions (Figure 2.4). This low level of development holds across all three dimensions of depth (outstanding equity shares and

**Figure 2.1. Financial Intermediaries Index across Country Groups**



Source: IMF, Financial Development Index Database. Last observation corresponds to 2021.

\* LAC countries excluded.

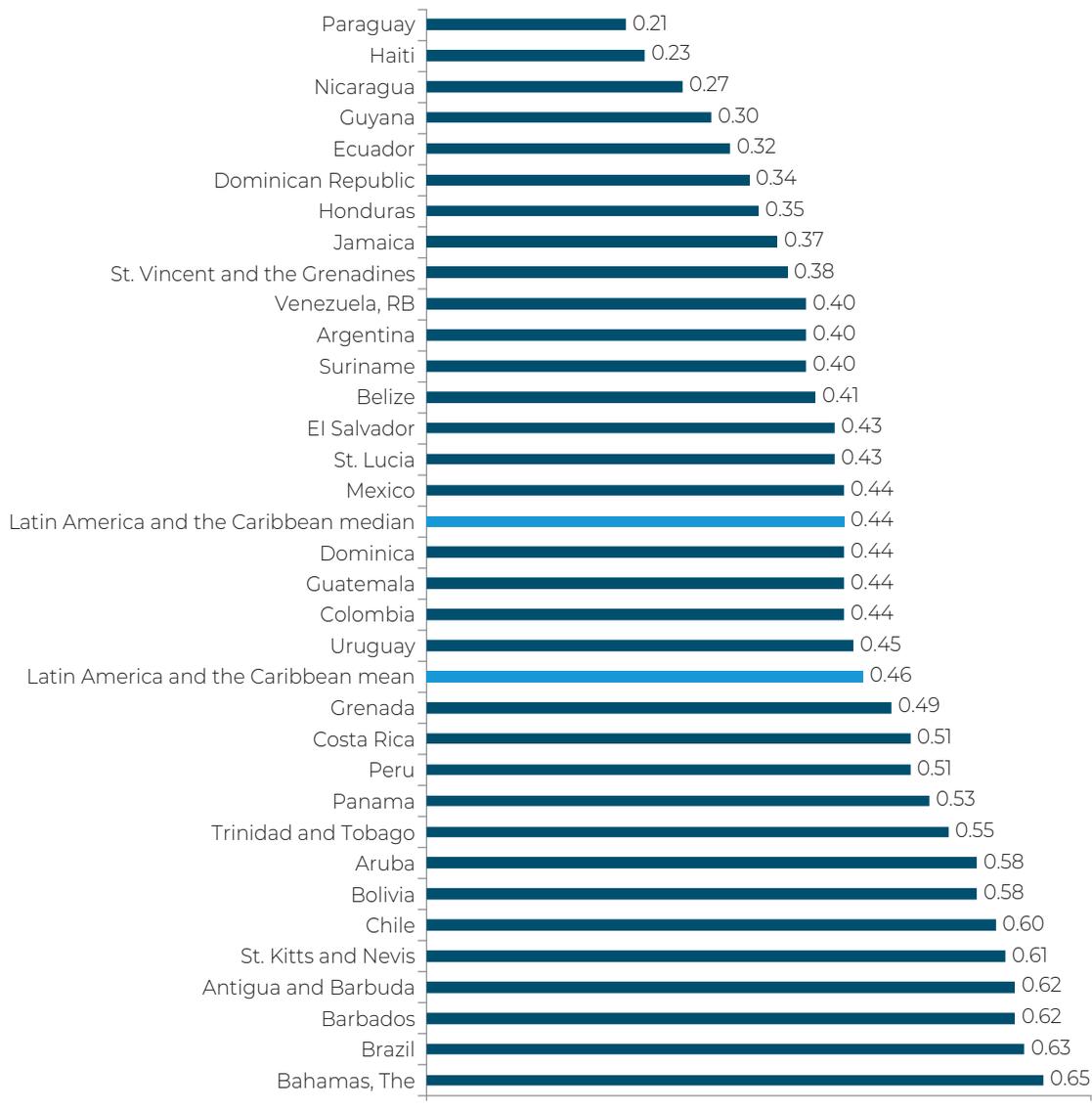
bonds, share trading, and international government bonds) (Figure 2.5), efficiency (stock market turnover ratio) and access (diversity of listed firms and debt issuers).<sup>16</sup>

When comparing financial markets across LAC countries, the disparities are large. Brazil, Chile, Colombia, and Mexico present the highest levels of overall development. In terms of depth, Brazil and Chile lead the ranking, while Brazil, Chile, Colombia, and Mexico come first when considering efficiency. In terms of access, there is a somewhat different ranking, with Argentina, Colombia, St. Lucia, and Peru at the top.

In summary, the development of financial intermediaries in the LAC region still lags behind developed countries, although it compares positively with other developing regions of the world, apart from efficiency, and with significant heterogeneity at the country level. Financial market development, on the other hand, lags relative to most other parts of the developing world. With respect to both financial intermediaries and markets, there is wide variation within the LAC region, some of which is related to income level and some (especially when it comes to development and efficiency of financial markets) to the size of the underlying economy. It is important to understand the reasons for this variation and the extent to which improvements in institutional conditions can improve financial development in the region.

<sup>16</sup> Although scale is an important factor, it's not the main determinant (see annex on the financial possibility frontier).

**Figure 2.2. Financial Intermediaries Index across Latin America**

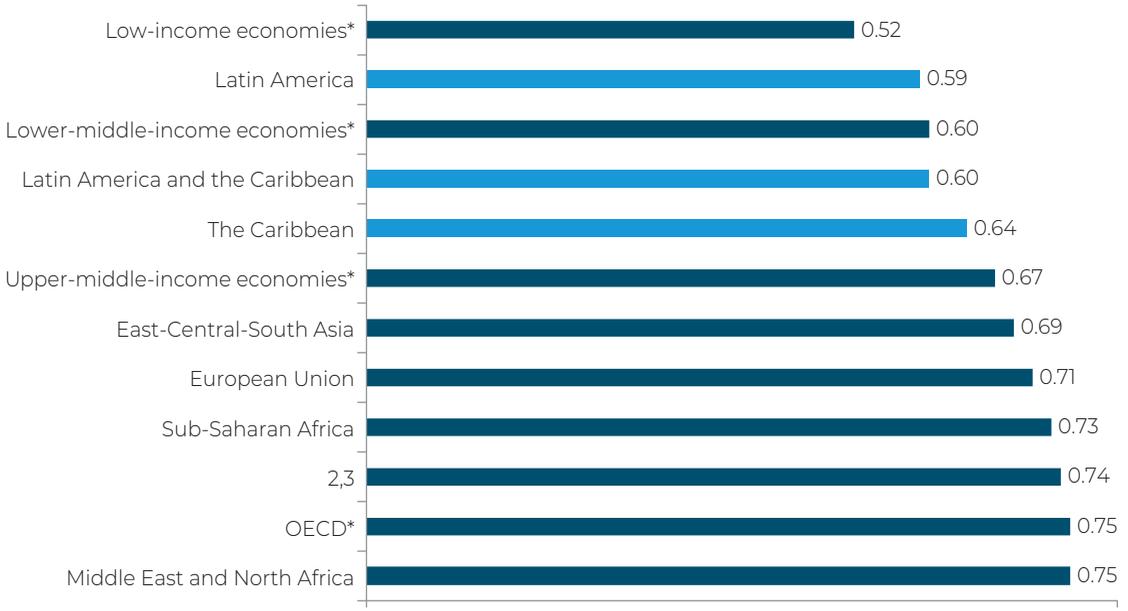


Source: IMF, Financial Development Index Database. Last observation corresponds to 2021.

## Institutional Conditions

This section explores the variation and distribution of institutional conditions that are relevant for financial development, growth, and income inequality, starting with rule of law. The rule of law indicator captures perceptions of the extent to which agents have confidence in and abide by the rules of society, specifically the quality of contract

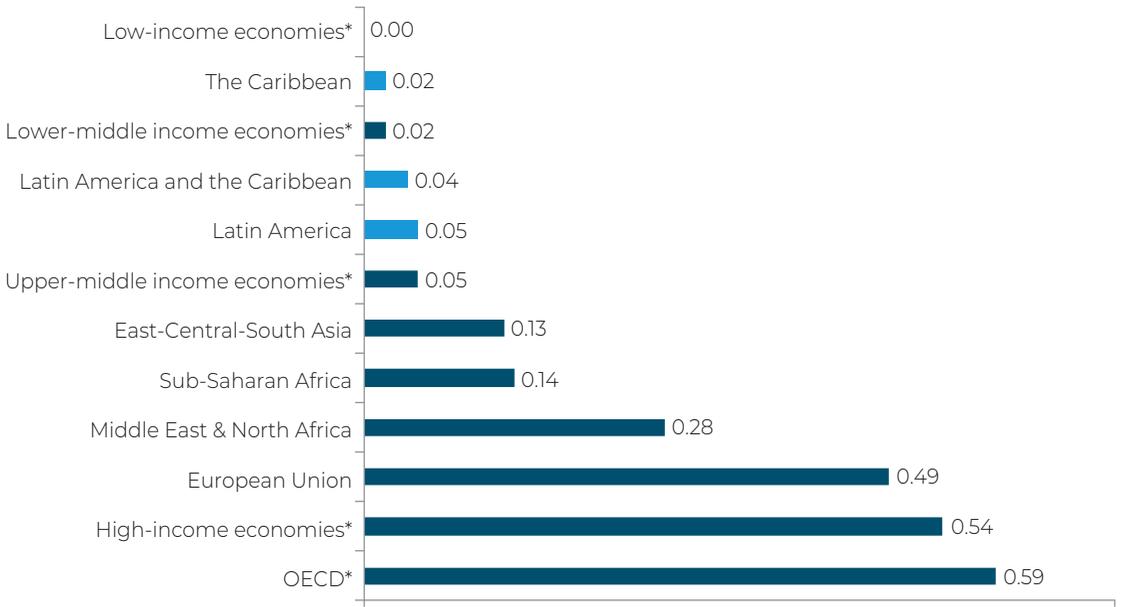
**Figure 2.3. Financial Entities Efficiency Index across Country Groups**



Source: IMF, Financial Development Index Database. Last observation corresponds to 2021.

\* LAC countries excluded.

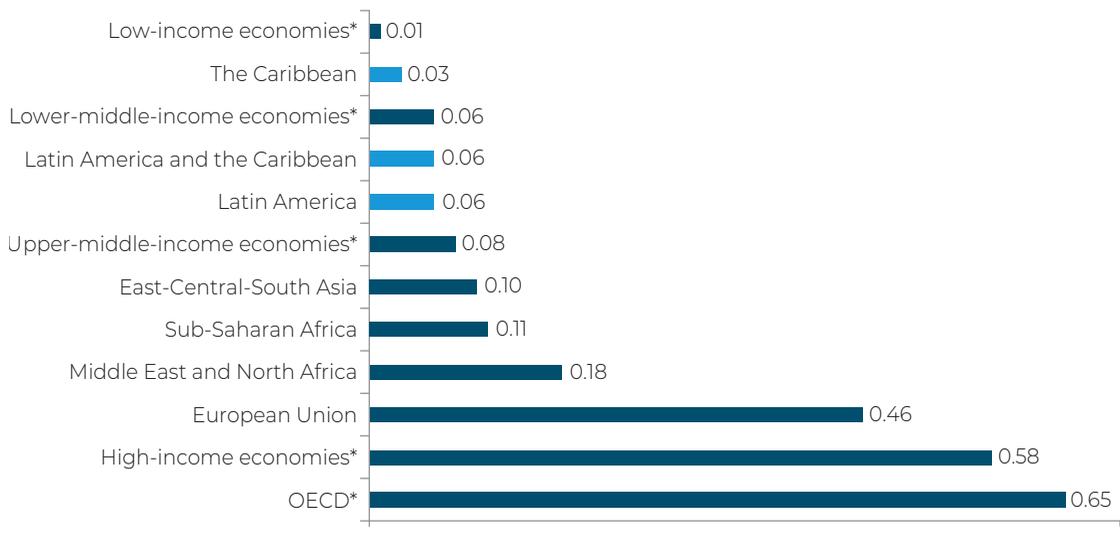
**Figure 2.4. Financial Markets Index Across Country Groups**



Source: IMF, Financial Development Index Database. Last observation corresponds to 2021.

\* LAC countries excluded.

**Figure 2.5. Financial Market Depth across Country Groups**



Source: IMF, Financial Development Index Database. Last observation corresponds to 2021.

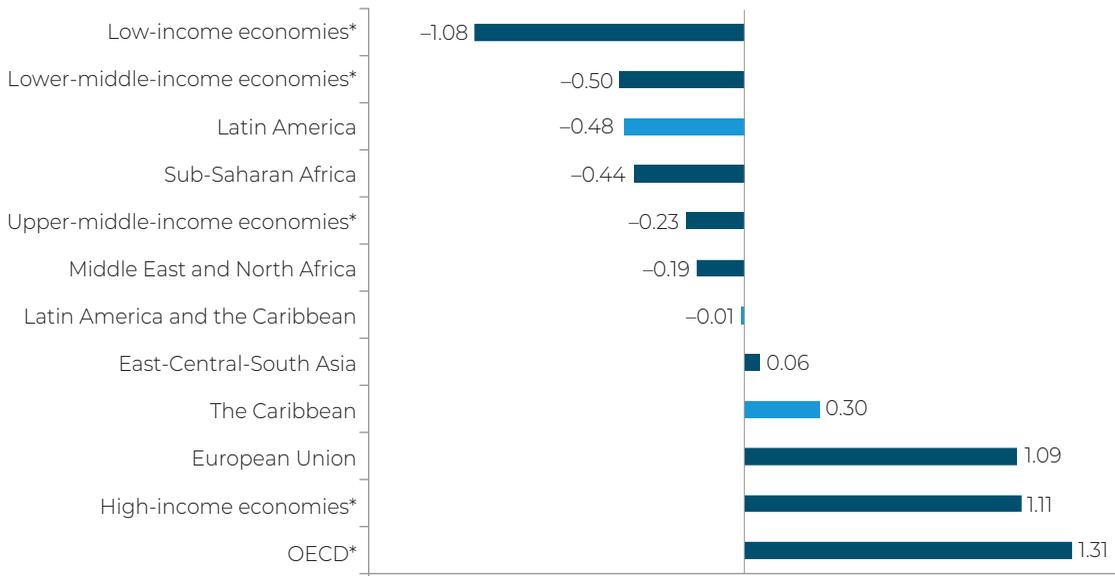
\* LAC countries excluded.

enforcement, property rights, and the courts as the dimensions most relevant to financial development.<sup>17</sup> As shown in Figure 2.6, Latin America ranks below most regions and country groups but ahead of low-income economies and just slightly above the group of lower-middle-income economies. It is also worth noting the significant gap relative to more advanced economies and regions. The situation in the Caribbean is, on average, better than in Latin America, but still quite behind that in advanced economies. Within the regional average there is a high degree of heterogeneity, with some countries (Aruba, Chile) being close to the OECD average.

Figure 2.7 presents regional and country group rankings related to government effectiveness. Latin America continues to score poorly against other regions, while the Caribbean scores somewhat better although still below the advanced economies and the OECD. Figure 2.8 presents the distribution of regulatory quality, which measures the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. Latin America fares relatively better compared to its rankings on the rule of law and government effectiveness indicators, while the Caribbean remains in a similar standing as in the previous cases. In both cases, the data at the country level are heterogeneous.

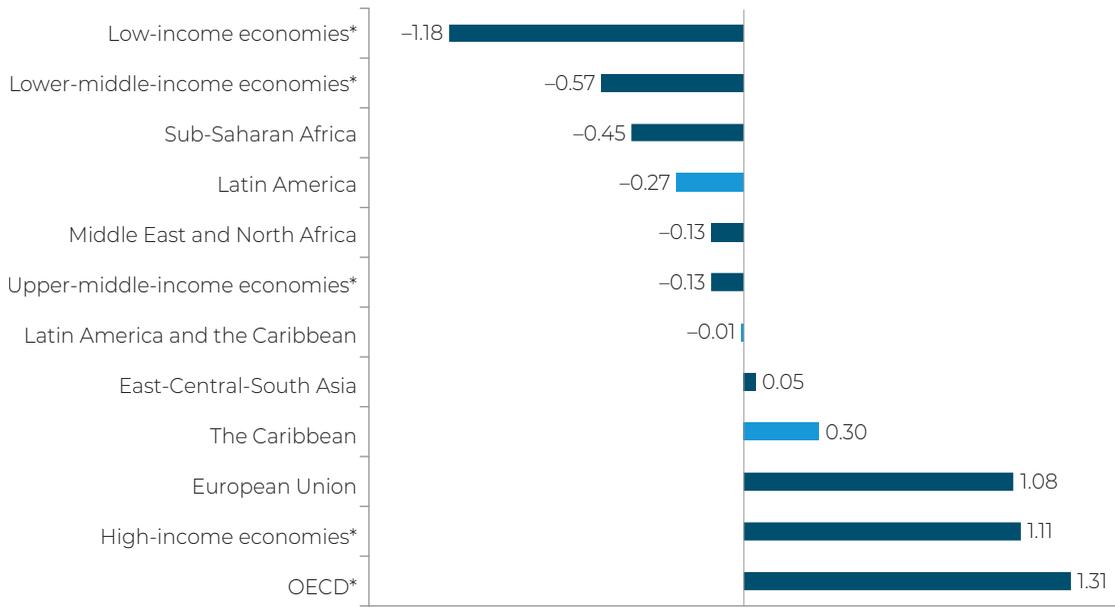
<sup>17</sup> The indicator also considers policing and the likelihood of crime and violence.

**Figure 2.6. Rule of Law across Country Groups**



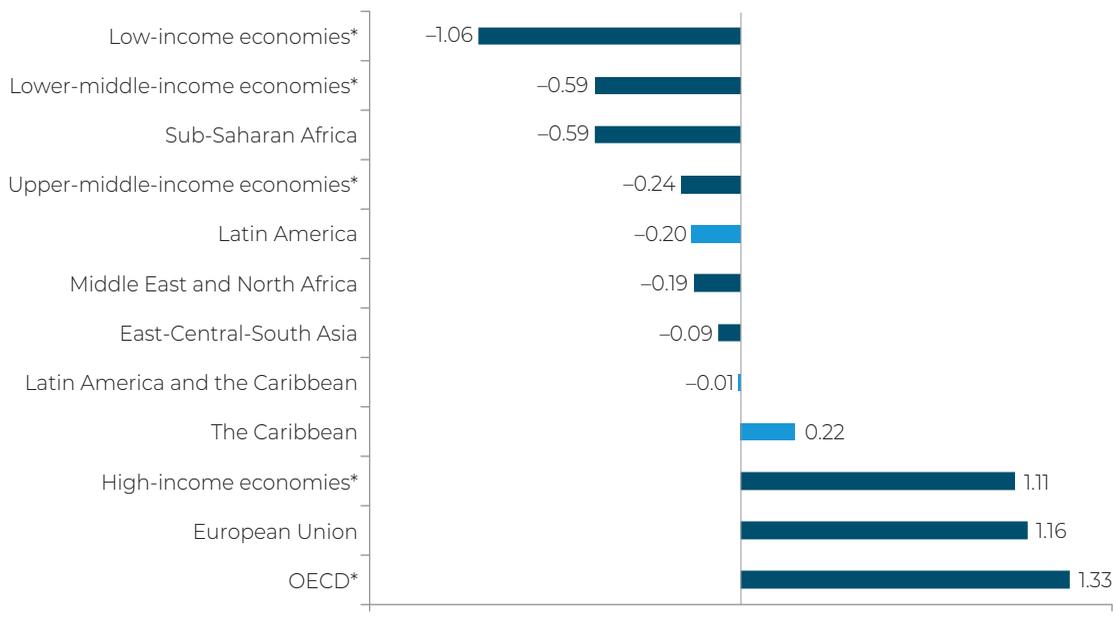
Source: Authors' elaboration based on World Governance Indicators and World Bank.  
\* LAC countries excluded.

**Figure 2.7. Government Effectiveness across Country Groups**



Source: Authors' elaboration based on World Governance Indicators and World Bank.  
\* LAC countries excluded.

**Figure 2.8. Regulatory Quality across Country Groups**



Source: Authors' elaboration based on World Governance Indicators and World Bank.  
 \* LAC countries excluded.

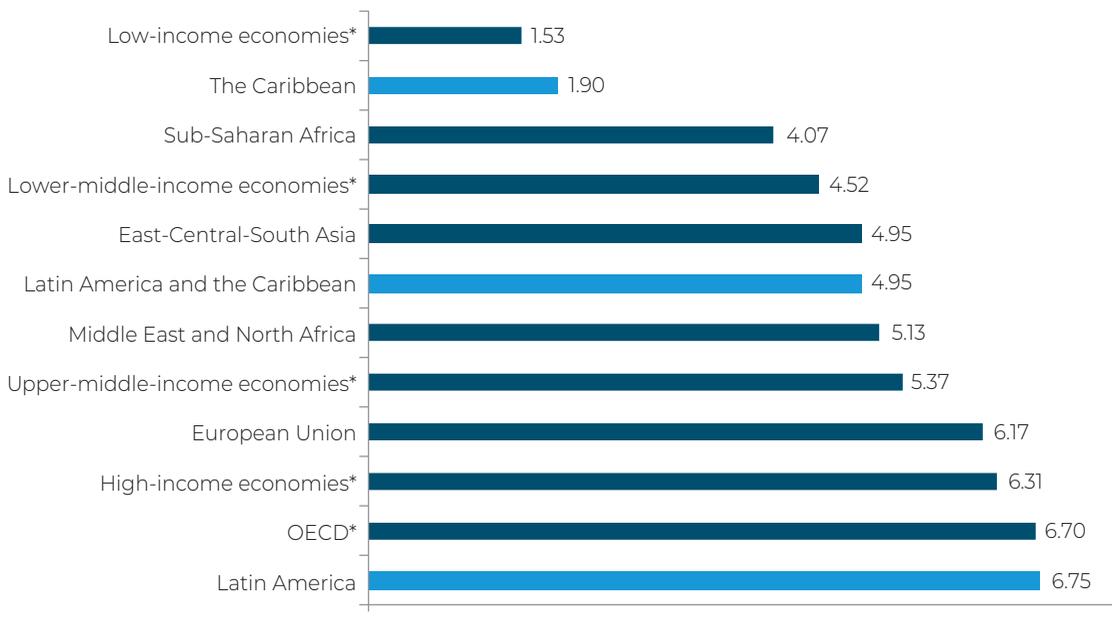
Turning to institutional conditions more specific to financial development, Figure 2.9 depicts regional and country group rankings on depth of credit information.<sup>18</sup> Credit bureaus and registries are particularly important for bank lending because improving the availability of information would affect the degree of credit rationing both in quantities and rates. This could potentially lead to increases in the volume of credit, rates that may adjust better to supply and demand conditions, and increases in market shares over market financing. Latin America has well-developed institutions in this area, similar to high-income economies and the OECD countries, with a relatively homogeneous distribution in the region.<sup>19</sup> Interestingly, the Caribbean countries, on average, lag significantly behind in this aspect relative to Latin America and most other regions.

Protecting investors, particularly minority shareholders, against misuse of corporate assets by directors, the institutionalization of governance safeguards, and corporate transparency are important for financial development—particularly so for market-based financing. The LAC region lags relative to most regions considered in Figure 2.10 (with high heterogeneity at the country level).

<sup>18</sup> Depth of credit information measures rules and practices affecting the coverage, scope, and accessibility of credit information available through either a credit bureau or a credit registry.

<sup>19</sup> One plausible explanation for this may be the lack of measurement of opacity induced by high levels of informality.

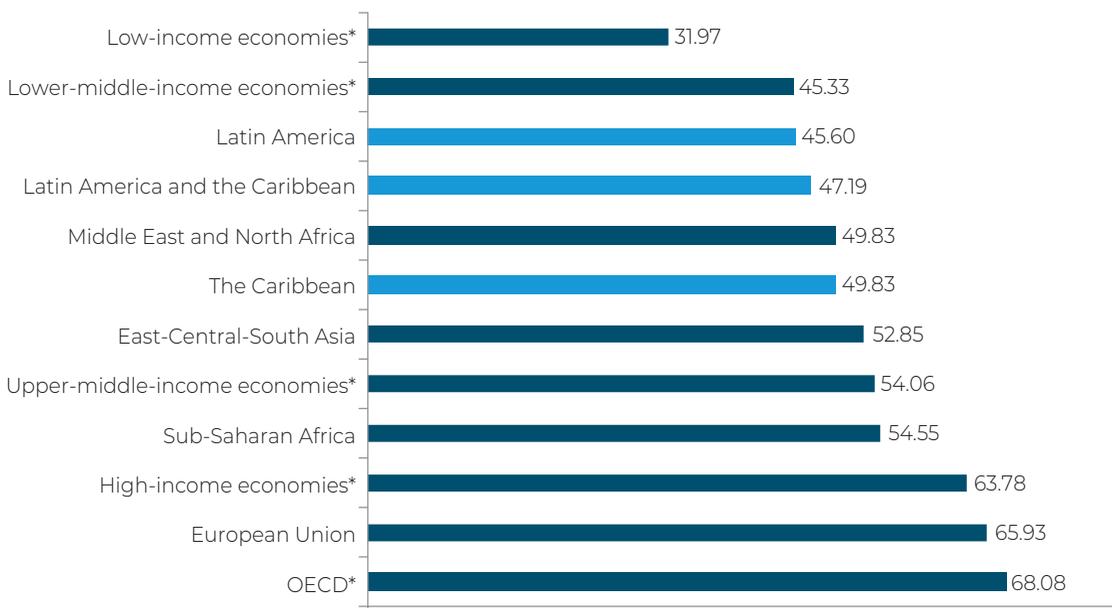
**Figure 2.9. Depth of Credit Information across Country Groups**



Source: Authors' elaboration based on World Governance Indicators and World Bank.

\* LAC countries excluded.

**Figure 2.10. Investor Protection across Country Groups**



Source: Authors' elaboration based on World Governance Indicators and World Bank.

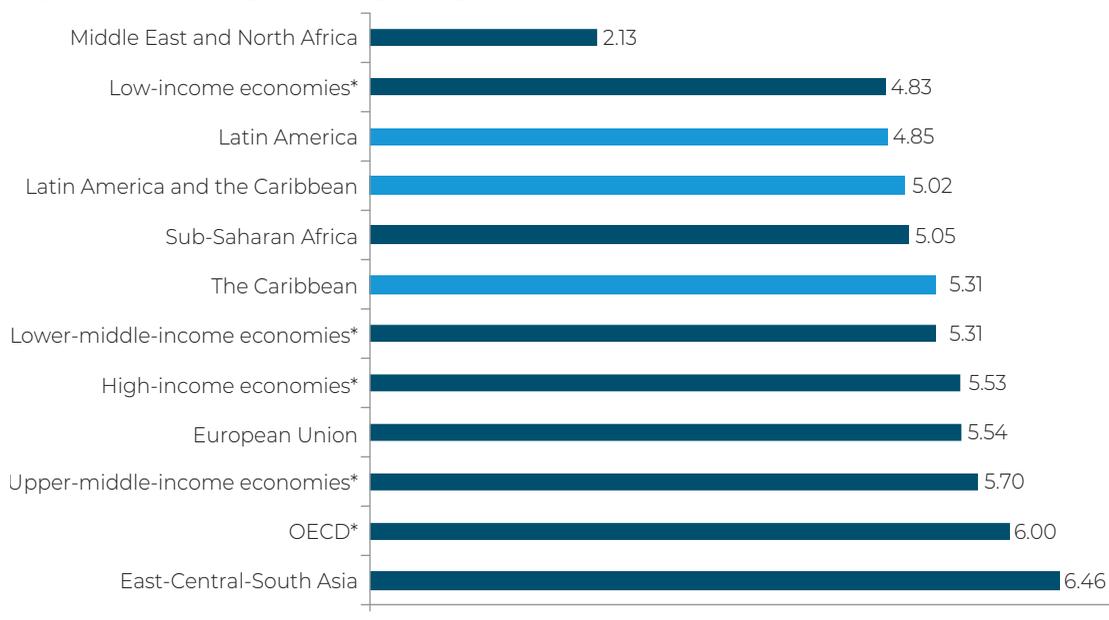
\* LAC countries excluded.

The degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending is another institutional feature that can have important impacts on the development of financial markets. Figure 2.11 presents the distribution of the strength of legal rights. In this case, Latin America ranks close to the bottom of the distribution, although the region is clearly ahead of the worst-performing region, Middle East and North Africa.

The efficiency of contract enforcement is also essential for the development of financial markets. The time and cost for resolving disputes through courts, and the quality of judicial processes is approximated by the indicator shown in Figure 2.12. Latin America is again at the bottom of the distribution but much closer to the middle than for other institutional characteristics, while the Caribbean fares slightly better than Latin America.

Thus, in general, we observe that Latin America and, to a lesser extent, the Caribbean, have institutional settings that lag relative to the European Union, high-income countries, and non-Latin American OECD countries. Is this situation significantly affecting the potential for financial development, growth, and improvements in income distribution in the region? The literature previously reviewed suggests so, and the rest of this section will explore these questions in more detail.

**Figure 2.11. Strength of Legal Rights across Country Groups**



Source: Authors' elaboration based on World Governance Indicators and World Bank.

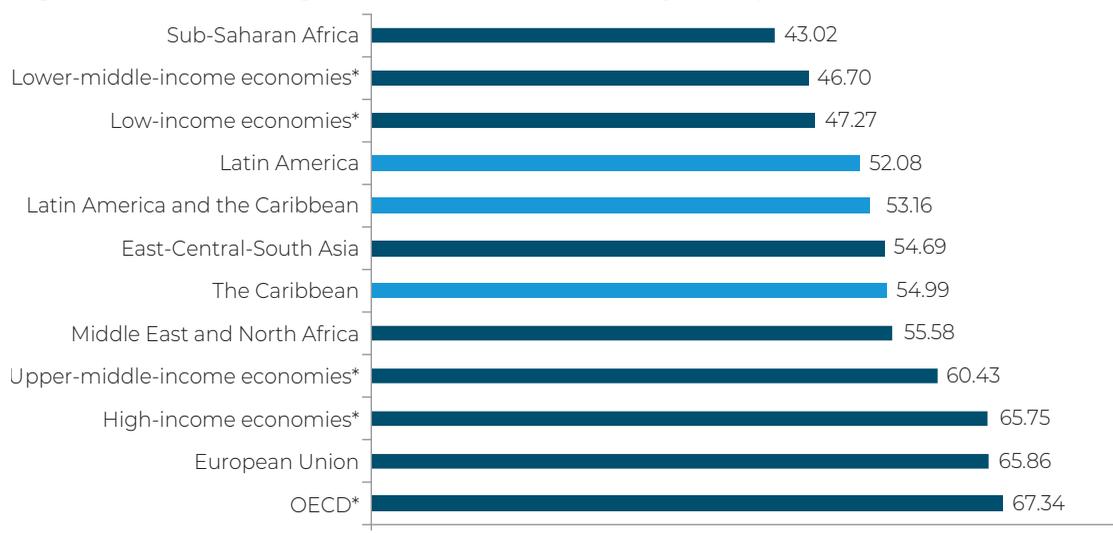
\* LAC countries excluded.

## Potential Financial Development Gains from Institutional Reforms

As established, the empirical and theoretical literature supports the importance of institutional conditions for growth. Furthermore, the evidence indicates the LAC region displays significant lags relative to more advanced economies, in terms of both financial and institutional development. This raises the question of how to inform policymakers of how much they could improve financial and economic development in their countries if they comprehensively improved institutional conditions. This section presents estimates of the potential increase in financial sector development that countries could achieve if they improved their institutional environment. These estimates are based on the idea of the financial possibility frontier, as in Barajas et al. (2012). Details of the estimation are provided in Annex A.

The financial possibility frontier is the maximum sustainable depth, access, efficiency, and breadth that could be realistically achieved at a point in time given those conditions (restrictions). Following Barajas et al. (2013), the concept of the financial possibility frontier can be operationalized as a benchmarking exercise. In doing so, it is instructive to distinguish and focus on both structural and institutional factors. Structural variables would deliver what can be referred to as a structural level (for a given dimension) of financial development. Adding institutional variables would render an estimation of the financial possibility frontier.

Figure 2.12. Enforcing Contracts across Country Groups



Source: Authors' elaboration based on World Governance Indicators and World Bank.

\* LAC countries excluded.

The institutional variables considered here are the following:

- i. Credit information, which measures rules and practices affecting the coverage, scope, and accessibility of credit information available through either a credit bureau or a credit registry.
- ii. Strength of legal rights, a variable that measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending.
- iii. Investor protection, which measures the strength of (minority) shareholder protections against misuse of corporate assets by directors for their personal gain as well as shareholder rights.
- iv. Contract enforcement, an important institution for the alleviation and prevention of opportunistic behavior, reducing transaction costs, and improving allocative efficiency.

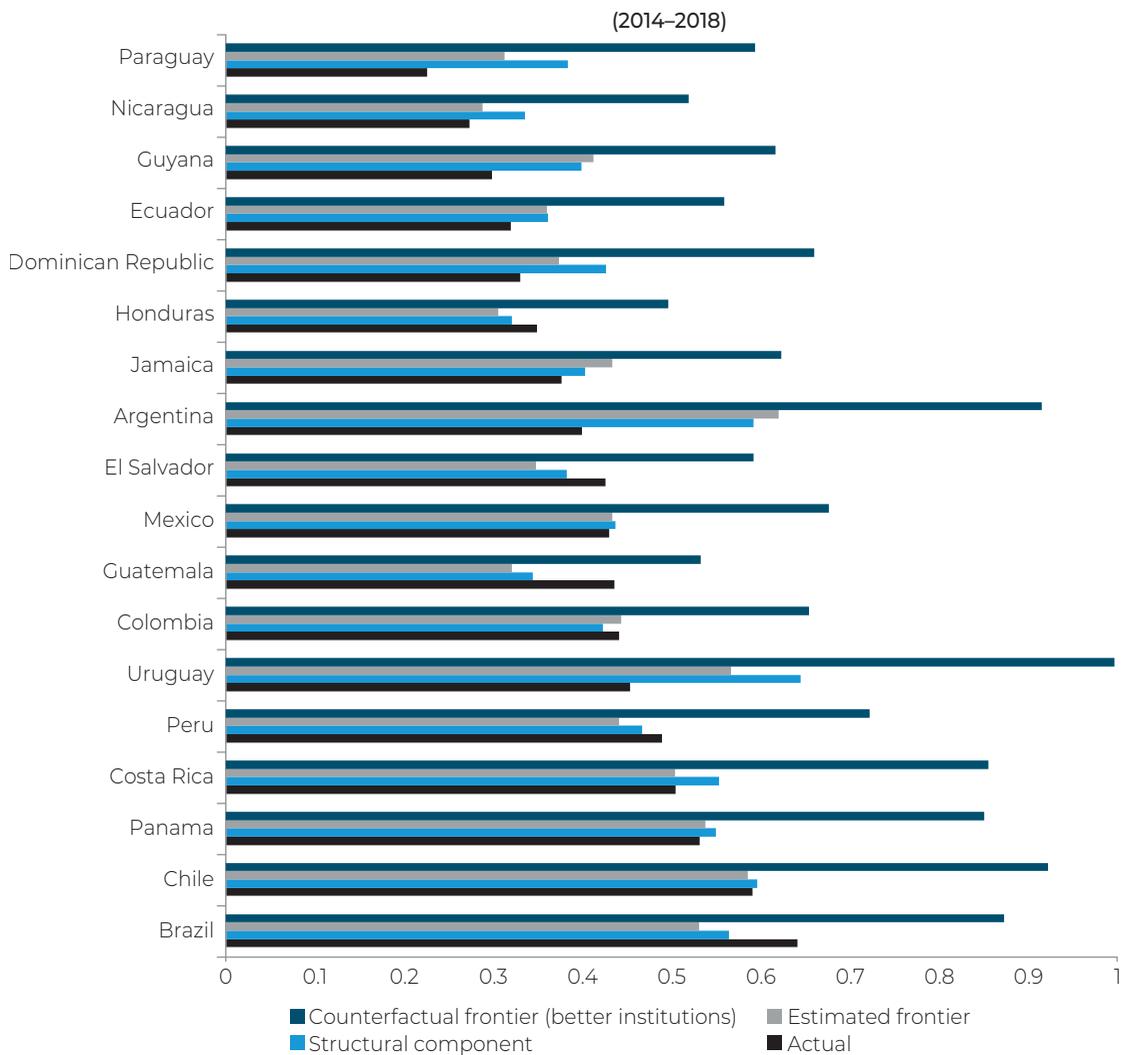
Furthermore, as general institutions we consider the following:

- i. Rule of law, as an extensive literature has shown the critical role those legal institutions play in the development and structure of financial systems, corporate structure and governance, and firms' investment decisions and growth (see Beck, 2009, for a survey).
- ii. Regulatory quality, as the ability of government authorities to formulate and implement effective regulations is critical for a stable and effective financial system.
- iii. Government effectiveness, which can be seen as closely related to regulatory quality. The quality of the civil service and the degree of its independence from political pressures are important for the effective implementation of regulation and also imply the absence of regulatory capture.

The estimated model can be combined with the observed data for countries in the region to provide a counterfactual approximation of the potential expansion of financial development following an institutional reform program (all institutional conditions are set to match the median value observed for non-Latin American OECD countries). The results of this exercise are shown in Figures 2.13 and 2.14. These figures present the estimated values for four different measures associated to proxies of financial development, averaged over a five-year period.

Consider, for example, Figure 2.13, which covers most countries in the region. This figure shows (i) the actual measured index for overall financial development for each country

Figure 2.13. Financial Intermediaries Index



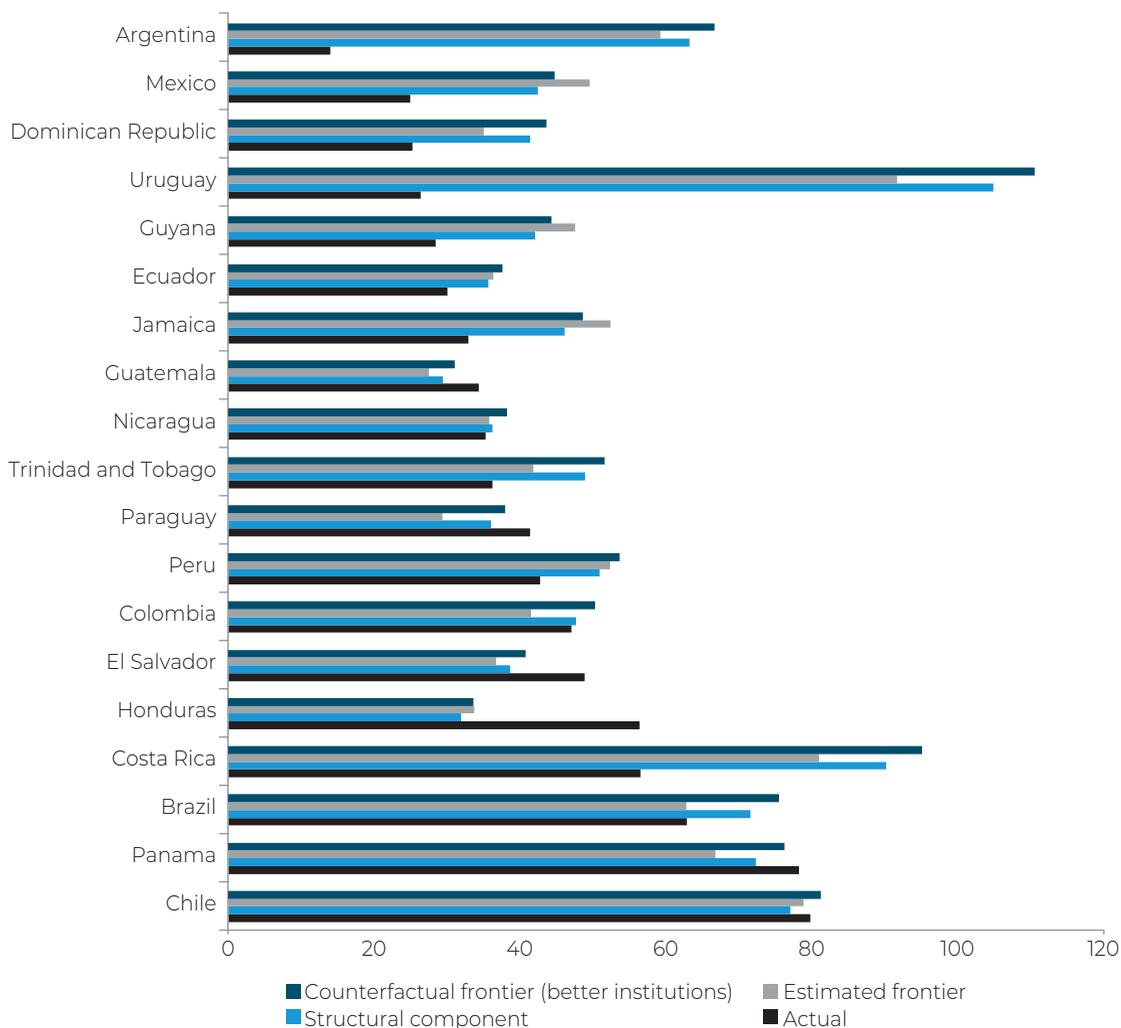
Source: Authors' elaboration based on World Governance Indicators and World Bank and Beck and Feijen (2013).

(as computed by the IMF<sup>20,21</sup>); (ii) the predicted value considering only the structural variables, that is, the corresponding value for structural frontier; (iii) the estimated value for the financial possibility frontier, which corresponds to the predicted value from the full model with both structural and institutional variables; and (iv) the counterfactual financial

<sup>20</sup> As indicated before, the “financial intermediaries” component considers not just banks but also insurance companies, mutual funds, and pension funds and includes measures for depth, access, and efficiency.

<sup>21</sup> See Svirydzhenka (2016).

**Figure 2.14. Domestic Credit to Private Sector by Banks to GDP, 2014–2018 (as percent of GDP)**

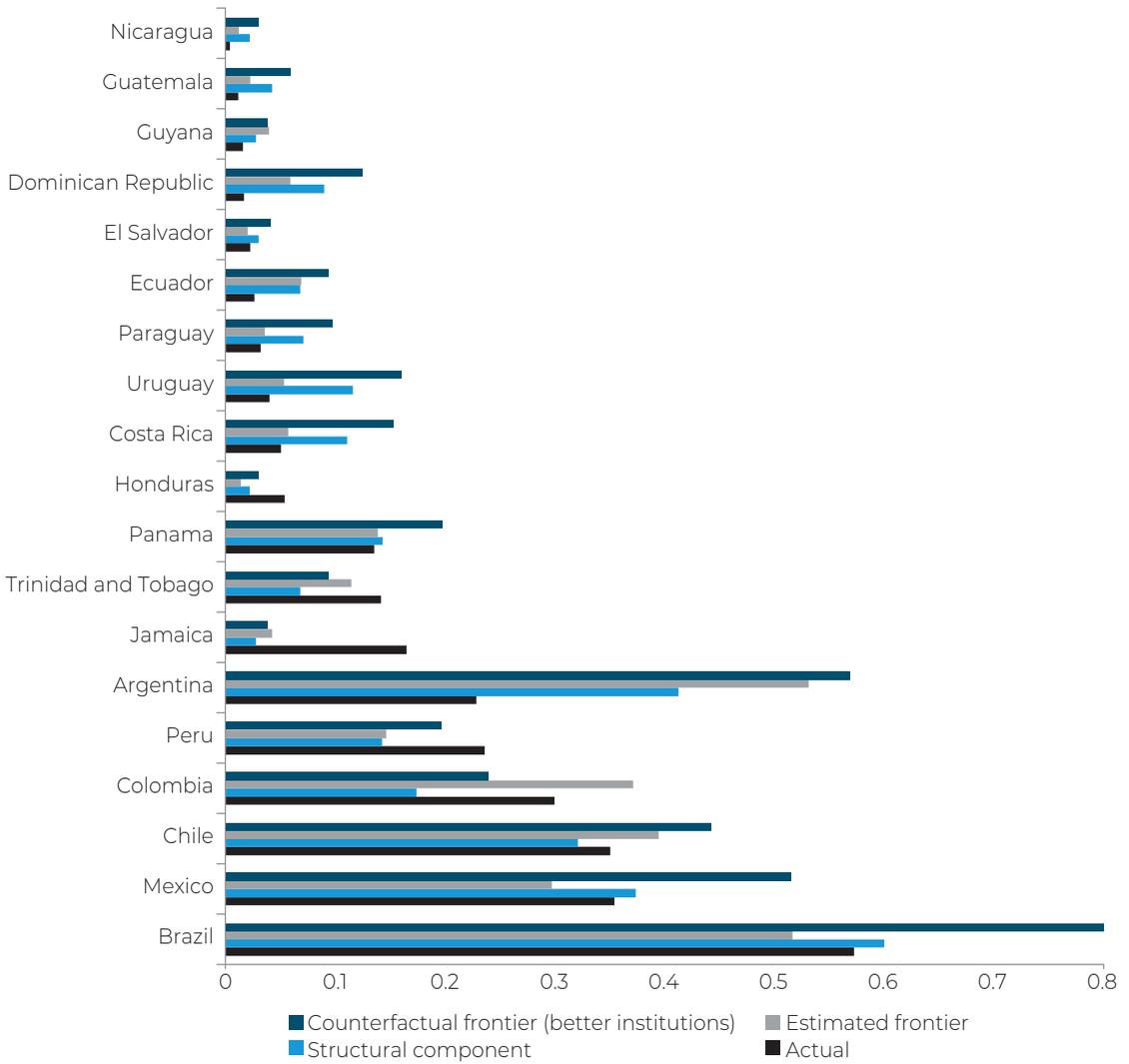


Source: Authors' elaboration based on World Governance Indicators and World Bank and Beck and Feijen (2013).

possibility frontier, which corresponds to the predicted financial development frontier when all institutions are set to match the median value observed for (non-Latin American) OECD countries. In all cases in Figure 2.13, the analysis confirms that improving institutions can produce sizeable potential gains for financial development.

Since the Financial Intermediaries Index is a normalized composite that considers multiple intermediaries and dimensions, it is useful to consider the contribution of one specific component at a time. Figure 2.14 thus presents the same concepts computed over the ratio of domestic credit to private sector by banks to GDP (a common proxy

**Figure 2.15. Financial Markets Development Index, 2014–2018**

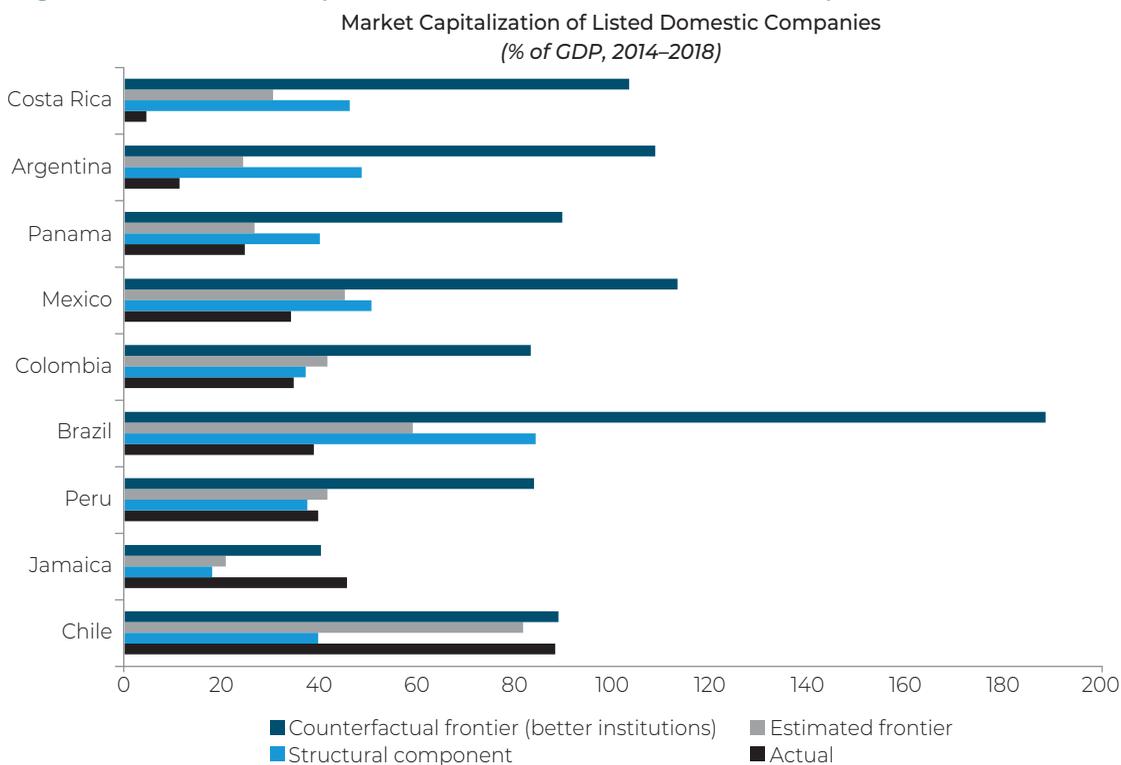


Source: Authors' elaboration based on World Governance Indicators and World Bank and Beck and Feijen (2013).

for financial development, specifically depth). For some countries, improving institutions would significantly expand the potential credit to the private sector, while in others the potential gain is relatively minor. This result is somewhat expected, as credit by banks is greatly affected by some institutional variables for which Latin America in general has good development (particularly credit bureaus and credit registries and other contract enforcement).

Figures 2.15 and 2.16 present the same results as the two previous figures, but with reference to the index of overall development for financial markets and a traditional

**Figure 2.16. Market Capitalization of Listed Domestic Companies to GDP**



Source: Authors' elaboration based on World Governance Indicators and World Bank and Beck and Feijen (2013).

measure of stock market depth, namely, market capitalization of domestic companies.<sup>22</sup> The data correspond to averages over a five-year period. In general, improving institutional conditions produce sizeable potential gains for financial development.<sup>23</sup> For some countries, like Argentina, Brazil, Colombia, and Mexico, there are sizeable potential gains in terms of expansion of the stock market depth frontier from aligning institutions to the median situation in (non-Latin American) OECD countries, while for countries with relevant institutions already at that level (i.e., Chile) the potential expansion of the frontier is relatively minor.

<sup>22</sup> The Financial Markets component considers stock and bond markets and comprises the sub-indices of depth (size and liquidity), access (ability to access financial services), and efficiency (ability of institutions to provide financial services at low cost and with sustainable revenues, and the level of activity of capital markets).

<sup>23</sup> As in the cases considering the index for overall financial development and the ratio of domestic credit to GDP, the “counterfactual” possibility frontier corresponds to the predicted frontier when all institutions are set to match the median value observed for (non-Latin American) OECD countries.

## Institutions, Financial Development, and Income Inequality

This subsection first discusses the relationship between financial development and inequality, and next between institutions and income inequality. It highlights the interactions between institutional conditions and financial development.

### *Financial Development and Inequality*

As indicated above, there is significant methodological heterogeneity in the empirical literature on the relationship between financial development and income inequality, which may in part explain the multiplicity of results. Crucially, there are substantial variations in the countries and periods considered, the measures of financial development, the reference units on which inequality is computed, and the measures of inequality used. In addition, there is a distinct possibility that alternative components of financial development affect alternative measures of income inequality differently, as discussed at the end of Section 1.

To resolve this issue, we conduct a comprehensive regression analysis covering all traditional measures of financial development commonly used in the literature plus all the IMF composite measures, as discussed in Svirydzhenka (2016). Furthermore, for each measure of financial development we consider the most common measures of income inequality (Gini coefficient, alternatively computed over disposable income and market income, and the income ratios between deciles 10/1 and quintiles 5/1), over very similar samples of countries and periods.<sup>24</sup> The methodological details and quantitative results are presented in detail in Annex B. The results can be summarized as follows:

- There is a robust, nonlinear (negative and generally decreasing) relationship between inequality and overall financial development. Higher levels of financial development tend to be associated with lower levels of income inequality as measured by the Gini coefficient and income ratios. We verify that inequality falls with increasing financial development, but the effect is significantly smaller when financial development is substantially advanced. This diminishing effect is not a general consequence of the deepening of financial markets; rather, it appears to be related specifically to the rise of financial intermediaries. When financial intermediaries play a large role in the economy, inequality can rise. Thus, the effect is significantly smaller when financial development is substantially advanced.

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<sup>24</sup> There is some minor variation due to variable coverage.

- When measuring income inequality using the Gini coefficient, not accounting for instability, the relationship with financial development is different for entities (i.e., banks, insurance companies, mutual and pension funds) and markets (stock and bond markets).
  - The relationship with the overall development of financial intermediaries is negative and persists when broken down into access, depth, and efficiency.
  - Conversely, the relationship weakens and sometimes reverts to positive for measures of financial development in markets.
  - The overall relationship is affected by the relative strength of those underlying components.
- When measuring income inequality using the Gini coefficient, accounting for instability, the relationship between inequality and financial development is negative and statistically insignificant for almost every measure of market development.
  - When considering financial development in intermediaries, there is a negative relationship between financial development and inequality.
  - When considering financial development in markets, the relationship is statistically insignificant for almost every measure.
  - Thus, the overall statistical insignificance is driven by the combination of results associated with both components.
- Financial instability, proxied by the presence of banking crises, tends to increase income inequality. For all measures of income inequality, and across almost all specifications, the estimated relationship is positive and, in most cases, statistically significant.

Figure 2.17 presents the average coefficient for each measure of financial development and income inequality considered. This analysis helps clarify the conflicting and ambiguous results in the empirical literature and can be briefly stated as follows: in general, financial development reduces income inequality; an exception may appear for certain measures of development in markets, but the emerging positive association has low statistical significance. We consider that these results are in line with the preliminary interpretation of the literature presented in Section 1.

We next focus on the role of institutions, both as a factor directly explaining variation in income inequality and as a moderating factor in the relationship between financial development and income inequality. In line with the existing literature, our regression analysis shows that both broad institutional variables and variables representing specific institutional conditions more closely linked to the evolution of the financial sector are negatively associated with income inequality, although this finding is less robust for markets than for intermediaries. In addition to this direct effect, effective institutions reinforce the negative association between financial development and income inequality.

## *Institutions, Regulations, and Income Inequality*

As indicated above, institutional conditions may affect income inequality. To explore this, we expand the previous panel data fixed effects estimation by incorporating two sets of institutional variables. The first set is comprised of variables representing general or broad institutions that have been explored in the literature for their potential links with inequality, and includes rule of law, regulatory quality, and government effectiveness. The second set includes variables representing institutional conditions that are considered to be more directly linked to financial development, including depth of credit information, insolvency resolution, creditor participation (in debt resolution), contract enforcement, property registration and property registration costs, and the strength of legal rights.

The following results emerge regarding the direct effects of the variables representing broad institutions and those more closely related to the financial sector (the specifications are shown and explained in detail in Annex B):<sup>25</sup>

- Broad institutions (rule of law, regulatory quality, government effectiveness). The estimation results indicate that all three broad institutional measures have a negative association with income inequality. Of the three, rule of law is the least robust to alternative specifications (also the least specific), while regulatory quality and government effectiveness are significantly more robust to alternative specifications.

The association of *rule of law* with inequality is different when considering income ratios or Gini coefficients. For the latter, the relationship is statistically significant far more frequently when considering market household income than disposable income. When considering inequality as measured by income ratios (quintiles 5/1 and deciles 10/1), the frequency of cases with a statistically significant association is substantially lower across all measures of financial development. Thus, overall, rule of law has a negative association with income inequality, although the relationship is statistically significant mostly when considering inequality as measured by the Gini coefficient over household market income.

The negative relationship between *regulatory quality* and income inequality is quite consistent, robust, and statistically significant across most specifications (varying inequality measures, financial development measures, and other controls), with specifications relating to inequality as measured by income ratios generally showing

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<sup>25</sup> In Annex B, we present results for Gini over market income and the income ratio 10/1, three global indices (overall development, development of financial institutions, and development in markets, with regulatory quality as a broad institutional variable, and varying the financial market specific institutions). The full set of regression results, which is too extensive to be included here, is available upon request.

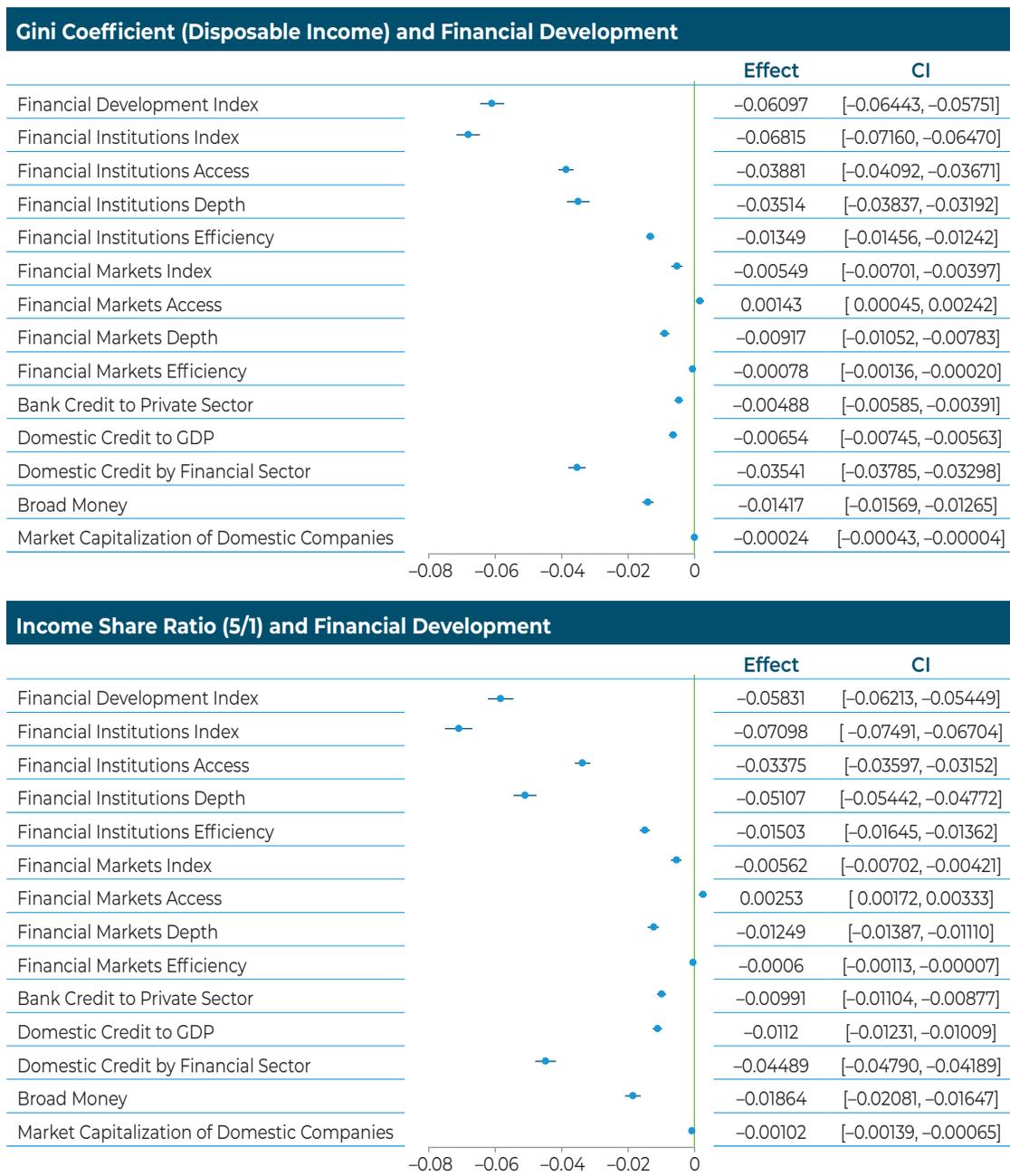
Figure 2.17. Average Association between Income Inequality (Gini over Market and Disposable Income, and Income Ratios 10/1 and 5/1) and Financial Development Measures<sup>a</sup>



<sup>a</sup> It is important to keep the different scales of each variable in mind. Financial development indices from the IMF were rescaled to be between 0 and 100 (instead of 0-1), while the other variables are typically expressed in percent in relation to GDP. Direct inference of the relative economic importance of each estimated coefficient given their relative position in the figure is not adequate, particularly for those with different units.

(continued on next page)

Figure 2.17. Average Association between Income Inequality (Gini over Market and Disposable Income, and Income Ratios 10/1 and 5/1) and Financial Development Measures<sup>a</sup> (continued)



Source: Authors' estimations.

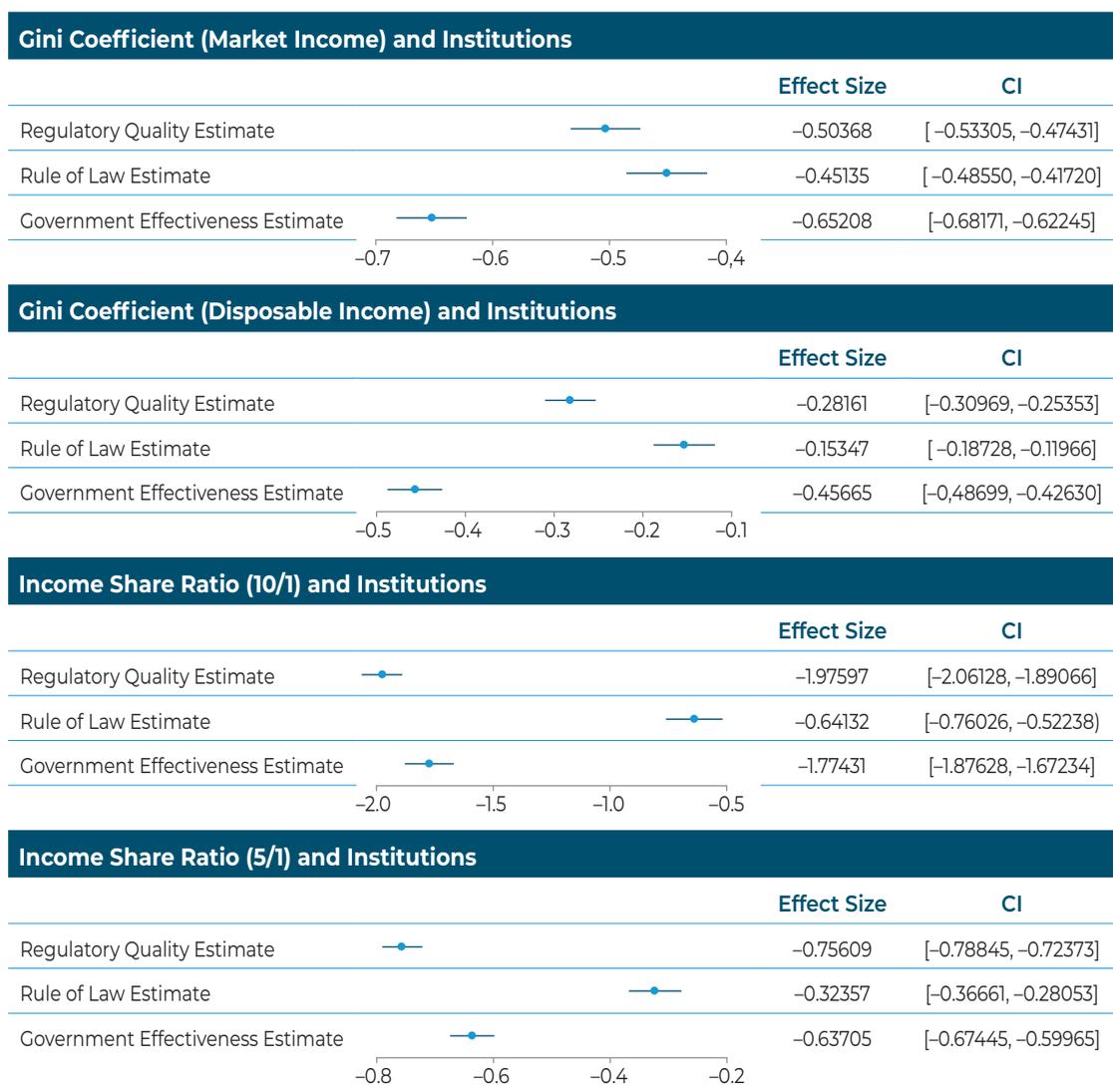
Note: Average over 84 coefficients per proxy.

The coefficients depicted in each panel correspond to the weighted average over all relevant specifications and would be indicative of the expected change in the dependent variable (e.g., Gini coefficient or income ratio) given a marginal change in the corresponding independent variable (financial development index, financial institutions index, etc.). For a detailed explanation of the calculations, see Annex B.

coefficients with higher statistical significance, while those for the Gini coefficient over disposable income show lower statistical significance.

For the case of *government effectiveness*, the general relationship is negative across specifications and, in most cases, statistically significant (less frequent than

**Figure 2.18. Average Estimated Coefficient between Income Inequality (Gini over market and disposable income, and income ratios 10/1 and 5/1) and Broad Institutional Variables**



Source: Authors' calculations.

Notes: The coefficients depicted in each panel correspond to the weighted average over all relevant specifications and would be indicative of the expected change in the dependent variable (say Gini coefficient or income ratio) given a marginal change in the corresponding independent variable (regulatory quality, rule of law, etc.). For a detailed explanation of the calculations, see Annex B.

regulatory quality but more than rule of law). As for particular patterns, the specifications considering inequality measured by the Gini coefficient over market income and the income ratios 5/1 have more statistically significant coefficients, while those relating to the Gini coefficient over disposable income have fewer instances of statistical significance.

- Financial sector institutional variables. Considering the set of variables representing institutional conditions more closely linked to the evolution of financial conditions and financial development results, in general, in relationships that are aligned with expectations as previously indicated, although the relationship tends to be weaker when considering market-based inequality measures.
- Depth of credit information displays a very robust, negative, and statistically significant relationship with income inequality across specifications (for all measures of inequality and financial development).
- Insolvency resolution. The effectiveness and efficiency of the insolvency resolution processes, similar to the case of depth of credit information, presents a very robust, negative, and statistically significant relationship with income inequality across specifications (for all measures of inequality and financial development).

As in the two previous cases, the strength of legal rights (degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders) displays a very robust, negative, and statistically significant relationship with income inequality across specifications (for all measures of inequality and financial development).

- Registering property and property registration costs. The variable for property registration comprises a significant amount of information.<sup>26</sup> Registering property displays a very robust, negative, and statistically significant relationship with income inequality across specifications (for all measures of inequality and financial development). When considering specifically property registration costs, the relationship turns positive (as expected) but statistical significance drops across specifications, particularly for those measuring inequality by income ratios.
- Creditor participation (in debt resolution). With some exceptions, the relationship of this variable with income inequality is not statistically significant. In some instances, the estimated coefficients are negative (but not statistically significant) but in most cases the sign of the coefficient is positive (in almost all instances where the coefficient

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<sup>26</sup> It "records the full sequence of procedures necessary for a business (the buyer) to purchase a property from another business (the seller) and to transfer the property title to the buyer's name so that the buyer can use the property as collateral in taking new loans to expand its business or, if necessary, sell the property to another business. It also measures the time and cost to complete each of these procedures (...) also measures the quality of the land administration system" which includes among other factors transparency of information, land dispute resolution, and equal access to property rights.

turns out to be statistically significant). The results may be seen as in line with the various forces at play discussed above, where some push inequality down while others push it up, but the relationship is consistently not statistically significant.

- Enforcement of judgment (days), enforcement fees (percent of claim), and contract enforcement. In the case of enforcement of judgment measured in days, the relationship is mostly not statistically significant across specifications, with most statistically significant negative coefficients corresponding to the specifications where inequality is measured by the Gini coefficient over household market income. The estimates of enforcement fees are less robust, varying from negative to positive depending on the specification, with most statistically significant cases corresponding to a positive relationship. Finally, the estimated coefficients for contract enforcement are statistically insignificant for almost all specifications. Overall, the estimated equations show no clear or consistent significant statistical results for the relationship with income inequality.

### *The Reinforcing Effects of Institutions on the Relationship between Financial Development and Income Inequality*

So far, we have discussed the relationship between financial development and institutional conditions and income inequality. An important element of the discussion refers to the estimated relationship with income inequality after accounting for the interactions between institutional conditions and financial development. In this case we are interested in the  $\beta$  coefficients in specification (3.3) in Annex B. From the previous results, typically we find  $\beta_1 < 0$  and  $\beta_2 < 0$  (although in some cases the relationship reverses). The estimated values of  $\beta_3$  and  $\beta_4$  will indicate that the institutional variables considered either reinforce or dampen the relationship between (income inequality)  $I$  and  $F$  (financial development proxies).

The estimation results show that the sign and size of the coefficients generally align with the notion that these institutions either enhance the negative association between financial development and income inequality or dampen the positive ones, although most often the estimated interactions are not statistically significant.<sup>27</sup> Better institutions usually reinforce the negative association between financial development and income inequality.

Thus, the results show that not only better institutions will promote a reduction of income inequality via financial development but, in addition, they have an independent direct and negative association with inequality. Moreover, they further reinforce the negative association between financial development and income inequality. In short, better institutions are associated with lower inequality.

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<sup>27</sup> Some of these estimation results are shown in the annex.

Figure 2.19. Average Estimated Coefficient between Income Inequality (Gini over market and disposable income, and income ratios 10/1 and 5/1) and Institutional Variables Closely Linked to the Financial Sector

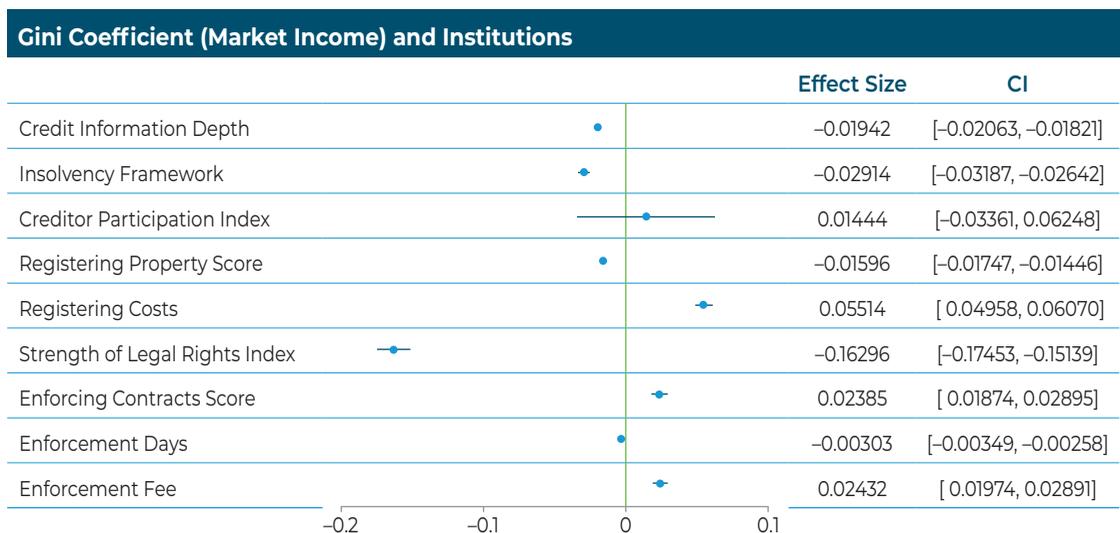
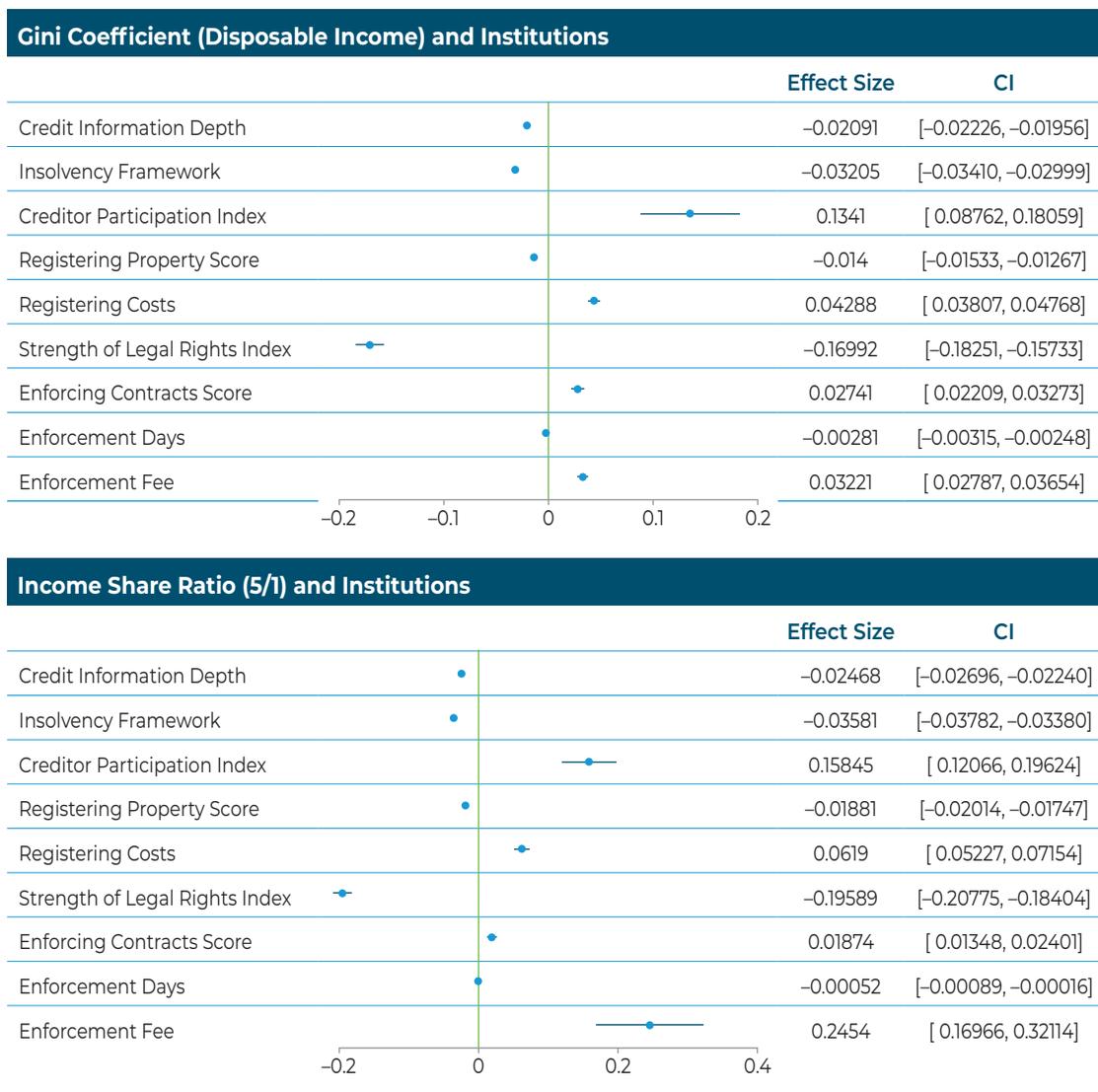


Figure 2.19. Average Estimated Coefficient between Income Inequality (Gini over market and disposable income, and income ratios 10/1 and 5/1) and Institutional Variables Closely Linked to the Financial Sector *(cont.)*



Source: Authors' calculations.

Notes: The coefficients depicted in each panel correspond to the weighted average over all relevant specifications and would be indicative of the expected change in the dependent variable (e.g. Gini coefficient or income ratio) given a marginal change in the corresponding independent variable (credit information depth, insolvency framework, etc.). For a detailed explanation of the calculations, see Annex B.

## SECTION III

# Discussion and Implications of the Results

Latin America is the most unequal region in the world when it comes to income distribution. At the same time, except for some specific (though important) dimensions, it significantly lags behind other regions in terms of financial development and institutional conditions. Is this a coincidence or are there significant connections among these situations? Can improvements in institutional conditions improve financial development or reduce income inequality?

This monograph shows that the conjunction of institutional lags, relatively low financial development, and high income inequality is hardly a coincidence, as there are significant reasons and empirical evidence establishing a link between them. The silver lining is that policymakers may not have to choose between more development or less inequality when it comes to institutional reform—quite the opposite. Closing institutional gaps relative to more advanced regions can induce substantial changes in potential financial development, as indicated by the estimation results of the financial possibility frontier. Moreover, the same institutional improvements that can boost financial development will also reduce income inequality, both directly and indirectly, by reinforcing the beneficial effects of higher financial development (or dampening detrimental ones in the very few instances that they may emerge).

### Reform Agenda

One size does not fit all. On the one hand, there are relatively well-developed financial systems, in countries such as Brazil, Chile, or Colombia, which have a diversity of financial institutions and even capital market segments, though they often lag in the efficiency of service provision. At the same time, several Central American countries and Paraguay still have relatively shallow, underdeveloped financial systems. On the other hand, there are substantial disparities in terms of institutional conditions related to the financial system. For instance, most countries in the region fare quite well in terms of institutions conducive

to increasing the depth of credit information in relation to the activity of financial entities, but there are significant variations in terms of protection of investors, strength of legal rights, and contract enforcement.

Although the general message is that an overarching reform process aimed at improving institutional conditions in the dimensions considered in this note can substantially boost financial development and reduce income inequality, reality indicates that reforms are difficult, costly, and sometimes reverse conditions beyond the starting point. Although political considerations are beyond the scope of this study, it provides a framework and specific point estimates that can be used, on a country-by-country basis, to identify the potential return on alternative reform strategies to aid in evaluating the cost and likelihood of reform with the potential benefits in terms of financial development and changes in income distribution.<sup>28</sup>

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<sup>28</sup> One way to derive a set of expected returns from reforms would be to proceed as follows. First, quantify the feasible institutional change for which the effects want to be evaluated; this should be derived from a model of institutional change and, ideally, would provide a probability of successful, sustainable reform. Second, using the framework provided from the model for the financial possibility frontier, it would be possible to derive an expected effect on financial development. This could translate directly into estimated changes in key financial variables such as domestic credit, interest rate spread, and other financial measures. The institutional change and its impact on financial development could then be used to predict the effect on income distribution using the models presented in this monograph. From this approach, it would be possible to obtain the expected returns for various institutional reforms, which then can be used to inform the decision process.

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# Annex A. The Financial Possibility Frontier: Estimating Potential Development Gains

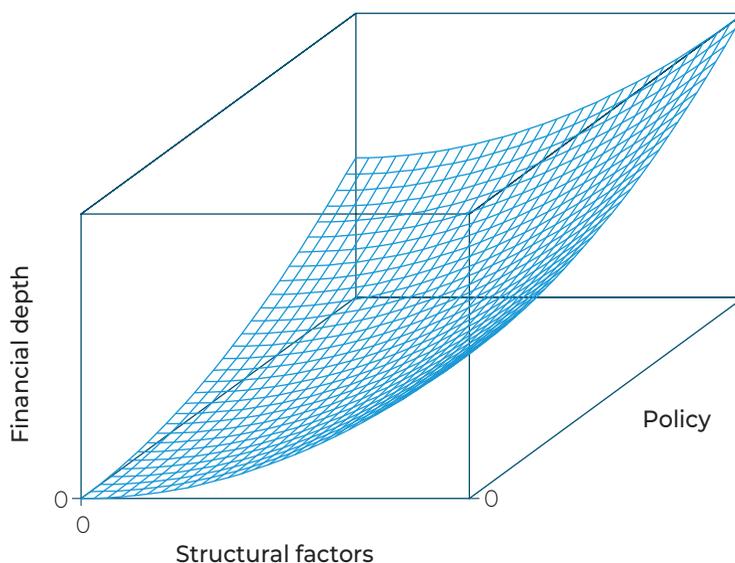
This annex describes in greater detail the framework and estimations used to compute the potential development gains presented above. These estimates are based on the idea of the financial possibility frontier, as in Barajas et al. (2012). This methodology provides estimates of the potential financial development that countries can achieve. Furthermore, it can approximate how much financial development is being constrained by structural and institutional conditions, thus providing additional guidance to rationalize a process of institutional reform.

## The Financial Possibility Frontier

The efficiency with which financial entities and markets can overcome market frictions is critically influenced by factors that are largely invariant in the short-term (“state variables,” often lying outside the purview of policy makers). These variables are either directly related to the financial sector (e.g., macroeconomic fundamentals, the available technology, contractual and information frameworks underpinning the financial system, prudential oversight) or related to the broader socio-political and structural environment in which the financial system operates. The financial possibility frontier is the maximum sustainable depth, access, efficiency, and breadth that can be realistically achieved at a point in time given those conditions (restrictions). The financial possibility frontier can change with income levels, international conditions, new technologies, and changes in institutional conditions. Figure A.1 illustrates the concept in a stylized way, where the x- and z-axes denote structural and policy state variables, while the y-axis denotes financial development. The plane in Figure A.1 indicates the financial possibility frontier, i.e., the level of financial development sustainable in the long-term for a given combination of structural and policy state variables.

It is important to clearly distinguish between the position of the frontier and the actual position of a financial system. Say, for instance, country A is large, with a relatively diversified and integrated economy, while country B is small, with a relatively concentrated and fragmented economy. It is likely the case that, at the same point in time, the financial possibility frontier for country A is further out than that of country B. At the same time, it may

Figure A1. Stylized Financial Possibility Frontier



Source: Beck and Feijen (2013).

be that country A's level of financial development is below that of country B's.<sup>29</sup> The financial possibility frontier may be relatively low due to deficiencies in state variables. Here we can distinguish between the role played by structural and policy variables.<sup>30</sup> Among institutional variables, the absence of an adequate legal, contractual, and institutional environment can help explain a low frontier.<sup>31, 32</sup>

The actual position of a financial system may lie below its frontier. Demand-side constraints can arise if, for instance, the number of loan applicants is too low due to self-exclusion or on account of a lack of viable investment projects in the economy. Supply constraints influencing idiosyncratic risks or those artificially pushing up costs of financial service provision might also hold the financial system below the frontier.<sup>33</sup> Similarly, regulatory barriers could prevent deepening of certain market segments as can weak systems

<sup>29</sup> In this example, country A has a high potential, a large gap relative to its potential, and lower financial development than country B.

<sup>30</sup> The set of variables used in the regression analysis is discussed below.

<sup>31</sup> Among structural variables, low population density and small market size increase the costs and risks for financial institutions, resulting in higher probabilities of, for example, observing relatively higher exclusion from formal financial services.

<sup>32</sup> Focusing on the role of institutions in this context, a low financial possibility frontier thus illustrates the importance of institution building for sustainable financial deepening.

<sup>33</sup> For instance, lack of competition or regulatory restrictions might prevent financial institutions and market players from reaching out to new clientele or introducing new products and services.

of credit information sharing or opacity of financial information about firms. Importantly, this situation points to options for policy makers for sustainable financial sector deepening within the existing institutional framework.

Finally, the financial system can temporally move beyond the frontier, indicating an unsustainable expansion of the financial system beyond its fundamentals. For instance, “boom-bust” cycles in economies can occur in the wake of excessive investment and risk taking (often facilitated by loose monetary policy) by market participants. Experience from past banking crises suggests that credit booms and subsequent busts typically occur in environments characterized by poorly defined regulatory and supervisory frameworks.

## Structural and Institutional Factors

Following Barajas et al. (2012), the concept of the financial possibility frontier can be operationalized as a benchmarking exercise. In doing so, it is instructive to distinguish and focus on both structural and institutional factors. Structural variables would deliver what can be referred to as structural level (for a given dimension) of financial development. Adding institutional variables would render an estimation of the financial possibility frontier.<sup>34</sup> To show the difference between the two, consider Figure A.2. The horizontal axis represents structural state variables, reduced to one dimension, while the vertical axis represents financial depth, again reduced to one dimension. We assume—for ease of illustration—the structural state variables to be linearly related to sustainable financial depth. Consider country A, a low-income country (LIC) with a small and dispersed population ( $STRUCT_A$ ). Financial depth, in this country will most likely be low.<sup>35</sup> On the other hand, country B, richer and with a larger, more urban population ( $STRUCT_B$ ) can be expected to have a higher level of depth given by  $SD_B$ . The structural depth line therefore represents the expected level of depth given a country’s structural characteristics. As illustrated in Figure A.2, the difference between the structural depth line and the financial possibility frontier can be explained with the institutional framework in a country.

## Econometric Estimation

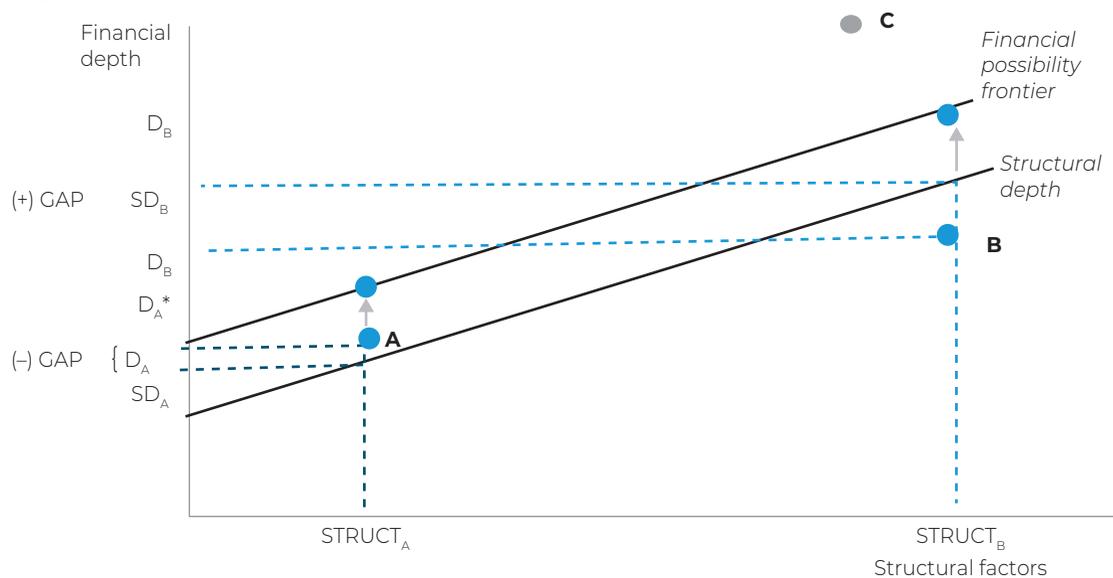
The benchmarking exercise builds on the World Bank’s FinStat exercise (which in turn builds on Beck et al., 2008). The variables considered (along with brief explanations of their rationale) are as follows:

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<sup>34</sup> It is important to stress that the financial possibility frontier considered in this exercise will not include policy variables.

<sup>35</sup> In fact, historical analysis shows that, on average, countries matching A’s structural characteristics tend to have a level of depth equal to SDA.

**Figure A2. Structural Depth and Financial Possibility Frontier**



Source: Barajas et al. (2012).

- GDP per capita in logarithm (*lagly\_r\_usd\_ppp*) — Economic development affects financial development, due both to demand effects (the volume and sophistication of financial activity increases with income) and to supply effects (larger, richer economies can achieve economies of scale and benefit from more competition and better infrastructure).
- Total population and population density (*laglpop\_totl*) — Countries with larger populations can have deeper and more efficient financial systems by better exploiting scale. Financial services can also be provided at a lower cost in countries with higher population density. Population density can be seen as a proxy for geographical barriers, but we also consider the possibility of nonlinear effects that may either reinforce or dampen the direct (lineal) relation by including the squared term. For example, Panizza, Borensztein, and Eichengreen (2006) show that the lack of capital market development in many developing and emerging markets can be explained with the lack of critical mass.
- Old and young dependency ratios (*laglagedr\_old*, *laglagedr\_yng*) — Age dependency ratios, that is, the non-working young and old populations, respectively, as fractions of the labor force, are likely to affect savings and lending patterns.
- Transition, offshore, oil exporters, and landlocked country dummies. (*Transtion Country Dummy\_B*, *Fuel Exporter Dummy\_B*, *Landlocked Country Dummy\_B*) — Oil exporters have smaller financial sectors than other countries at similar levels of income, reflecting

the fact that oil revenues can boost GDP out of proportion with the country's overall level of economic and financial development and the potential natural resource curse (Beck, 2013; Beck and Poelhekke, 2023). Offshore financial centers with intensive cross-border operations can have disproportionately large financial sectors, which do not necessarily cater to the local economy. Landlocked countries encounter structural challenges in accessing international markets, which will impact the composition and performance of the real economy and, as a result, financial development. Finally, transition economies have experienced a different financial development path than other countries (World Bank, 2017).

- Year dummies. Since all available country-year observations are pooled, temporal patterns that “lift or sink all boats” are to be accounted for. For example, the 2000s saw an increase in financial depth indicators across all country income groups (Beck et al., 2010), while the global financial crisis had a dampening effect on financial depth indicators across many countries, especially those related to cross-border flows.
- Institutional variables. For the main specification we consider two types of institutional variables. One set can be seen as institutions closely linked to financial markets, and the second one as more general institutional conditions but also clearly associated with the functioning of financial markets. Following our previous discussion on institutional variables, we include in the first group:
  - i. Credit information (*lagcredi\_e*), measuring rules and practices affecting the coverage, scope, and accessibility of credit information available through either a credit bureau or a credit registry.
  - ii. Strength of legal rights (*laglegri\_e*), variable measuring the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending.
  - iii. Investor protection (*lagminvprt\_e*), measuring the strength of (minority) shareholder protections against misuse of corporate assets by directors for their personal gain as well as shareholder rights.
  - iv. Contract enforcement (*lagcontr\_e*), an important institution for the alleviation and prevention of opportunistic behavior, reducing transaction costs and improved allocative efficiency.

Furthermore, as general institutions we consider the following:

- i. Rule of law (*lagrl\_e*), as an extensive literature has shown the critical role those legal institutions play in the development and structure of financial systems, corporate structure and governance, and firms' investment decisions and growth (see Beck, 2009, for a survey).

- ii. Regulatory quality (*lgrq\_e*), as the ability of government authorities to formulate and implement effective regulations is critical for a stable and effective financial system.
- iii. Government effectiveness (*lagge\_e*), which can be seen as closely related to regulatory quality, the quality of the civil service and the degree of its independence from political pressures is important the effective implementation of regulation, and also imply the absence of regulatory capture.

The benchmarking model is based on quantile regressions, as (i) they reduce the impact of outliers and (ii) they produce different expected values to characterize the entire distribution of financial sector performance variables. Specifically, using quantile regressions makes it possible to produce not only expected means and medians but also expected values for other percentiles of the distribution, such as the 25<sup>th</sup> and 75<sup>th</sup> percentiles (i.e., the tails of the distribution). The goodness of fit can be measured with the Pseudo R<sup>2</sup>. For the structural variables (except for the dummy variables), dependent and independent variables are entered in log transformation to reduce the influence of outliers.

Table A.1 presents the results of the central specification which closely follows Beck and Feyen (2013). In this specification we accounted for the high correlation among some institutional and structural variables by instrumenting with the residuals of individual equations for each institutional variable. More specifically, we model institutional variables in the following manner. First, we regress rule of law on all structural variables and no additional institutional variables. Second, we regress government effectiveness on the structural variables and rule of law. Third, we estimate an equation for regulatory quality on structural variables, rule of law, and government effectiveness. Finally, we regress the remaining institutional variables (credit information, strength of legal rights, investor protection, and contract enforcement on all structural variables and general institutions). The specification without instrumenting institutional variables delivered similar results.<sup>36</sup>

In general, the inclusion of the institutional in addition to structural variables significantly improves the models' explanatory power as reflected by the pseudo-R<sup>2</sup>, with institutional factors appearing to be quite relevant for market measures and depth for institutions, with the two largest increments in explained variation for stock market capitalization and

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<sup>36</sup> In addition to this specification, we also estimated the structural model expanded with 12 alternative institutional measures, such as credit bureaus, credit registries, insolvency resolution, creditor participation, enforcement of judgments, property registration, and registration costs. Overall, the estimates confirm the general relevance of the structural and institutional variables on alternative measures of financial development. The results of these estimations are available from the authors upon request.

the efficiency in intermediating savings to investment (as measured by the net interest margin).<sup>37</sup> The three institutional variables that emerge as statistically significant most often are (in order) rule of law, investor protection, and government effectiveness.<sup>38</sup>

The estimation results can be combined with the observed data for countries in the region to provide a counterfactual approximation to the potential expansion of the financial possibility frontier following an institutional reform program. The results of this exercise are shown in Section III.

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<sup>37</sup> The net interest margin is the accounting value of a bank's net interest revenue as a share of its average interest-bearing asset.

<sup>38</sup> In addition to the institutional conditions, there are other factors affecting the gap between observed values and the predictions considering the structural conditions, including possible country-specific factors. A more in-depth analysis of the differences between actual and predicted values may also consider variation for each country over time. Such analysis goes beyond the scope of this monograph.

Table A1. Benchmark Regressions

VARIABLES	Log domestic credit to private sector by banks	Log stock market capitalization to GDP	Log net interest margin	IFD	IFI	IFIA	IFID	IFIE	IFM	IFMA	IFMD	IFME
	lagly_r_usd_ppp	0.0825*** (0.00645)	0.161** (0.0207)	-0.348*** (0)	0.317*** (0)	0.182*** (0)	0.329*** (0)	0.184*** (0)	0.0483*** (0.000800)	1.288*** (0)	0.969*** (0)	1.154*** (0)
laglpop_totl	0.0342*** (0.000394)	0.342*** (0)	-0.0575*** (6.45e-06)	0.123*** (0)	0.0413*** (0)	0.0449*** (6.18e-06)	0.116*** (0)	0.0126*** (0.00987)	0.507*** (0)	0.302*** (0)	0.407*** (0)	0.564*** (0)
laglpop_dens	0.0306 (0.375)	-0.388*** (3.13e-06)	-0.245*** (4.14e-09)	-0.0471** (0.0317)	-0.0417* (0.0539)	0.0433 (0.197)	-0.0191 (0.571)	-0.00413 (0.801)	-0.227*** (0.000182)	-0.208* (0.0622)	-0.135* (0.0797)	0.186** (0.0469)
laglpop_dens2	-0.0106*** (0.00505)	0.0471*** (1.66e-08)	0.0303*** (0)	0.00258 (0.283)	0.00181 (0.433)	-0.0162*** (7.22e-06)	-0.000533 (0.883)	-5.92e-06 (0.997)	0.0161** (0.0164)	0.00855 (0.481)	0.0106 (0.212)	-0.00704 (0.476)
laglagedr_old	0.155*** (1.77e-07)	-0.124** (0.0277)	0.0949** (0.0284)	0.105*** (1.57e-08)	0.171*** (0)	0.208*** (0)	0.440*** (0)	-0.0639*** (2.55e-06)	-0.223*** (1.21e-05)	0.00522 (0.952)	-0.309*** (3.30e-06)	0.175*** (0.00866)
laglagedr_yng	-0.914*** (0)	-0.466*** (0.00214)	0.282*** (0.00513)	-0.395*** (0)	-0.242*** (1.05e-08)	-0.501*** (0)	-0.638*** (0)	-0.189*** (3.26e-08)	-0.714*** (7.58e-08)	-0.913*** (0.000180)	-0.763*** (5.20e-06)	-0.291 (0.137)
Offshore Financial Center Dummy_B	0.391*** (0)	0.679*** (4.08e-10)	0.231*** (1.88e-05)	0.110*** (0.000119)	0.112*** (1.73e-05)	0.0923** (0.0269)	0.440*** (0)	0.0221 (0.280)	0.0504 (0.528)	0.286* (0.0554)	0.161 (0.110)	-0.276** (0.0269)
Transition Country Dummy_B	-0.645*** (0)	-0.547*** (8.29e-07)	0.203*** (0.00394)	-0.375*** (0)	-0.195*** (0)	0.0943** (0.0367)	-0.843*** (0)	-0.0521** (0.0236)	-0.629*** (0)	-0.799*** (3.37e-06)	-0.802*** (0)	-0.719*** (3.72e-07)
Fuel Exporter Dummy_B	-0.219*** (8.05e-10)	-0.223*** (0.00941)	0.348*** (0)	-0.125*** (3.52e-08)	-0.167*** (0)	-0.257*** (0)	-0.203*** (1.16e-09)	-0.0637*** (0.000107)	-0.254*** (9.76e-05)	0.00266 (0.982)	-0.324*** (6.95e-05)	0.244** (0.0135)

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Table A1. Benchmark Regressions *(continued)*

VARIABLES	Log domestic credit to private sector by banks	Log stock market capitalization to GDP	Log net interest margin	IFD	IFI	IFIA	IFID	IFIE	IFM	IFMA	IFMD	IFME
	Landlocked Country Dummy_B	-0.169*** (7.05e-06)	-0.217** (0.0492)	0.0795 (0.110)	-0.106*** (3.44e-05)	-0.0796*** (0.000885)	-0.206*** (6.13e-08)	-0.0625* (0.0874)	-0.0351* (0.0671)	0.0857 (0.241)	-0.128 (0.372)	0.0732 (0.418)
lagrLe	0.202*** (0)	0.770*** (0)	-0.405*** (0)	0.157*** (0)	0.0737*** (4.40e-06)	-0.141*** (6.39e-08)	0.464*** (0)	0.0624*** (3.73e-07)	0.300*** (9.44e-10)	0.230** (0.0170)	0.415*** (5.88e-11)	0.589*** (0)
lagrq_e	-0.0186 (0.689)	0.490*** (2.71e-06)	0.544*** (0)	-0.0304 (0.290)	-0.0975*** (0.000274)	-0.173*** (5.38e-05)	0.149*** (0.000607)	-0.0680*** (0.00149)	-0.0717 (0.377)	-0.0705 (0.660)	-0.0728 (0.484)	-0.226* (0.0841)
lagge_e	0.228*** (9.66e-05)	0.880*** (0)	-0.0129 (0.863)	0.0939** (0.0106)	0.142*** (1.39e-05)	0.251*** (2.23e-06)	0.381*** (0)	0.00924 (0.727)	0.759*** (0)	0.344* (0.0910)	1.041*** (0)	-0.505*** (0.000831)
lagcredi_e	0.00366*** (3.10e-05)	-0.00128 (0.600)	0.00502*** (0.000208)	-0.00147** (0.0124)	-0.000201 (0.700)	0.00116 (0.184)	-0.00111 (0.173)	-0.00101** (0.0149)	-0.00408** (0.0156)	-0.00684** (0.0493)	-0.00455** (0.0309)	-0.00236 (0.398)
laglegri_e	0.0189*** (0.00115)	-0.0724*** (8.77e-07)	-0.0171** (0.0276)	-0.00357 (0.376)	0.00628* (0.0821)	-0.000825 (0.890)	0.00123 (0.827)	-0.00115 (0.690)	-0.0575*** (9.23e-07)	-0.0250 (0.277)	-0.0725*** (1.01e-06)	-0.0288 (0.127)
lagminvprt_e	0.00161 (0.156)	0.00778*** (0.00459)	-0.00561*** (9.69e-05)	0.00418*** (1.52e-08)	0.00303*** (7.25e-06)	0.00291*** (0.00783)	0.00475*** (9.51e-06)	0.00166*** (0.00203)	0.0266*** (0)	0.0248*** (3.80e-10)	0.0273*** (0)	0.00929*** (0.00885)
lagcontr_e	0.00765*** (1.83e-06)	0.00240 (0.459)	0.00262 (0.180)	-0.000689 (0.483)	-0.00141 (0.115)	0.00306** (0.0330)	-0.000950 (0.508)	-0.00195*** (0.00675)	-0.0143*** (2.58e-07)	0.00334 (0.521)	-0.00748** (0.0301)	0.00567 (0.153)
Observations	1,127	652	712	1,010	1,013	981	1,008	1,033	998	889	988	753
Pseudo R <sup>2</sup>	R2	0.534	0.435	0.395	0.692	0.595	0.509	0.653	0.208	0.625	0.420	0.612

pval in parentheses  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table A2. Extended Benchmark Regressions

VARIABLES	Log domestic credit to private sector by banks	Log stock market capitalization to GDP	Log net interest margin	IFD	IFI	IFIA	IFID	IFIE	IFM	IFMA	IFMD	IFME
lagly_r_usd_ppp	-0.0651* (0.0678)	-0.423*** (9.29e-08)	-0.287*** (4.87e-08)	0.244*** (0)	0.142*** (3.46e-09)	0.354*** (0)	-0.0933*** (0.00856)	0.0365** (0.0392)	1.008*** (0)	0.777*** (1.93e-08)	0.735*** (0)	0.754*** (6.99e-11)
lagpop_totl	0.00478 (0.658)	0.241*** (0)	-0.100*** (1.29e-09)	0.119*** (0)	0.0372*** (1.91e-07)	0.0159 (0.140)	0.106*** (0)	0.0189*** (0.000748)	0.425*** (0)	0.259*** (2.44e-10)	0.326*** (0)	0.585*** (0)
lagpop_dens	0.0490 (0.159)	-0.312*** (2.42e-05)	-0.235*** (1.06e-07)	-0.0251 (0.288)	-0.0292 (0.206)	0.0644* (0.0581)	-0.0123 (0.740)	-0.00266 (0.876)	-0.154*** (0.00659)	-0.112 (0.313)	-0.0899 (0.268)	0.138 (0.148)
lagpop_dens2	-0.0127*** (0.000940)	0.0336*** (6.22e-06)	0.0287*** (4.27e-09)	-0.000584 (0.823)	-0.000148 (0.953)	-0.0185*** (5.46e-07)	-0.00352 (0.383)	-0.000365 (0.849)	0.00357 (0.573)	-0.00897 (0.460)	-0.00170 (0.851)	-0.00319 (0.753)
laglagedr_old	0.0129 (0.690)	-0.516*** (0)	0.268*** (8.30e-08)	0.0243 (0.258)	0.121*** (1.33e-10)	0.258*** (0)	0.201*** (0)	-0.0894*** (3.49e-09)	-0.410*** (0)	-0.148 (0.106)	-0.524*** (0)	0.0338 (0.641)
laglagedr_yng	-0.829*** (0)	-0.133 (0.302)	-0.0382 (0.720)	-0.297*** (3.45e-09)	-0.203*** (7.56e-06)	-0.495*** (0)	-0.409*** (1.31e-08)	-0.149*** (2.13e-05)	-0.556*** (7.54e-06)	-0.628*** (0.00953)	-0.487*** (0.00491)	0.0171 (0.929)
Offshore Financial Center Dummy_B	0.298*** (5.44e-11)	0.342*** (0.000144)	0.301*** (1.94e-07)	0.0811*** (0.00629)	0.0998*** (0.000272)	0.0967** (0.0202)	0.338*** (0)	0.0240 (0.246)	-0.0720 (0.317)	0.275** (0.0498)	0.0359 (0.725)	-0.311** (0.0107)
Transition Country Dummy_B	-0.587*** (0)	-0.0705 (0.502)	-0.255*** (0.000915)	-0.250*** (0)	-0.128*** (0.000129)	-0.0204 (0.685)	-0.494*** (0)	0.0282 (0.276)	-0.411*** (2.89e-06)	-0.767*** (2.07e-05)	-0.478*** (0.000123)	-0.371** (0.0136)
Fuel Exporter Dummy_B	-0.200*** (7.69e-08)	-0.00225 (0.977)	0.392*** (0)	-0.117*** (3.01e-06)	-0.165*** (0)	-0.309*** (0)	-0.132*** (0.000477)	-0.0675*** (0.000123)	-0.194*** (0.00182)	-0.000893 (0.994)	-0.304*** (0.000583)	0.314*** (0.00344)

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Table A2. Extended Benchmark Regressions *(continued)*

VARIABLES	Log domestic credit to private sector by banks	Log stock market capitalization to GDP	Log net interest margin	IFD	IFI	IFIA	IFID	IFIE	IFM	IFMA	IFMD	IFME
Landlocked Country Dummy_B	-0.231*** (9.62e-10)	-0.370*** (0.000210)	0.151*** (0.00379)	-0.122*** (8.59e-06)	-0.0925*** (0.000346)	-0.210*** (1.15e-07)	-0.138*** (0.000636)	-0.0432** (0.0302)	0.108 (0.111)	-0.0772 (0.575)	0.0160 (0.866)	0.576*** (8.65e-06)
lagcredi	0.00393*** (5.18e-06)	0.00152 (0.474)	0.00544*** (0.000107)	-0.00116* (0.0578)	-0.000287 (0.601)	0.000869 (0.325)	-0.000989 (0.262)	-0.00104** (0.0148)	-0.00351** (0.0236)	-0.00444 (0.195)	-0.00558** (0.0104)	-0.00245 (0.388)
laglegri	0.0155*** (0.00687)	-0.0726*** (1.59e-08)	-0.00948 (0.239)	-0.00565 (0.183)	0.00472 (0.216)	-0.000505 (0.933)	-0.00317 (0.600)	-0.00250 (0.391)	-0.0581*** (7.12e-08)	-0.0403* (0.0734)	-0.0687*** (7.29e-06)	-0.0373** (0.0497)
lagminvprt	0.00223** (0.0455)	0.00591** (0.0130)	-0.00558*** (0.000178)	0.00525*** (0)	0.00346*** (1.13e-06)	0.00279** (0.0112)	0.00574*** (5.57e-07)	0.00159*** (0.00354)	0.0263*** (0)	0.0265*** (0)	0.0265*** (0)	0.00950*** (0.00786)
lagcontr	0.00744*** (2.28e-06)	0.00400 (0.155)	0.00148 (0.465)	-0.000837 (0.419)	-0.00135 (0.153)	0.00320** (0.0270)	-0.00182 (0.236)	-0.00196*** (0.00749)	-0.0129*** (3.32e-07)	-0.00237 (0.639)	-0.00599* (0.0921)	0.00698* (0.0811)
lagrl	-0.0217 (0.709)	-0.304** (0.0123)	-0.473*** (4.00e-09)	0.0535 (0.188)	-0.0181 (0.618)	-0.268*** (2.30e-06)	0.0103 (0.855)	0.0717*** (0.00998)	-0.419*** (3.23e-05)	-0.305 (0.139)	-0.516*** (0.000315)	0.864*** (2.30e-07)
lagrq	-0.0668 (0.183)	0.593*** (9.13e-09)	0.442*** (1.20e-09)	-0.0275 (0.420)	-0.0978*** (0.00205)	-0.182*** (0.000145)	0.162*** (0.00172)	-0.0559** (0.0217)	-0.0363 (0.666)	0.117 (0.500)	0.172 (0.162)	-0.190 (0.202)
lagge	0.278*** (1.97e-05)	0.858*** (0)	-0.288*** (0.000843)	0.124*** (0.00299)	0.184*** (1.05e-06)	0.288*** (6.42e-07)	0.407*** (0)	0.0394 (0.179)	0.842*** (0)	0.445** (0.0382)	0.961*** (9.92e-11)	-0.346** (0.0315)
Observations	1,123	653	715	1,014	1,012	982	1,014	1,032	989	883	993	752
Pseudo R <sup>2</sup>	0.538	0.446	0.386	0.692	0.598	0.508	0.651	0.210	0.637	0.432	0.618	0.538



## Annex B: Additional Analysis and Reassessment of Existing Evidence

Existing theoretical models can provide plausible rationalizations for the presence of positive, negative, and nonlinear relationships between financial development and income inequality. The varying results in the empirical literature may be, in part, the result of differences in coverage (across countries and over time), alternative definitions and proxies for financial development, and different metrics of income inequality. For the case of inequality, varying definitions are often lumped together as approximating the same concepts when, in fact, there are significant differences among them. For instance, the Gini coefficient and income ratios (typically 10/1 deciles and 5/1 quintiles) are taken to be adequate approximations to explore the evolution of income inequality—and yet, it is theoretically possible to see large changes in one measure without significant variations in the other. A similar situation emerges with the proxy measures of financial development. Some commonly used measures to proxy financial development are M2 to GDP, the ratio of claims on the nonfinancial private sector to GDP, stock market capitalization to GDP, and the turnover ratio of domestic shares to GDP, among various others.

In addition to the simple variation of coverage and proxies, there is a case for a differential association between these measures as indicated by the theoretical literature. For instance, more financial development stemming from increased access boosting opportunities for those in the lower part of the income distribution may compress inequality when measured by income ratios; moreover, it may very well be the case that, depending on the starting point in terms of inclusion, the change may not be captured by the 10/1 ratio of income deciles but possibly by the 5/1 ratio of income quintiles. This may be the case if the expanded inclusion takes place at higher positions in the income distribution, such that those below the first decile see no significant change in financial inclusion. However, if inclusion is significant for those between the first and second decile (and if this inclusion correlates with higher incomes), then it may be the case that the ratio 5/1 changes while the ratio 10/1 remains (statistically) unaffected. Another possibility is that certain types of financial development affect the distribution relatively more among those around the middle of the distribution and not so much at the tails. In this case, the link may emerge when using the Gini coefficient but not income ratios. Moreover, if there is an efficient and highly progressive tax schedule over capital gains and investment income,

it may be the case that an association could be detected using the Gini coefficient when computed prior to tax and transfers but not afterwards.

This section uses the results of a systematic econometric exploration of the relationships between income inequality and financial development to, at least partially, clarify the nature of the empirical association between financial development and income inequality. This is done using four different measures of income inequality and 14 proxies of financial development, covering 153 countries from 1981 to 2019.<sup>39</sup> The results, discussed below in more detail, point to a usually negative and decreasing relationship between financial development and stability with income.

## Overview of Data, Methods, and Results

Empirical studies typically use the Gini coefficient, income shares, and income ratios (usually, deciles 1 and 10, quintiles 1 and 5, and percentiles 1 and 99, among others) as measures of income inequality.<sup>40</sup> Since different measures of inequality would respond differently to a given distributional change,<sup>41</sup> the analysis in this section considers the Gini coefficient, estimated over both household market and disposable income (Solt, 2020),<sup>42</sup> and the income ratios of deciles 10/1 and quintiles 5/1 using the income shares reported by the World Bank.<sup>43</sup> For the proxy measures of financial development, the analysis mainly considers the indices of financial development as reported in the Financial Development Index Database by the IMF (Sahay et al., 2015, Svirydzenka, 2016). These variables are synthetic measures combining different indicators used in the literature, and consider institutions and markets separately, providing specific measures for access, depth, and efficiency (Table A.1 in the annex presents more detail about these indices).<sup>44</sup> In addition to this, and mostly for comparative purposes with previous results, it also considers five commonly used proxies capturing depth and liquidity.<sup>45</sup>

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<sup>39</sup> The sample naturally varies with alternative specifications. The values indicated correspond to a base specification considering financial development, government spending, trade openness, and per capita income.

<sup>40</sup> Other common measures include the coefficient of variation, Theil, and Atkinson index (under varying degrees of aversion to inequality). Different income concepts, household market income, household disposable income, labor income, and pre-tax income are considered.

<sup>41</sup> It is possible to have sizeable distributional changes which may be captured by changes in the Gini coefficient but barely noticed when considering income ratios and vice versa.

<sup>42</sup> Market income approximates household income, excluding government cash and private transfers (pre-tax, pre-transfer). Disposable income, in turn, is gross income minus direct taxes (post-tax, post-transfer income).

<sup>43</sup> World Development Indicators, WB.

<sup>44</sup> <https://data.imf.org/?sk=F8032E80-B36C-43B1-AC26-493C5B1CD33B>.

<sup>45</sup> These six additional measures are: domestic credit to private sector by banks, domestic credit to private sector, domestic credit provided by financial sector, broad money, market capitalization of listed domestic companies, and stocks traded—all of them relative to GDP, sourced from the WDI.

To explore these relations, we proceeded with unbalanced panel estimations using four different measures of inequality (Gini coefficient over market and disposable income, and income ratios for quintiles 5/1 and deciles 10/1), considering fourteen proxy measures of financial development and stability, and twelve institutional variables.<sup>46</sup> The pattern emerging from these results provides some clarification for the existing results in the literature:

- There is a robust nonlinear (negative and generally decreasing) relationship between inequality and financial development. For the case of instability, the results, in general, align with those studies finding financial instability to increase income inequality. Higher levels of financial development tend to be associated with lower levels of income inequality.<sup>47</sup>
- When measuring income inequality using the Gini coefficient, and not accounting for instability, the relationship with financial development is different for institutions (i.e., banks, insurance companies, mutual and pension funds) and markets (stock and bond markets); the relationship with overall financial development is affected by the relative strength of those underlying components. In general, when considering financial development in institutions, there is a negative relationship between financial development and income inequality, which persists for access, depth, and efficiency. Conversely, the relationship weakens and sometimes reverts to positive for some measures of financial development in markets.
- When measuring income inequality using the Gini coefficient, and accounting for instability, the relationship with financial development is negative, and statistically insignificant for almost every measure of market development. When considering financial development in institutions, there is a negative relationship between financial development; the relationship with measures of financial development in markets becomes statistically insignificant for almost every measure.<sup>48</sup>
- Financial instability, proxied by the presence of banking crises, tends to increase income inequality; the nonlinear relationship between income inequality and financial development persists after accounting for financial crisis. For all measures of income inequality, and across almost all specifications, the estimated relationship is positive and, in most cases, statistically significant.

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<sup>46</sup> The resulting regressions are just too numerous to include in this monograph but are available upon request. Tables A4 to A21 in the Annex present selected results of equations (3.1), (3.2), and (3.3) for Gini coefficient over market income and the ratio of deciles 1/10, in the subset of estimations that included institutional variables.

<sup>47</sup> Table A3 in the annex presents some results for the specifications including the crisis variable.

<sup>48</sup> This result may be due in part to the relative importance of each type of segment when it comes to the distribution of returns to production factors; it's important to note that not all countries in the sample have significant and well-developed markets (traditional intermediaries are still prevalent).

## Average Association between Financial Development and Inequality

As previously indicated, part of the differences in the empirical literature stem from the use of alternative measures of inequality, proxies of financial development, sample (countries and periods), covariates, and specifications. Our approach of systematically exploring the relationship between four commonly reported measures of income inequality with fourteen proxy measures for financial development, with multiple sets of covariates and varying specifications, rendered a very high number of estimated equations. More specifically, we estimated the following specifications:

$$I_{it} = \alpha_i + \psi_1 F_{it-1} + \psi_2 F_{it-1}^2 + \Gamma C_{it-1} + \varepsilon_{it} \quad B.1$$

$$I_{it} = \alpha_i + \lambda_1 F_{it-1} + \lambda_2 F_{it-1}^2 + \lambda_3 D_{it-1} + \Gamma C_{it-1} + \varepsilon_{it} \quad B.2$$

$$I_{it} = \alpha_i + \gamma_1 \bar{F}_{it-1} + \gamma_2 \bar{F}_{it-1}^2 + \gamma_3 Z_{it-1} + \Gamma C_{it-1} + \varepsilon_{it} \quad B.3$$

$$I_{it} = \alpha_i + \pi_1 \bar{F}_{it-1} + \pi_2 \bar{F}_{it-1}^2 + \pi_3 X_{it-1} + \Gamma C_{it-1} + \varepsilon_{it} \quad B.4$$

$$I_{it} = \alpha_i + \mu_1 F_{it-1} + \mu_2 F_{it-1}^2 + \mu_3 X_{it-1} + \mu_4 Z_{it-1} + \Gamma C_{it-1} + \varepsilon_{it} \quad B.5$$

$$I_{it} = \alpha_i + \delta_1 \bar{F}_{it-1} + \delta_2 \bar{F}_{it-1}^2 + \delta_3 \bar{X}_{it-1} + \delta_4 \bar{Z}_{it-1} + \Gamma C_{it-1} + \varepsilon_{it} \quad B.6$$

$$I_{it} = \alpha_i + \phi_1 \bar{F}_{it-1} + \phi_2 \bar{F}_{it-1}^2 + \phi_3 F_{it-1} X_{it-1} + \phi_4 \bar{F}_{it-1}^2 X_{it-1} + \phi_5 X_{it-1} + \Gamma C_{it-1} + \varepsilon_{it} \quad B.7$$

$$I_{it} = \alpha_i + \eta_1 F_{it-1} + \eta_2 F_{it-1}^2 + \eta_3 F_{it-1} \bar{X}_{it-1} + \eta_4 \bar{F}_{it-1}^2 \bar{X}_{it-1} + \eta_5 \bar{X}_{it-1} + \Gamma C_{it-1} + \varepsilon_{it} \quad B.8$$

$$I_{it} = \alpha_i + \varphi_1 F_{it-1} + \varphi_2 F_{it-1}^2 + \varphi_3 F_{it-1} X_{it-1} + \varphi_4 \bar{F}_{it-1}^2 X_{it-1} + \varphi_5 X_{it-1} + \varphi_6 Z X_{it-1} + \Gamma C_{it-1} + \varepsilon_{it} \quad B.9$$

$$I_{it} = \alpha_i + \beta_1 \bar{F}_{it-1} + \beta_2 \bar{F}_{it-1}^2 + \beta_3 \bar{F}_{it-1} \bar{X}_{it-1} + \beta_4 \bar{F}_{it-1}^2 \bar{X}_{it-1} + \beta_5 \bar{X}_{it-1} + \beta_6 Z X_{it-1} + \Gamma C_{it-1} + \varepsilon_{it} \quad B.10$$

where subscripts  $i,t$  refer to country  $i$  in period  $t$ ;  $I$  is the income inequality measure (alternatively: Gini over household market income, Gini over household disposable income, income ratios of deciles 10/1 and quintiles 5/1);  $F$  indicates one of the 14 financial development proxies;  $Z$  stands for the variables representing the “broad” institutions (rule of law, regulatory quality, government effectiveness);  $X$  stands, alternatively, for the institutional measures considered to be more closely linked to financial markets;  $\Gamma C$  represents other control variables (government spending to GDP, trade openness, per capita income);  $D$  is a dummy indicating the presence of a banking crisis, and  $\varepsilon$  is an error term. To reduce multicollinearity problems, variables with one or two upper bars indicate that those variables are being instrumented (see footnote 31). This results in 218 estimated coefficients for the relationship between  $I$  and a particular proxy  $F$  after considering the various specifications.

To summarize the average estimated coefficient of the Financial Institutions Depth Index for the Gini coefficient over market income for  $J$  estimated regressions (where  $J$  stands for the number of equations to be averaged<sup>49</sup>), we applied the inverse variance weighting method. Individual weights for each coefficient are computed as

$$W_j = \frac{1}{SE_j^2} = \frac{1}{var_j}$$

where  $j$  indicates the  $j$ -th regression and  $j = (1, \dots, J)$ . Then, we compute each weighted coefficient size

$$W_j * e_j = \frac{1}{var_j} * coefficient_j.$$

To get the summary coefficient, we apply the following formula

$$Summary\ coefficient\ (sc) = \frac{\sum \frac{1}{var_j} * e_j}{\sum \frac{1}{var_j}} = \frac{\sum w_j * e_j}{\sum w_j}.$$

Once we get the average effect, we also obtain the following standard error

$$(SE) = \sqrt{\frac{1}{\sum \frac{1}{var_j}}} = \sqrt{\frac{1}{\sum w_j}}$$

and then we calculate the 95 percent confidence interval with the equation as  $CI = es \ +/- (1.96 * SE)$ .

Figure 2.17 (page 28) presents the average estimated coefficient for each one of the 14 proxy measures of financial development and the four measures of income inequality, following the procedure just described. As can be seen from those figures, the average association between inequality and financial development is negative for almost all measures of inequality and financial development (the exception emerges in some measures of development in financial markets, although the size is relatively small against other comparable measures).<sup>50</sup>

<sup>49</sup> The number  $J$  may vary depending on methodological considerations. For instance, for Figure 2.2  $J = 84$ , as this is the number of equations where that accounted for the potential correlation of financial development with institutional variables.

<sup>50</sup> It is important to keep in mind the different scales of each variable. Financial development indices from the IMF were rescaled to be between 0–100 (instead of 0–1), while the other variables are typically expressed in percent in relation to GDP. Direct inference of the relative economic importance of each estimated coefficient given their relative position in the figure is not adequate, particularly for those with different units.

These results provide some perspective to reassess and reinterpret the empirical results in the literature, as they cover the typical measures of income inequality and most of the proxy variables for financial development. The general trend suggests a negative association between income inequality and financial development. However, it is important to acknowledge that income inequality cannot be summarized in one single measure, and that financial development can vary significantly in nature, and that different dimensions of financial development can affect income distribution differently. When considering income ratios, there is overall a negative relationship between income inequality and financial development in either institutions or markets. This relationship starts to depart when considering the Gini coefficient, as institution-driven financial development still displays an overall negative relationship, while the estimates for market-driven development tend to become statistically insignificant and, less so, positive. Interestingly, there are also differences across different dimensions of financial development, both in institutions and markets; in particular, access and depth tend to display statistically significant relationships more often than efficiency. Thus, the apparent contradiction in previous empirical results is substantially clarified by increasing the precision and highlighting the difference among the various measures involved.

## Institutional Conditions and Income Inequality

For the section on institutional conditions and income inequality we estimate the following regressions:

$$I_{it} = \alpha_i + \gamma_1 \bar{F}_{it-1} + \gamma_2 \bar{F}_{it-1}^2 + \gamma_3 W_{it-1} + \Gamma C_{it-1} + \varepsilon_{it} \quad (3.1)$$

$$I_{it} = \alpha_i + \delta_1 \bar{F}_{it-1} + \delta_2 \bar{F}_{it-1}^2 + \delta_3 \bar{X}_{it-1} + \delta_4 Z_{it-1} + \Gamma C_{it-1} + \varepsilon_{it} \quad (3.2)$$

$$I_{it} = \alpha_i + \beta_1 \bar{F}_{it-1} + \beta_2 \bar{F}_{it-1}^2 + \beta_3 \bar{F}_{it-1} \bar{X}_{it-1} + \beta_4 \bar{F}_{it-1}^2 \bar{X}_{it-1} + \beta_5 \bar{X}_{it-1} + \beta_6 Z_{it-1} + \Gamma C_{it-1} + \varepsilon_{it} \quad (3.3)$$

where  $I_{it}$  is the income inequality measure, which includes the Gini coefficient for household market income, Gini coefficient for disposable household income, and the income ratios of quintiles 5/1 and deciles 10/1;  $Z_{it}$  stands for the variables representing the “broad” institutions (those indicated in the first set, i.e. rule of law, regulatory quality, and government effectiveness);  $X_{it}$  stands for one of the institutional variables considered more specific to financial development (those in the second set, i.e. depth of credit information, credit registries, etc.);  $W_{it}$  denotes one of either the first or second set of institutional variables;  $F_{it}$  indicates one of the 14 financial development proxies (the nine proxies from IMF’s

Financial Development Index Database);<sup>51</sup>  $\Gamma C$  represents other control variables (ratio of government spending to GDP, ratio of the sum of exports and imports to GDP, and the growth rate of per capita GDP), and  $\epsilon_{it}$  is an error term.<sup>52</sup>

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<sup>51</sup> The discussion here is limited to those proxies because of their technical refinement, clear association with specific subsectors and dimensions of financial development, and bounded values which lend themselves to a clear interpretation of the results. The equations were also estimated with the coarse “traditional” measures and the results are reported in Annex I.

<sup>52</sup> Since the institutional variables and the financial development measures can be highly correlated, when using institutional variables of the second set along those of the first set we use the variations in the former that are not explained by the latter, and similarly with  $F$ . Additionally, when institutional variables of both sets enter the equation, such as in (2) and (3), the financial development measures  $F$  are stripped off of the variation that can be explained by both  $X$  and  $Z$ .

## Regression Results

Table A3. Financial Development and Crises

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	I = Gini Market F= FD	I = Gini Market F = FI	I = Gini Market F= FM	I = Gini Disposable Income F= FD	I = Gini Disposable Income F = FI	I = Gini Disposable Income F= FM	I = Income Share Ratio 10/1 F= FD	I = Income Share Ratio 10/1 F = FI	I = Income Share Ratio 10/1 F= FM	I = Income Share Ratio 5/1 F= FD	I = Income Share Ratio 5/1 F = FI	I = Income Share Ratio 5/1 F= FM
F	-4.834 (0.254)	-15.77*** (0.00830)	3.048 (0.356)	-5.864 (0.146)	-12.41** (0.0267)	0.125 (0.965)	-268.3*** (0.00695)	-204.9** (0.0110)	-99.02 (0.190)	-45.93*** (0.00198)	-35.29*** (0.00523)	-13.58 (0.214)
F <sup>2</sup>	12.57*** (0.000610)	19.31*** (0.000336)	3.706 (0.202)	9.003*** (0.00905)	12.51*** (0.00893)	3.225 (0.202)	203.8*** (0.00451)	134.0** (0.0139)	87.97 (0.164)	35.89*** (0.00207)	23.47** (0.0105)	12.66 (0.161)
GDP per capita (growth)	-0.0199 (0.417)	-0.0255 (0.302)	-0.0234 (0.379)	-0.00158 (0.941)	-0.00516 (0.800)	-0.00492 (0.832)	-0.412 (0.110)	-0.379* (0.0892)	-0.619* (0.0566)	-0.0776*** (0.00916)	-0.0735** (0.0167)	-0.114*** (0.00282)
Government Expenditure	-0.0629 (0.310)	-0.0131 (0.846)	-0.0665 (0.293)	-0.0596 (0.292)	-0.0261 (0.652)	-0.0687 (0.238)	2.843 (0.108)	2.864 (0.103)	1.921 (0.226)	0.268* (0.0924)	0.275* (0.0713)	0.105 (0.460)
Trade Openness	0.420 (0.638)	2.103* (0.0530)	0.544 (0.564)	0.146 (0.846)	1.129 (0.128)	0.0717 (0.927)	7.531 (0.570)	5.741 (0.539)	-5.081 (0.716)	-0.249 (0.887)	-0.194 (0.879)	-2.554 (0.255)
Banking Crisis dummy	0.403** (0.0194)	0.318* (0.0593)	0.409** (0.0170)	0.383** (0.0205)	0.312** (0.0371)	0.394** (0.0170)	5.649 (0.196)	5.159 (0.228)	7.763 (0.110)	1.317 (0.123)	1.242 (0.127)	1.689* (0.0814)
Constant	47.06*** (0)	48.10*** (0)	46.16*** (0)	39.89*** (0)	40.76*** (0)	39.06*** (0)	40.11*** (0.00520)	36.02** (0.0209)	14.49 (0.454)	17.57*** (5.48e-10)	16.78*** (1.11e-08)	12.90*** (1.77e-07)
Observations	1,897	1,889	1,897	1,897	1,889	1,897	835	835	835	835	835	835
R <sup>2</sup>	0.245	0.190	0.243	0.084	0.073	0.081	0.079	0.078	0.043	0.126	0.124	0.058

Robust pval in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table A4. Specification 3.1 I= Gini Market Income, F= Financial Development Index (IMF)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	I = Gini Market X = credi	I = Gini Market X = insol	I = Gini Market X = credp	I = Gini Market X = regpr	I = Gini Market X = regco	I = Gini Market X = legri	I = Gini Market X = contr	I = Gini Market X = enfod	I = Gini Market X = enfof	I = Gini Market X = rq	I = Gini Market X = rl	I = Gini Market X = ge
FD	-6.935** (0.0117)	-7.368*** (0.00250)	-5.611** (0.0117)	-7.607*** (0.000501)	-7.059*** (0.00174)	-5.496*** (0.00339)	-8.088*** (0.000981)	-3.359* (0.0709)	-3.422 (0.103)	-7.348*** (0.00393)	-7.542*** (0.00351)	-6.861*** (0.00495)
FD^2	9.249 (0.796)	0.630 (0.985)	14.37 (0.641)	8.959 (0.736)	12.69 (0.635)	5.748 (0.845)	8.201 (0.821)	65.98 (0.282)	93.70 (0.163)	-13.59 (0.623)	-11.24 (0.685)	-13.57 (0.612)
X	-0.0215*** (0.00144)	-0.0328** (0.0236)	-0.0969 (0.702)	-0.0211*** (0.00984)	0.0689** (0.0222)	-0.196*** (0.00139)	0.0131 (0.635)	-0.00495 (0.137)	0.0500** (0.0239)	-0.359 (0.432)	-0.0446 (0.930)	-0.999** (0.0381)
GDP per capita (growth)	-0.00633 (0.639)	0.000509 (0.959)	0.0100 (0.392)	-0.00137 (0.868)	-0.000908 (0.913)	0.00375 (0.641)	0.00525 (0.596)	-0.00152 (0.891)	-0.00393 (0.752)	0.00608 (0.618)	0.00560 (0.641)	0.00514 (0.676)
Government Expenditure	-0.0736 (0.316)	-0.0142 (0.742)	-0.0126 (0.417)	-0.00544 (0.866)	-0.00697 (0.843)	0.00897 (0.777)	-0.00403 (0.829)	0.0101 (0.717)	0.0200 (0.559)	-0.00690 (0.708)	-0.00712 (0.701)	-0.00669 (0.719)
Trade Openness	0.292 (0.565)	1.041** (0.0195)	0.644 (0.165)	0.621 (0.117)	0.695* (0.0723)	0.603 (0.123)	0.619 (0.143)	-0.208 (0.648)	-0.155 (0.747)	0.901** (0.0413)	0.879** (0.0455)	0.910** (0.0368)
Constant	49.52*** (0)	47.02*** (0)	46.08*** (0)	47.11*** (0)	45.42*** (0)	46.60*** (0)	44.94*** (0)	46.82*** (0)	45.55*** (0)	45.62*** (0)	45.57*** (0)	45.71*** (0)
Observations	874	1,310	1,294	1,301	1,266	1,276	1,410	493	455	1,799	1,799	1,799
R <sup>2</sup>	0.088	0.096	0.049	0.085	0.075	0.087	0.076	0.042	0.028	0.069	0.068	0.078

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table A5. Specification 3.1 I= Income Share Ratio 10/1, F= Financial Development Index (IMF)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	I = Income Share Ratio 10/1											
VARIABLES	X = credi	X = insol	X = credp	X = regpr	X = regco	X = legri	X = contr	X = enfod	X = enfof	X = rq	X = rl	X = ge
FD	-15.41** (0.0425)	-22.90** (0.0253)	-14.66*** (0.00412)	-16.73** (0.0137)	-15.89** (0.0226)	-7.539** (0.0176)	-23.99** (0.0192)	-22.99** (0.0495)	-22.84* (0.0683)	-32.40** (0.0112)	-33.57*** (0.00428)	-30.53*** (0.00479)
FD^2	-28.91 (0.609)	87.86 (0.247)	79.05* (0.0992)	-34.80 (0.361)	-23.01 (0.578)	-2.855 (0.926)	87.51 (0.260)	285.0 (0.230)	324.2 (0.214)	92.43 (0.188)	81.74 (0.284)	76.55 (0.270)
X	-0.0729* (0.0554)	-0.0771*** (0.00252)	0.320 (0.490)	-0.0626*** (0.00159)	0.226* (0.0939)	-0.505*** (0.00212)	0.0354 (0.612)	-0.0124 (0.197)	0.133 (0.902)	-0.987 (0.694)	3.163 (0.316)	-3.399** (0.0191)
GDP per capita (growth)	-0.0154 (0.754)	0.00760 (0.817)	0.0494 (0.100)	-0.0231 (0.433)	-0.0151 (0.641)	0.00299 (0.909)	0.00555 (0.867)	0.00603 (0.898)	0.000967 (0.985)	0.0306 (0.459)	0.0427 (0.295)	0.0239 (0.562)
Government Expenditure	-0.443* (0.0924)	-0.160 (0.355)	-0.113 (0.459)	-0.280 (0.106)	-0.275 (0.136)	-0.156 (0.306)	-0.159 (0.255)	0.0235 (0.895)	0.00792 (0.966)	-0.142 (0.349)	-0.143 (0.356)	-0.149 (0.309)
Trade Openness	1.346 (0.327)	2.478** (0.0446)	1.263 (0.161)	1.256 (0.293)	0.858 (0.461)	0.784 (0.448)	1.170 (0.336)	2.421 (0.285)	2.509 (0.282)	0.919 (0.455)	0.677 (0.565)	0.789 (0.522)
Constant	26.37*** (9.29e-07)	17.85*** (8.75e-07)	13.34*** (1.72e-05)	21.18*** (1.49e-08)	16.28*** (8.90e-06)	17.29*** (1.92e-08)	12.79** (0.0257)	12.34*** (0.000107)	9.897 (0.136)	16.15*** (7.23e-08)	14.95*** (6.55e-06)	17.34*** (4.35e-08)
Observations	646	831	825	787	765	773	848	356	334	1,057	1,057	1,057
R <sup>2</sup>	0.122	0.084	0.052	0.080	0.071	0.075	0.074	0.066	0.058	0.081	0.090	0.086

Robust pval in parentheses  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table A6. Specification 3.1 I= Gini Market Income, F= Financial Institutions Index (IMF)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	I = Gini Market X = credi	I = Gini Market X = insol	I = Gini Market X = credp	I = Gini Market X = regrp	I = Gini Market X = regco	I = Gini Market X = legri	I = Gini Market X = contr	I = Gini Market X = enfod	I = Gini Market X = enfof	I = Gini Market X = rq	I = Gini Market X = rl	I = Gini Market X = ge
FI	-10.62*** (6.42e-05)	-9.451*** (3.02e-05)	-8.017*** (0.000344)	-8.933*** (1.90e-05)	-8.932*** (4.90e-05)	-7.236*** (0.000251)	-9.832*** (4.21e-06)	-2.131 (0.249)	-2.234 (0.271)	-8.586*** (9.55e-05)	-8.755*** (7.72e-05)	-8.106*** -0.000141
FI^2	11.74 (0.709)	-8.297 (0.707)	-2.685 (0.906)	0.640 (0.978)	-0.0400 (0.999)	-3.987 (0.882)	-4.058 (0.841)	23.65 (0.617)	27.13 (0.587)	-25.56** (0.0479)	-23.50* (0.0646)	-25.95* -0.0514
X	-0.0206*** (0.00152)	-0.0301** (0.0266)	-0.0515 (0.838)	-0.0188** (0.0149)	0.0589* (0.0617)	-0.179*** (0.00366)	0.0112 (0.646)	-0.00517 (0.107)	0.0417* (0.0696)	-0.256 (0.550)	0.120 (0.797)	-0.777* -0.0858
GDP per capita (growth)	-0.00282 (0.817)	-0.00580 (0.525)	0.000212 (0.983)	-0.00649 (0.401)	-0.00540 (0.488)	-0.00138 (0.849)	-0.00545 (0.553)	-0.00166 (0.871)	-0.00308 (0.790)	-0.00895 (0.438)	-0.00898 (0.444)	-0.00901 -0.444
Government Expenditure	0.0142 (0.835)	0.0185 (0.652)	-0.00289 (0.848)	0.0249 (0.406)	0.0254 (0.438)	0.0292 (0.332)	0.00933 (0.637)	0.0169 (0.529)	0.0290 (0.374)	0.00187 (0.922)	0.00255 (0.895)	0.00167 -0.931
Trade Openness	0.120 (0.822)	0.971** (0.0207)	0.685 (0.123)	0.549 (0.157)	0.624 (0.103)	0.571 (0.141)	0.643 (0.116)	-0.262 (0.569)	-0.227 (0.641)	1.053** (0.0145)	1.019** (0.0185)	1.043** -0.0148
Constant	48.13*** (0)	46.44*** (0)	45.83*** (0)	46.56*** (0)	45.03*** (0)	46.24*** (0)	44.83*** (0)	46.81*** (0)	45.52*** (0)	45.42*** (0)	45.37*** (0)	45.51*** 0
Observations	874	1,310	1,294	1,301	1,266	1,276	1,410	493	455	1,799	1,799	1799
R <sup>2</sup>	0.187	0.177	0.124	0.155	0.150	0.136	0.168	0.039	0.023	0.154	0.154	0.153

Table A7. Specification 3.1 I = Income Share Ratio 10/1, F= Financial Institutions Index (IMF)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	I = Income Share Ratio 10/1											
VARIABLES	X = credi	X = insol	X = credp	X = regpr	X = regco	X = legri	X = contr	X = enfod	X = enfof	X = rq	X = rl	X = ge
FI	-19.34** (0.0177)	-27.21** (0.0117)	-17.27*** (0.000656)	-18.39** (0.0114)	-18.95** (0.0141)	-9.187** (0.0143)	-27.56*** (0.00829)	-20.49** (0.0399)	-20.57** (0.0489)	-34.36*** (0.00318)	-35.43*** (0.00103)	-32.76*** (0.00198)
FI^2	0.439 (0.995)	123.1* (0.0647)	64.81* (0.0812)	6.996 (0.874)	4.606 (0.926)	-1.032 (0.977)	119.8* (0.0602)	-18.85 (0.861)	-0.523 (0.996)	61.09 (0.212)	51.15 (0.308)	52.31 (0.295)
X	-0.0745* (0.0577)	-0.0715*** (0.00327)	0.284 (0.566)	-0.0539*** (0.00150)	0.187 (0.174)	-0.483*** (0.00349)	0.0377 (0.573)	-0.0151 (0.101)	-0.029 (0.985)	-0.691 (0.769)	3.676 (0.221)	-2.210* (0.0948)
GDP per capita (growth)	-0.00568 (0.903)	-0.0161 (0.652)	0.0281 (0.279)	-0.0317 (0.293)	-0.0223 (0.491)	-0.00349 (0.891)	-0.0260 (0.486)	0.00466 (0.913)	-0.000274 (0.995)	-0.00907 (0.848)	0.00508 (0.904)	-0.0109 (0.812)
Government Expenditure	-0.274 (0.215)	-0.0526 (0.735)	-0.0673 (0.630)	-0.181 (0.215)	-0.171 (0.275)	-0.121 (0.394)	-0.0854 (0.493)	0.146 (0.404)	0.132 (0.484)	-0.0694 (0.612)	-0.0612 (0.673)	-0.0722 (0.607)
Trade Openness	1.326 (0.339)	2.650** (0.0492)	1.716* (0.0745)	1.352 (0.269)	0.930 (0.443)	0.888 (0.398)	1.749 (0.207)	2.473 (0.257)	2.501 (0.263)	1.657 (0.226)	1.366 (0.299)	1.532 (0.264)
Constant	23.61*** (6.67e-07)	15.54*** (3.35e-06)	12.24*** (3.18e-05)	18.82*** (1.27e-09)	14.65*** (9.44e-06)	16.50*** (7.73e-09)	10.83* (0.0509)	10.77*** (0.00153)	8.778 (0.325)	14.38*** (0.00000196)	13.06*** (9.64e-05)	15.13*** (1.03e-06)
Observations	646	831	825	787	765	773	848	356	334	1057	1,057	1,057
R <sup>2</sup>	0.167	0.154	0.089	0.115	0.112	0.086	0.148	0.098	0.091	0.141	0.156	0.139

Robust pval in parentheses  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table A8. Specification 3.1 I = Gini Market Income, F= Financial Markets Index (IMF)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	I = Gini Market X = credi	I = Gini Market X = insol	I = Gini Market X = credp	I = Gini Market X = regpr	I = Gini Market X = regco	I = Gini Market X = legri	I = Gini Market X = contr	I = Gini Market X = enfod	I = Gini Market X = enfof	I = Gini Market X = rq	I = Gini Market X = rl	I = Gini Market X = ge
FM	1.286 (0.385)	0.596 (0.628)	0.779 (0.545)	-0.208 (0.868)	0.208 (0.864)	0.166 (0.893)	0.577 (0.628)	-0.999 (0.202)	-1.168 (0.146)	0.563 (0.651)	0.494 (0.683)	0.450 (0.701)
FM^2	-8.382 (0.249)	-14.18** (0.0243)	-8.455 (0.208)	-8.383 (0.232)	-8.748 (0.184)	-8.321 (0.288)	-12.81* (0.0617)	10.65 (0.421)	23.09* (0.0673)	-6.485 (0.361)	-6.258 (0.360)	-5.004 (0.460)
X	-0.0216*** (0.00115)	-0.0347** (0.0195)	-0.127 (0.625)	-0.0195** (0.0183)	0.0659** (0.0314)	-0.208*** (0.00106)	0.0170 (0.552)	-0.00468 (0.153)	0.0491** (0.0234)	-0.498 (0.320)	-0.273 (0.621)	-1.105** (0.0260)
GDP per capita (growth)	-0.00416 (0.775)	0.00198 (0.849)	0.0114 (0.312)	0.000770 (0.930)	-0.000193 (0.983)	0.00518 (0.545)	0.00945 (0.362)	0.00130 (0.906)	0.000400 (0.974)	0.0145 (0.229)	0.0138 (0.246)	0.0135 (0.270)
Government Expenditure	-0.0970 (0.226)	-0.0371 (0.422)	-0.0344 (0.485)	-0.0269 (0.466)	-0.0273 (0.498)	-0.00330 (0.924)	-0.0257 (0.504)	-4.23e-05 (0.999)	0.00761 (0.874)	-0.00846 (0.834)	-0.0130 (0.744)	-0.00913 (0.819)
Trade Openness	0.472 (0.350)	1.268*** (0.00471)	0.767 (0.105)	0.795* (0.0538)	0.910** (0.0225)	0.750* (0.0589)	0.779* (0.0784)	-0.283 (0.515)	-0.242 (0.597)	0.822* (0.0773)	0.804* (0.0790)	0.833* (0.0673)
Constant	49.76*** (0)	47.29*** (0)	46.31*** (0)	47.08*** (0)	45.45*** (0)	46.59*** (0)	44.84*** (0)	46.99*** (0)	45.82*** (0)	45.58*** (0)	45.58*** (0)	45.71*** (0)
Observations	874	1,284	1,248	1,260	1,225	1,235	1,357	485	447	1,731	1,731	1,731
R <sup>2</sup>	0.052	0.051	0.018	0.028	0.027	0.059	0.017	0.026	0.013	0.017	0.014	0.033

Table A9. Specification 3.1 I= Income Share Ratio 10/1, F= Financial Markets Index (IMF)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	I = Income Share Ratio 10/1											
VARIABLES	X = credi	X = insol	X = credp	X = regpr	X = regco	X = legri	X = contr	X = enfod	X = enfof	X = rq	X = rl	X = ge
FM	-0.182 (0.930)	-0.556 (0.772)	-0.739 (0.698)	-2.311 (0.231)	-1.462 (0.398)	-1.004 (0.577)	-0.801 (0.669)	-3.283 (0.355)	-2.750 (0.437)	-2.653 (0.303)	-2.899 (0.265)	-3.547 (0.161)
FM^2	12.10 (0.417)	7.819 (0.525)	22.72* (0.0930)	4.398 (0.761)	6.511 (0.623)	15.09 (0.242)	7.369 (0.513)	71.8 (0.134)	86.56 (0.126)	7.435 (0.599)	7.546 (0.572)	12.62 (0.362)
X	-0.0744** (0.0467)	-0.0836*** (0.00178)	0.226 (0.640)	-0.0529*** (0.00466)	0.184 (0.182)	-0.577*** (0.000212)	0.0461 (0.521)	-0.0100 (0.200)	-0.257 (0.829)	-1.514 (0.558)	2.265 (0.486)	-3.963** (0.0101)
GDP per capita (growth)	-0.0206 (0.694)	0.00999 (0.757)	0.0499 (0.117)	-0.0258 (0.387)	-0.0247 (0.462)	-0.00620 (0.808)	0.0123 (0.714)	0.0213 (0.628)	0.0212 (0.659)	0.0582 (0.130)	0.0681 (0.107)	0.0481 (0.222)
Government Expenditure	-0.486* (0.0962)	-0.224 (0.227)	-0.164 (0.379)	-0.320* (0.0976)	-0.318 (0.120)	-0.165 (0.288)	-0.247 (0.168)	-0.0732 (0.756)	-0.0949 (0.705)	-0.186 (0.317)	-0.205 (0.265)	-0.212 (0.215)
Trade Openness	2.251 (0.144)	3.226** (0.0199)	1.375 (0.116)	1.627 (0.191)	1.468 (0.228)	0.972 (0.327)	1.521 (0.221)	1.454 (0.485)	1.519 (0.473)	0.547 (0.628)	0.407 (0.705)	0.401 (0.727)
Constant	26.35*** (1.60e-06)	18.59*** (7.12e-07)	14.22*** (7.03e-05)	20.74*** (5.97e-08)	16.57*** (1.46e-05)	17.53*** (8.71e-09)	13.25** (0.0355)	14.44*** (2.28e-05)	14.60** (0.0469)	17.13*** (2.52e-07)	16.09*** (1.04e-05)	18.66*** (1.46e-07)
Observations	646	826	817	779	757	765	838	352	330	1,045	1,045	1,045
R <sup>2</sup>	0.089	0.032	0.020	0.039	0.035	0.082	0.016	0.016	0.014	0.012	0.014	0.027

Robust pval in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table A10. Specification 3.2 I= Gini Market Income, F= Financial Development Index (IMF)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	I = Gini Market X = credi	I = Gini Market X = insol	I = Gini Market X = credp	I = Gini Market X = regpr	I = Gini Market X = regco	I = Gini Market X = legri	I = Gini Market X = contr	I = Gini Market X = enfod	I = Gini Market X = enfof
FD	-6.202** (0.0228)	-6.622*** (0.00616)	-4.883** (0.0199)	-7.080*** (0.000941)	-6.306*** (0.00408)	-4.820*** (0.00896)	-7.365*** (0.00254)	-3.379* (0.0686)	-3.500* (0.0899)
FD^2	2.113 (0.953)	3.499 (0.921)	13.94 (0.660)	12.30 (0.649)	12.80 (0.637)	9.361 (0.759)	9.812 (0.792)	69.73 (0.263)	98.20 (0.154)
X	-0.0190*** (0.00395)	-0.0297** (0.0400)	-0.0245 (0.926)	-0.0177** (0.0296)	0.0614** (0.0381)	-0.183*** (0.00289)	0.0132 (0.629)	-0.00493 (0.130)	0.0482* (0.0609)
Regulatory Quality	-1.089* (0.0519)	-0.947** (0.0241)	-0.758* (0.0680)	-0.813** (0.0299)	-0.962** (0.0122)	-0.920** (0.0127)	-0.829** (0.0306)	0.0980 (0.715)	0.190 (0.535)
GDP per capita (growth)	-0.00313 (0.815)	0.00239 (0.816)	0.0111 (0.350)	0.000995 (0.905)	0.000575 (0.946)	0.00534 (0.514)	0.00536 (0.596)	-0.00180 (0.874)	-0.00435 (0.731)
Government Expenditure	-0.0726 (0.324)	-0.0172 (0.691)	-0.0133 (0.390)	-0.00492 (0.879)	-0.00342 (0.923)	0.00957 (0.763)	-0.00456 (0.809)	0.00970 (0.726)	0.0188 (0.577)
Trade Openness	0.360 (0.493)	1.094** (0.0141)	0.694 (0.132)	0.648 (0.102)	0.740** (0.0483)	0.659* (0.0958)	0.701 (0.102)	-0.214 (0.638)	-0.180 (0.708)
Constant	48.29*** (0)	45.65*** (0)	46.13*** (0)	45.92*** (0)	45.94*** (0)	45.83*** (0)	45.83*** (0)	45.96*** (0)	45.76*** (0)
Observations	874	1,310	1,294	1,301	1,266	1,276	1,410	493	455
R <sup>2</sup>	0.097	0.104	0.057	0.090	0.085	0.095	0.085	0.043	0.031

Table A11. Specification 3.2 I= Income Share Ratio 10/1, F= Financial Development Index (IMF)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	I = Income Share Ratio 10/1								
VARIABLES	X = credi	X = insol	X = credp	X = regpr	X = regco	X = legri	X = contr	X = enfod	X = enfof
FD	-13.84*	-20.58*	-10.91**	-14.66**	-13.64*	-4.224	-21.88*	-22.96*	-23.09*
	(0.0811)	(0.0789)	(0.0133)	(0.0455)	(0.0669)	(0.153)	(0.0582)	(0.0511)	(0.0657)
FD^2	-47.06	148.6	87.82	-44.66	-41.66	4.824	137.9	282.1	323.1
	(0.416)	(0.220)	(0.106)	(0.301)	(0.339)	(0.887)	(0.251)	(0.234)	(0.224)
X	-0.0721**	-0.0796***	0.480	-0.0552***	0.215	-0.492***	0.0312	-0.0124	0.306
	(0.0468)	(0.00110)	(0.299)	(0.00737)	(0.108)	(0.00201)	(0.644)	(0.188)	(0.819)
Regulatory Quality	-2.083*	-3.786***	-3.776***	-2.697***	-2.753**	-3.334***	-3.362**	-0.0446	0.238
	(0.0589)	(0.00816)	(0.00202)	(0.00448)	(0.0103)	(0.000189)	(0.0136)	(0.959)	(0.793)
GDP per capita (growth)	-0.00656	0.00927	0.0485	-0.0158	-0.00808	0.00645	0.00338	0.00718	0.00212
	(0.895)	(0.772)	(0.110)	(0.598)	(0.809)	(0.805)	(0.918)	(0.879)	(0.968)
Government Expenditure	-0.449*	-0.140	-0.0930	-0.271	-0.251	-0.136	-0.147	0.0176	0.000874
	(0.0967)	(0.418)	(0.536)	(0.128)	(0.179)	(0.357)	(0.293)	(0.923)	(0.996)
Trade Openness	1.453	2.807**	1.554*	1.290	0.868	0.964	1.399	2.363	2.402
	(0.288)	(0.0285)	(0.0988)	(0.270)	(0.449)	(0.351)	(0.256)	(0.289)	(0.295)
Constant	21.50***	14.84***	15.32***	17.96***	18.25***	15.91***	16.05***	10.43***	10.71***
	(2.54e-05)	(8.65e-06)	(3.73e-07)	(2.38e-07)	(5.52e-07)	(6.43e-07)	(4.44e-08)	(0.000280)	(0.000680)
Observations	646	831	825	787	765	773	848	356	334
R <sup>2</sup>	0.127	0.107	0.080	0.088	0.080	0.098	0.093	0.066	0.059

Robust pval in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table A12. Specification 3.2 I= Gini Market Income, F= Financial Institutions Index (IMF)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	I = Gini Market X = credi	I = Gini Market X = insol	I = Gini Market X = credp	I = Gini Market X = regpr	I = Gini Market X = regco	I = Gini Market X = legri	I = Gini Market X = contr	I = Gini Market X = enfod	I = Gini Market X = enfof
FI	-10.04*** (9.81e-05)	-8.998*** (4.24e-05)	-7.653*** (0.000284)	-8.628*** (2.16e-05)	-8.501*** (6.10e-05)	-6.814*** (0.000361)	-9.456*** (5.47e-06)	-2.090 (0.259)	-2.204 (0.276)
FI^2	2.079 (0.945)	-9.479 (0.661)	-8.294 (0.722)	-3.720 (0.867)	-5.657 (0.815)	-7.379 (0.784)	-5.275 (0.791)	25.06 (0.587)	28.39 (0.562)
X	-0.0176*** (0.00606)	-0.0274** (0.0431)	0.00854 (0.974)	-0.0156** (0.0446)	0.0536* (0.0806)	-0.167*** (0.00682)	0.0121 (0.622)	-0.00515 (0.102)	0.0395 (0.133)
Regulatory Quality	-1.008* (0.0549)	-0.899** (0.0210)	-0.708* (0.0729)	-0.802** (0.0238)	-0.955*** (0.00899)	-0.874** (0.0116)	-0.741** (0.0363)	0.0551 (0.834)	0.136 (0.647)
GDP per capita (growth)	0.000935 (0.938)	-0.00276 (0.771)	0.00293 (0.769)	-0.00353 (0.652)	-0.00302 (0.706)	0.000983 (0.895)	-0.00392 (0.675)	-0.00173 (0.868)	-0.00327 (0.779)
Government Expenditure	0.00731 (0.913)	0.0141 (0.731)	-0.00381 (0.799)	0.0238 (0.422)	0.0264 (0.417)	0.0278 (0.353)	0.00860 (0.663)	0.0165 (0.535)	0.0278 (0.389)
Trade Openness	0.166 (0.761)	1.001** (0.0174)	0.704 (0.111)	0.566 (0.146)	0.649* (0.0826)	0.607 (0.121)	0.692* (0.0937)	-0.267 (0.564)	-0.251 (0.608)
Constant	47.08*** (0)	45.24*** (0)	45.98*** (0)	45.55*** (0)	45.57*** (0)	45.59*** (0)	45.62*** (0)	45.92*** (0)	45.72*** (0)
Observations	874	1,310	1,294	1,301	1,266	1,276	1,410	493	455
R <sup>2</sup>	0.188	0.180	0.127	0.157	0.156	0.140	0.172	0.040	0.025

Table A13. Specification 3.2 I= Income Share Ratio 10/1, F= Financial Institutions Index (IMF)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	I = Income Share Ratio 10/1								
VARIABLES	X = credi	X = insol	X = credp	X = regpr	X = regco	X = legri	X = contr	X = enfod	X = enfof
FI	-17.96** (0.0323)	-25.72** (0.0272)	-14.73*** (0.00119)	-16.97** (0.0252)	-17.54** (0.0282)	-6.860* (0.0522)	-26.18** (0.0197)	-20.26** (0.0401)	-20.47** (0.0474)
FI^2	-12.07 (0.849)	166.2** (0.0346)	74.69* (0.0815)	-3.430 (0.937)	-13.79 (0.762)	3.422 (0.936)	156.5** (0.0438)	-11.84 (0.913)	6.456 (0.956)
X	-0.0710* (0.0568)	-0.0714*** (0.00159)	0.454 (0.356)	-0.0462*** (0.00580)	0.181 (0.171)	-0.471*** (0.00338)	0.0365 (0.587)	-0.0149* (0.0960)	-0.134 (0.934)
Regulatory Quality	-2.135** (0.0400)	-3.735*** (0.00663)	-3.688*** (0.00208)	-2.728*** (0.00377)	-2.890*** (0.00535)	-3.266*** (0.000176)	-3.261** (0.0111)	-0.401 (0.635)	-0.109 (0.902)
GDP per capita (growth)	0.00339 (0.942)	-0.0122 (0.731)	0.0306 (0.265)	-0.0235 (0.444)	-0.0131 (0.693)	0.00189 (0.942)	-0.0256 (0.495)	0.00668 (0.875)	0.000738 (0.987)
Government Expenditure	-0.295 (0.182)	-0.0485 (0.755)	-0.0551 (0.696)	-0.177 (0.232)	-0.151 (0.328)	-0.109 (0.428)	-0.0849 (0.507)	0.143 (0.423)	0.128 (0.504)
Trade Openness	1.400 (0.308)	2.939** (0.0302)	1.902* (0.0535)	1.347 (0.261)	0.864 (0.466)	0.980 (0.349)	1.963 (0.156)	2.483 (0.255)	2.458 (0.272)
Constant	18.92*** (1.43e-05)	13.10*** (2.98e-05)	14.32*** (4.43e-07)	16.33*** (1.16e-07)	16.66*** (1.81e-07)	15.44*** (3.15e-07)	14.38*** (3.52e-07)	8.439*** (0.00666)	8.779** (0.0105)
Observations	646	831	825	787	765	773	848	356	334
R <sup>2</sup>	0.168	0.180	0.112	0.123	0.120	0.106	0.170	0.097	0.091

Robust pval in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table A14. Specification 3.2 I= Gini Market Income, F= Financial Markets Index (IMF)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	I = Gini Market X = credi	I = Gini Market X = insol	I = Gini Market X = credp	I = Gini Market X = regpr	I = Gini Market X = regco	I = Gini Market X = legri	I = Gini Market X = contr	I = Gini Market X = enfod	I = Gini Market X = enfof
FM	1.549 (0.324)	0.982 (0.434)	1.119 (0.400)	0.176 (0.892)	0.662 (0.599)	0.497 (0.691)	0.946 (0.438)	-1.033 (0.174)	-1.263 (0.104)
FM^2	-9.475 (0.217)	-15.27** (0.0207)	-9.436 (0.180)	-7.966 (0.287)	-9.309 (0.176)	-8.695 (0.277)	-14.19** (0.0448)	11.20 (0.410)	24.21* (0.0666)
X	-0.0189*** (0.00419)	-0.0305** (0.0401)	-0.0312 (0.910)	-0.0152* (0.0651)	0.0566* (0.0581)	-0.191*** (0.00273)	0.0156 (0.582)	-0.00468 (0.145)	0.0477* (0.0555)
Regulatory Quality	-1.186** (0.0379)	-1.132** (0.0132)	-0.909** (0.0482)	-0.959** (0.0173)	-1.094*** (0.00735)	-1.024*** (0.00973)	-1.032** (0.0148)	0.110 (0.688)	0.210 (0.501)
GDP per capita (growth)	-0.00141 (0.922)	0.00215 (0.842)	0.0116 (0.307)	0.00185 (0.837)	0.000205 (0.982)	0.00584 (0.505)	0.00758 (0.476)	0.00102 (0.928)	1.24e-05 (0.999)
Government Expenditure	-0.0868 (0.276)	-0.0363 (0.434)	-0.0274 (0.572)	-0.0208 (0.569)	-0.0172 (0.665)	0.000400 (0.991)	-0.0195 (0.612)	-0.000674 (0.984)	0.00575 (0.903)
Trade Openness	0.555 (0.291)	1.342*** (0.00267)	0.839* (0.0730)	0.833** (0.0430)	0.975** (0.0107)	0.819** (0.0409)	0.899** (0.0443)	-0.289 (0.510)	-0.268 (0.562)
Constant	48.41*** (0)	45.82*** (0)	46.25*** (0)	45.96*** (0)	45.91*** (0)	45.77*** (0)	45.93*** (0)	46.18*** (0)	46.02*** (0)
Observations	874	1,284	1,248	1,260	1,225	1,235	1,357	485	447
R <sup>2</sup>	0.070	0.073	0.037	0.042	0.050	0.076	0.041	0.027	0.016

Table A15. Specification 3.2 I= Income Share Ratio 10/1, F= Financial Markets Index (IMF)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	I = Income Share Ratio 10/1								
VARIABLES	X = credi	X = insol	X = credp	X = regpr	X = regco	X = legri	X = contr	X = enfod	X = enfod
FM	0.642	0.919	0.797	-0.708	0.193	0.535	0.606	-3.281	-2.922
	(0.778)	(0.671)	(0.705)	(0.727)	(0.921)	(0.776)	(0.776)	(0.366)	(0.430)
FM^2	10.32	3.297	18.02	2.881	3.732	12.88	2.868	71.51	88.53
	(0.507)	(0.796)	(0.212)	(0.845)	(0.783)	(0.320)	(0.811)	(0.149)	(0.139)
X	-0.0741**	-0.0877***	0.395	-0.0447**	0.168	-0.557***	0.0369	-0.0102	-0.101
	(0.0381)	(0.000912)	(0.419)	(0.0126)	(0.207)	(0.000187)	(0.585)	(0.189)	(0.941)
Regulatory Quality	-2.437**	-4.303***	-3.961***	-2.936***	-2.936***	-3.307***	-3.911***	0.00959	0.302
	(0.0335)	(0.00181)	(0.00338)	(0.00194)	(0.00596)	(0.000317)	(0.00383)	(0.991)	(0.743)
GDP per capita (growth)	-0.0116	0.00770	0.0474	-0.0225	-0.0200	-0.00382	0.00669	0.0215	0.0212
	(0.828)	(0.800)	(0.129)	(0.459)	(0.563)	(0.879)	(0.830)	(0.628)	(0.661)
Government Expenditure	-0.459	-0.189	-0.105	-0.289	-0.271	-0.138	-0.201	-0.0736	-0.0973
	(0.118)	(0.311)	(0.568)	(0.138)	(0.183)	(0.349)	(0.268)	(0.760)	(0.702)
Trade Openness	2.414	3.538**	1.690*	1.677	1.495	1.110	1.764	1.463	1.476
	(0.121)	(0.0151)	(0.0717)	(0.177)	(0.221)	(0.266)	(0.161)	(0.478)	(0.481)
Constant	20.95***	15.33***	15.54***	17.96***	18.06***	15.78***	16.97***	12.75***	13.18***
	(6.60e-05)	(7.13e-06)	(9.33e-06)	(7.15e-07)	(1.44e-06)	(7.09e-07)	(6.10e-07)	(6.94e-05)	(0.000149)
Observations	646	826	817	779	757	765	838	352	330
R <sup>2</sup>	0.101	0.063	0.059	0.057	0.053	0.110	0.043	0.017	0.014

Robust pval in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table A16. Specification 3.3 I= Gini Market Income, F= Financial Development Index (IMF)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	I = Gini Market X = credi	I = Gini Market X = insol	I = Gini Market X = credp	I = Gini Market X = regpr	I = Gini Market X = regco	I = Gini Market X = legri	I = Gini Market X = contr	I = Gini Market X = enfod	I = Gini Market X = enfof
FD	-5.786** (0.0371)	-6.518*** (0.00765)	-4.598** (0.0326)	-7.141*** (0.00117)	-6.006*** (0.00641)	-4.413*** (0.00862)	-7.573*** (0.000514)	-3.665** (0.0452)	-3.494 (0.103)
FD^2	-8.909 (0.810)	-9.140 (0.791)	4.599 (0.882)	4.858 (0.853)	2.864 (0.918)	-1.631 (0.955)	7.752 (0.783)	30.13 (0.691)	109.7 (0.121)
X	-0.0160** (0.0244)	-0.0224 (0.150)	0.161 (0.557)	-0.0134 (0.125)	0.0441 (0.165)	-0.163** (0.0144)	0.0544* (0.0870)	-0.00671 (0.150)	0.0674* (0.0560)
Regulatory Quality	-1.124** (0.0446)	-1.021** (0.0161)	-0.775* (0.0623)	-0.863** (0.0259)	-1.012*** (0.00900)	-0.975*** (0.00935)	-0.806** (0.0328)	0.0800 (0.743)	0.205 (0.507)
FD*X	0.205 (0.227)	0.121 (0.651)	4.388 (0.283)	0.194 (0.348)	-1.008 (0.308)	1.447 (0.356)	1.832** (0.0130)	-0.256** (0.0274)	-12.00 (0.250)
FD^2*X	-3.316 (0.265)	-7.532* (0.0809)	-223.5*** (0.00696)	-4.505* (0.0946)	16.75 (0.203)	-40.70* (0.0754)	-47.53*** (0.00325)	1.258 (0.605)	-513.0 (0.127)
GDP per capita (growth)	-0.00266 (0.840)	0.00314 (0.757)	0.0110 (0.355)	0.00147 (0.859)	0.00129 (0.878)	0.00579 (0.481)	0.00617 (0.538)	-0.00188 (0.867)	-0.00402 (0.763)
Government Expenditure	-0.0702 (0.339)	-0.0148 (0.730)	-0.0142 (0.361)	-0.00326 (0.919)	-0.00268 (0.940)	0.00993 (0.755)	-0.00100 (0.956)	0.00842 (0.766)	0.0213 (0.522)
Trade Openness	0.357 (0.498)	1.110** (0.0135)	0.700 (0.127)	0.661* (0.0982)	0.767** (0.0423)	0.700* (0.0815)	0.693* (0.0962)	-0.193 (0.667)	-0.178 (0.710)
Constant	48.28*** (0)	45.62*** (0)	46.15*** (0)	45.90*** (0)	45.93*** (0)	45.80*** (0)	45.78*** (0)	45.97*** (0)	45.71*** (0)
Observations	874	1,310	1,294	1,301	1,266	1,276	1,410	493	455
R <sup>2</sup>	0.100	0.111	0.065	0.093	0.088	0.099	0.118	0.060	0.043

Table A17. Specification 3.3 I= Income Share Ratio 10/1, F= Financial Development Index (IMF)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	I = Income Share Ratio 10/1								
VARIABLES	X = credi	X = insol	X = credp	X = regpr	X = regco	X = legri	X = contr	X = enfod	X = enfof
FD	-14.39*	-21.27*	-10.48**	-15.67**	-13.37*	-3.353	-22.30**	-24.76**	-23.49*
	(0.0608)	(0.0723)	(0.0189)	(0.0449)	(0.0768)	(0.268)	(0.0496)	(0.0382)	(0.0641)
FD <sup>2</sup>	-30.00	113.8	63.15	-68.90	-61.09	-6.316	141.6	63.45	355.4
	(0.707)	(0.283)	(0.185)	(0.200)	(0.198)	(0.891)	(0.226)	(0.772)	(0.187)
X	-0.0787*	-0.0588***	0.909	-0.0385**	0.163	-0.497***	0.143*	-0.0123	0.00606
	(0.0582)	(0.00570)	(0.111)	(0.0262)	(0.358)	(0.00439)	(0.0793)	(0.300)	(0.998)
Regulatory Quality	-2.020*	-3.984***	-3.796***	-2.808***	-2.806***	-3.338***	-3.180**	-0.117	0.275
	(0.0609)	(0.00462)	(0.00202)	(0.00391)	(0.00915)	(0.000207)	(0.0233)	(0.890)	(0.752)
FD*X	-0.227	-0.658	4.096	-0.148	-0.583	4.811	1.581	-0.687**	-16.70
	(0.701)	(0.381)	(0.656)	(0.720)	(0.869)	(0.210)	(0.481)	(0.0444)	(0.760)
FD <sup>2</sup> *X	5.684	-17.61	-445.4***	-12.60	42.90	-22.45	-122.8	-6.969	-779.5
	(0.626)	(0.270)	(0.00198)	(0.109)	(0.446)	(0.689)	(0.116)	(0.323)	(0.654)
GDP per capita (growth)	-0.00726	0.0132	0.0485	-0.0135	-0.00659	0.00528	0.00866	0.00422	0.00725
	(0.882)	(0.672)	(0.112)	(0.648)	(0.840)	(0.839)	(0.786)	(0.927)	(0.895)
Government Expenditure	-0.456*	-0.131	-0.0959	-0.261	-0.249	-0.131	-0.140	-0.00107	0.00570
	(0.0843)	(0.447)	(0.524)	(0.136)	(0.182)	(0.381)	(0.296)	(0.995)	(0.977)
Trade Openness	1.438	2.701**	1.516	1.305	0.929	1.079	1.374	2.425	2.297
	(0.296)	(0.0318)	(0.108)	(0.262)	(0.411)	(0.300)	(0.262)	(0.271)	(0.330)
Constant	21.58***	14.90***	15.43***	17.83***	18.20***	15.73***	15.86***	10.76***	10.70***
	(1.73e-05)	(7.58e-06)	(3.43e-07)	(2.11e-07)	(4.90e-07)	(1.22e-06)	(3.82e-08)	(0.000240)	(0.00108)
Observations	646	831	825	787	765	773	848	356	334
R <sup>2</sup>	0.128	0.111	0.085	0.092	0.081	0.100	0.113	0.086	0.060

Robust pval in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

Table A18. Specification 3.3 I= Gini Market Income, F= Financial Institutions Index (IMF)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	I = Gini Market X = credi	I = Gini Market X = insol	I = Gini Market X = credp	I = Gini Market X = regpr	I = Gini Market X = regco	I = Gini Market X = legri	I = Gini Market X = contr	I = Gini Market X = enfod	I = Gini Market X = enfof
FI	-9.956*** (0.000224)	-8.742*** (0.000209)	-7.669*** (0.000360)	-8.769*** (1.00e-05)	-8.587*** (7.86e-05)	-6.744*** (0.000535)	-9.120*** (2.78e-06)	-2.492 (0.197)	-2.127 (0.296)
FI^2	0.676 (0.985)	-13.13 (0.582)	-8.300 (0.723)	-7.006 (0.747)	-8.347 (0.715)	-8.409 (0.778)	-4.796 (0.823)	17.68 (0.702)	25.40 (0.605)
X	-0.0173*** (0.00811)	-0.0251* (0.0778)	0.0125 (0.961)	-0.00834 (0.289)	0.0279 (0.338)	-0.169** (0.0132)	0.0335 (0.202)	-0.00289 (0.338)	-0.0277 (0.548)
Regulatory Quality	-1.013* (0.0541)	-0.900** (0.0190)	-0.709* (0.0738)	-0.842** (0.0189)	-0.983*** (0.00827)	-0.881** (0.0124)	-0.709** (0.0432)	0.0131 (0.958)	0.172 (0.570)
FI*X	0.0404 (0.785)	0.148 (0.663)	-0.594 (0.882)	-0.181 (0.358)	0.367 (0.725)	0.347 (0.750)	0.580 (0.268)	0.0748 (0.609)	-11.36** (0.0213)
FI^2*X	-0.225 (0.920)	-1.382 (0.747)	-1.505 (0.960)	-7.166** (0.0429)	18.11* (0.0674)	0.406 (0.983)	-12.00 (0.294)	-4.329 (0.135)	-187.1* (0.0738)
GDP per capita (growth)	0.00119 (0.920)	-0.00273 (0.770)	0.00303 (0.764)	-0.00356 (0.645)	-0.00275 (0.733)	0.00105 (0.889)	-0.00286 (0.760)	-0.00144 (0.892)	-0.00592 (0.632)
Government Expenditure	0.00709 (0.915)	0.0136 (0.739)	-0.00381 (0.798)	0.0205 (0.483)	0.0219 (0.490)	0.0279 (0.350)	0.00864 (0.662)	0.0142 (0.610)	0.0306 (0.340)
Trade Openness	0.162 (0.767)	1.012** (0.0165)	0.703 (0.112)	0.629* (0.0989)	0.720** (0.0484)	0.611 (0.118)	0.704* (0.0858)	-0.227 (0.631)	-0.109 (0.820)
Constant	47.09*** (0)	45.24*** (0)	45.98*** (0)	45.56*** (0)	45.58*** (0)	45.59*** (0)	45.60*** (0)	45.94*** (0)	45.52*** (0)
Observations	874	1,310	1,294	1,301	1,266	1,276	1,410	493	455
R <sup>2</sup>	0.188	0.181	0.127	0.166	0.162	0.141	0.178	0.050	0.050

Table A19. Specification 3.3 I= Income Share Ratio 10/1, F= Financial Institutions Index (IMF)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	I = Income Share Ratio 10/1								
VARIABLES	X = credi	X = insol	X = credp	X = regpr	X = regco	X = legri	X = contr	X = enfod	X = enfof
FI	-18.50** (0.0131)	-25.67** (0.0132)	-14.76*** (0.00161)	-17.01** (0.0208)	-17.32** (0.0282)	-6.380* (0.0832)	-23.44*** (0.00608)	-22.35** -0.0319	-20.45** (0.0490)
FI^2	-2.417 (0.979)	156.7** (0.0122)	73.81* (0.0899)	-24.34 (0.645)	-46.10 (0.451)	-8.988 (0.883)	197.2* (0.0528)	-53.92 -0.602	4.481 (0.970)
X	-0.0744* (0.0794)	-0.0506 (0.126)	0.553 (0.308)	-0.0185 (0.264)	0.0720 (0.664)	-0.500*** (0.00645)	0.185* (0.0919)	-0.00681 -0.408	-0.970 (0.644)
Regulatory Quality	-2.106** (0.0331)	-3.886*** (0.00359)	-3.681*** (0.00223)	-2.913*** (0.00230)	-2.988*** (0.00391)	-3.238*** (0.000180)	-3.077** (0.0186)	-0.739 (0.351)	0.00981 (0.991)
FI*X	-0.224 (0.731)	-0.840 (0.311)	-1.454 (0.872)	-0.797 (0.158)	1.994 (0.620)	3.201 (0.344)	-1.624 (0.429)	0.265 -0.485	-21.53 (0.366)
FI^2*X	1.572 (0.884)	-10.30 (0.601)	-53.71 (0.479)	-25.54* (0.0797)	82.62 (0.317)	5.947 (0.912)	-93.11 (0.159)	-18.72** -0.0361	-480.4 (0.550)
GDP per capita (growth)	0.00145 (0.974)	-0.00953 (0.774)	0.0311 (0.268)	-0.0206 (0.489)	-0.0105 (0.743)	0.00124 (0.962)	-0.0156 (0.637)	0.00925 (0.829)	0.000590 (0.990)
Government Expenditure	-0.297 (0.170)	-0.0366 (0.814)	-0.0570 (0.687)	-0.157 (0.274)	-0.141 (0.346)	-0.110 (0.424)	-0.117 (0.382)	0.153 (0.394)	0.133 (0.490)
Trade Openness	1.428 (0.309)	2.844** (0.0335)	1.897* (0.0541)	1.498 (0.214)	0.994 (0.396)	1.002 (0.336)	2.054 (0.147)	2.781 (0.207)	2.628 (0.267)
Constant	18.91*** (1.55e-05)	13.07*** (3.34e-05)	14.36*** (4.46e-07)	15.95*** (1.58e-07)	16.42*** (1.34e-07)	15.42*** (4.05e-07)	14.66*** (2.22e-07)	8.136*** (0.00964)	8.487** (0.0166)
Observations	646	831	825	787	765	773	848	356	334
R <sup>2</sup>	0.169	0.185	0.113	0.133	0.125	0.109	0.203	0.112	0.094

Robust pval in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

Table A20. Specification 3.3 I= Gini Market Income, F= Financial Markets Index (IMF)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	I = Gini Market X = credi	I = Gini Market X = insol	I = Gini Market X = credp	I = Gini Market X = regpr	I = Gini Market X = regco	I = Gini Market X = legri	I = Gini Market X = contr	I = Gini Market X = enfod	I = Gini Market X = enfof
FM	1.751 (0.296)	1.353 (0.307)	1.211 (0.346)	0.466 (0.731)	0.613 (0.617)	0.436 (0.753)	0.740 (0.575)	-1.132 (0.154)	-1.606* (0.0575)
FM^2	-5.769 (0.522)	-11.51* (0.0733)	-12.93** (0.0313)	-6.880 (0.366)	-9.048 (0.193)	-8.857 (0.292)	-11.27 (0.105)	-3.146 (0.874)	23.17* (0.0525)
X	-0.0200*** (0.00548)	-0.0352** (0.0238)	0.174 (0.565)	-0.0178** (0.0283)	0.0420 (0.185)	-0.188*** (0.00508)	0.0199 (0.492)	-0.00604 (0.105)	-0.0588 (0.410)
Regulatory Quality	-1.190** (0.0377)	-1.062** (0.0212)	-0.917** (0.0464)	-0.911** (0.0251)	-1.141*** (0.00577)	-1.037*** (0.00944)	-1.047** (0.0133)	0.122 (0.642)	0.197 (0.529)
FM*X	0.128 (0.409)	0.0851 (0.681)	3.008 (0.438)	0.0999 (0.468)	-0.965 (0.115)	0.0255 (0.987)	0.856*** (0.00418)	-0.103** (0.0481)	7.556* (0.0983)
FM^2*X	1.026 (0.545)	2.789 (0.209)	-117.3*** (0.00345)	0.972 (0.445)	8.109 (0.140)	-3.962 (0.822)	-1.931 (0.743)	0.307 (0.504)	226.3* (0.0934)
GDP per capita (growth)	-0.00263 (0.854)	0.00155 (0.884)	0.0114 (0.318)	0.00236 (0.792)	0.000903 (0.921)	0.00591 (0.497)	0.00774 (0.459)	-0.000101 (0.993)	0.00343 (0.801)
Government Expenditure	-0.0855 (0.282)	-0.0350 (0.447)	-0.0272 (0.575)	-0.0201 (0.581)	-0.0144 (0.718)	0.000150 (0.997)	-0.0205 (0.590)	-0.00418 (0.903)	0.00246 (0.959)
Trade Openness	0.605 (0.255)	1.336*** (0.00257)	0.806* (0.0846)	0.829** (0.0439)	0.991** (0.0103)	0.821** (0.0402)	0.881** (0.0491)	-0.281 (0.513)	-0.266 (0.571)
Constant	48.34*** (0)	45.77*** (0)	46.28*** (0)	45.94*** (0)	45.86*** (0)	45.77*** (0)	45.96*** (0)	46.23*** (0)	46.07*** (0)
Observations	874	1,284	1,248	1,260	1,225	1,235	1,357	485	447
R <sup>2</sup>	0.073	0.076	0.049	0.045	0.053	0.076	0.046	0.038	0.025

Table A21. Specification 3.3 I= Income Share Ratio 10/1, F= Financial Markets Index (IMF)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	I = Income Share Ratio 10/1								
VARIABLES	X = credi	X = insol	X = credp	X = regpr	X = regco	X = legri	X = contr	X = enfod	X = enfof
FM	0.968 (0.674)	1.089 (0.676)	1.190 (0.564)	-0.466 (0.840)	0.111 (0.955)	0.961 (0.641)	0.324 (0.882)	-3.926 (0.298)	-3.192 (0.385)
FM^2	3.948 (0.814)	5.899 (0.723)	13.84 (0.147)	4.391 (0.765)	3.141 (0.816)	14.99 (0.316)	9.250 (0.489)	19.78 (0.708)	68.08 (0.164)
X	-0.0937** (0.0331)	-0.0969*** (0.00133)	0.640 (0.243)	-0.0486** (0.0266)	0.127 (0.494)	-0.577*** (0.000287)	0.0460 (0.575)	-0.0113 (0.188)	-0.293 (0.837)
Regulatory Quality	-2.459** (0.0319)	-4.228*** (0.00314)	-3.983*** (0.00335)	-2.904*** (0.00232)	-2.984*** (0.00555)	-3.247*** (0.000518)	-3.930*** (0.00345)	0.0538 (0.952)	0.298 (0.749)
FM*X	-0.393 (0.389)	-0.135 (0.730)	9.078 (0.428)	0.107 (0.664)	-1.268 (0.185)	1.225 (0.593)	1.214 (0.319)	-0.230 (0.205)	15.18* (0.0554)
FM^2*X	15.43* (0.0758)	3.134 (0.445)	-108.3 (0.384)	0.936 (0.699)	16.94 (0.388)	20.81 (0.385)	-3.679 (0.751)	-0.536 (0.765)	95.1 (0.120)
GDP per capita (growth)	-0.0117 (0.828)	0.00716 (0.816)	0.0473 (0.131)	-0.0229 (0.454)	-0.0186 (0.590)	-0.00478 (0.848)	0.00720 (0.818)	0.0176 (0.694)	0.0188 (0.723)
Government Expenditure	-0.464 (0.115)	-0.190 (0.306)	-0.102 (0.583)	-0.290 (0.137)	-0.270 (0.185)	-0.133 (0.373)	-0.203 (0.259)	-0.0848 (0.726)	-0.0960 (0.705)
Trade Openness	2.400 (0.120)	3.538** (0.0148)	1.688* (0.0775)	1.692 (0.176)	1.555 (0.194)	1.135 (0.259)	1.724 (0.170)	1.478 (0.475)	1.831 (0.424)
Constant	21.08*** (6.16e-05)	15.31*** (5.74e-06)	15.49*** (1.01e-05)	17.94*** (7.32e-07)	18.01*** (1.46e-06)	15.64*** (1.42e-06)	17.05*** (4.71e-07)	12.93*** (5.44e-05)	12.81*** (0.000197)
Observations	646	826	817	779	757	765	838	352	330
R <sup>2</sup>	0.109	0.063	0.062	0.057	0.054	0.110	0.044	0.022	0.018

Robust pval in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## Annex C: A Simple Model of Institutional Change, Growth, and Inequality

Consider a closed economy populated by two individuals  $i = L, H$  that have different levels of entrepreneurial talent (low and high talent) to exploit an indivisible investment opportunity demanding an investment of size one  $I = 1$ .<sup>53</sup> The economy evolves over two periods ( $t = 0, 1$ ), and talents are revealed by nature in  $t = 1$ , after the individuals have formed a financial intermediary. Each agent is risk neutral and endowed at  $t = 0$  with an initial income of  $y^i_0 = 1/2$ . If the high talent individual  $i = H$  engages in entrepreneurial activities in  $t = 1$  this individual can obtain a gross return  $\alpha > 1 + R$ , where  $R$  is the requested gross return on borrowed funds and assumed to be greater or equal than one ( $R \geq 1$ ). Alternatively, if the low talent individual  $i = L$  engages in entrepreneurial activities, he/she obtains a gross return  $\alpha = 0$  (that is, goes bankrupt without assets to be recovered after liquidation). Finally, assume two possible scenarios, one with a (costless) institutional environment that would allow the bank to observe whether a borrower has entrepreneurial talent  $L$  or  $H$ , and one without such an institution.<sup>54</sup> The sequence of events is as follows. At  $t = 0$  the individuals form a lending coalition (a bank) to which they submit their endowments (they derive no utility from consumption in that period). At  $t = 1$ , before talents are revealed, they must request a loan of size 1 to take advantage of an indivisible investment opportunity.

In the scenario with an institution that allows talents to be observable, the bank will allocate the loan to the individual with high talent  $i = H$  (good risk); in the scenario without such an institution, the loan will be allocated with probability  $p = 0.5$  to either individual. After this, each agent becomes aware of his/her type and decides whether to invest or consume (and default). If production takes place, the outcome is observable, and the loan contract is completed (the bank takes  $R$  or  $0$  depending on the type obtaining the loan).

When there is an institutional setting that allows the bank to observe risks (talents), the loan will be given to  $i = H$ . The high talented individual must then decide whether to default and consume, in which case obtains  $u(1)$ , or invest and obtain  $\alpha$  and repay  $R$ . Given the assumption that  $\alpha > 1 + R$ , the high talented individual will invest. After repayment, the

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<sup>53</sup> This setup can be reformulated to a continuum of agents in  $[0,1]$  with a proportion  $p$  having high ( $H$ ) or low ( $L$ ) entrepreneurial skills to arrive at essentially the same conclusions.

<sup>54</sup> The setup can be modified to account for costly institutions. In this case, the emergence of such institution in equilibrium will be affected by its relative cost.

bank is liquidated, and each stakeholder receives  $R/2$  and consumes his/her total income  $y_1^L = R/2$  and  $y_1^H = (\alpha + R) + R/2$ . In this situation, the institutional conditions allowed the economy to grow at a rate of  $(R - 1)$ , the financial system turned a profit, and income inequality as measured by the Gini coefficients turns out to be

$$G_1^{L,H} = \left( \frac{2\alpha - R}{2\alpha} \right)^{.55}$$

When there are no institutional conditions that would allow the bank to observe risks (talents), the loan will be randomly allocated to either individual with probability  $p = 0.5$  if the expected profit is positive, which is the case given the assumptions regarding  $\alpha$  and  $R$ . If the loan goes to  $i = H$  the previous case applies, and the Gini coefficient is

$$G_1^{0,H} = \left( \frac{2\alpha - R}{2\alpha} \right)^{.56}$$

If the loan goes to  $i = L$ , then, upon learning his/her type, the agent will realize that this individual has low entrepreneurial skills, will not invest, and will default on the loan. In this state,  $y_1^L = 1$  and  $y_1^H = 0$ , the growth rate of the economy would be zero, the bank will fail, and the Gini coefficient would be  $G_1^{0,L} = 0.5$ .<sup>57</sup>

Thus, in the situation without an institutional setting to identify good and bad risks, the expected growth rate for the economy is lower, and so are expected profits. Moreover, the expected income inequality is higher relative to the situation with institutions to resolve the identification of risks. In short, establishing (institutional) conditions to improve the functioning of the financial system led to higher growth and lower income inequality.

<sup>55</sup> The superscript  $L, H$  indicates that the state of nature considered is one with institutions to identify risks and the loan is allocated to the high talented (good risk) individual.

<sup>56</sup> The superscript  $0, H$  indicates that the state of nature considered is one with without institutions to identify risks and the loan is allocated to the high talented (good risk) individual.

<sup>57</sup> In the case with only two agents, the maximum value of the Gini coefficient, obtained with 100 percent of the income going to 50 percent of the population, is 0.5.



