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## A closer look at financial development and income distribution

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#### ARTICLE INFO

#### ABSTRACT

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*Keywords:* Finance Income distribution SVAR This paper analyzes the under-investigated relationship uniting financial development and income distribution. We use a novel approach taking into account for the first time the specific channels linking banks, capital markets and income inequality, the time-varying nature of the relationship, and reciprocal causality. We construct a set of annual indicators of banking and capital market size, robustness, efficiency and international integration. We then estimate the determinants of income distribution using a panel Bayesian structural vector autoregressive (SVAR) model, for a set of 49 countries over the 1994–2002 period. We uncover a significant causality running from financial sector development to income distribution. In addition, the banking sector seems to exert a stronger impact on inequality. Finally, the relationship appears to depend on the characteristics of the financial sector, rather than on its size.

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#### 1. Introduction

Although financial development is, over the long run, beneficial to economic growth, the normative question of the allocation of generated wealth remains largely unexplored to this date (Bekaert and Harvey, 2002). As shown by the recent financial crisis, how financial development impacts different categories of the population determines nonetheless the legitimacy of policy choices. In addition, understanding the distributional impact of financial reforms would permit to better tailor the content and sequencing of economic policy in emerging countries (Das and Mohapatra, 2003). More generally, one may wonder whether and how can financial sector policy be used as an instrument to alter income distribution, in the objective of generating 'pro-poor' economic growth.

In spite of an increasing academic focus on the subject, empirical studies remain relatively scarce. A set of pioneering studies analyzed the impact of market size on income distribution (often using domestic banking sector development as a proxy for the development of the financial industry as a whole), and suggested that financial development exerts a negative impact on the growth rate of the Gini coefficient (Beck et al., 2007). Size, however, may not entirely capture the complex mechanisms uniting finance and income distribution. Indeed, the ongoing financial crisis demonstrates that the relationship between finance and economic welfare depends ultimately on banks' and capital markets' ability to identify profitable projects, to monitor internal and external risk levels, and to ease transactions. Taking this into account, this paper attempts to extend the existing empirical literature in two directions.

First, we seek to model the complex transmission mechanisms uniting banks, capital markets and income distribution. This implies constructing a set of time-varying variables capturing the size, robustness, efficiency and international openness of banks and capital markets.

In addition, income distribution tends to follow a nonlinear path (Kuznets, 1955). Structural breaks and reciprocal causality should therefore be incorporated into the empirical framework. Our modelling strategy hence relies on a panel version of Bayesian vector autoregressive (VAR) model, which permits detecting potential structural breaks in the relationships through the analysis of variance decomposition and impulse response functions, while also controlling for reciprocal causality and stationarity issues. To the best of our knowledge, there are no other existing papers looking at the issue through these two angles.

This two step detailed approach should yield valuable information for policy makers seeking to design the content and sequencing of financial reforms, especially in developing countries.

Our results highlight a significant causality mechanism running from financial sector development to income distribution. In addition, we find that the banking sector exerts a stronger distributional impact than capital markets. Finally, the relationship





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appears to depend on the financial sector's transparency and ability to allocate resources optimally, rather than its size and level of international integration.

The remainder of the paper is structured as follows. Section 2 discusses the theoretical linkages uniting financial sector development and income distribution. Section 3 presents our database and some methodological notes on the construction of our variables. Section 4 describes our modelling framework, Section 5 discusses our results and Section 6 brings together our conclusions.

#### 2. Financial sector and income distribution

#### 2.1. Banking sector development and inequalities

On a theoretical level, the development and international integration of domestic banks exert contradictory effects on income distribution. If credit markets are underdeveloped, access to finance is conditional on dynastic assets (i.e. personal wealth, political connections...) (Banerjee and Newman, 1993). This generates entry barriers, less opportunities for the neediest, slower economic growth and higher income inequality (Rao, 2006). By contrast, competitive financial institutions improve resource mobilization, align project selection with expected risk-adjusted returns, and widen the entrepreneurial base (Demirgüç-Kunt and Levine, 2009). Banking development also smoothes household consumption and saving decisions, with desirable implications for income volatility, human capital accumulation, and even child labour.

However, credit market imperfections restrict access to credit to the least risky segment of households and firms (i.e. those enjoying high income and collateral), regardless of the sector's size (Banerjee and Newman, 1993). These imperfections could be due to institutional factors, such as oligopolistic sector structure and connections between large bank managers and policy-makers (Narayana, 2000). Ex-ante moral hazard among creditors also restricts access to finance: low income individuals need to incur larger loans for a given investment project, which diminishes their return on investment and their incentive to invest (Ferreira, 1999). In addition, financial development increases returns to skills and entrepreneurship, and could therefore widen inequalities if human capital is unevenly distributed.

International integration and shock vulnerability constitute a separate issue. High risk aversion levels, short termism, sudden expectation shifts and herding behavior in international financial markets made local banks extremely vulnerable to liquidity crises for the past two decades. However, international risks were often magnified by lax prudential supervision, fast credit expansion and moral hazard in domestic banking systems (Büyükkarabacak and Valey, 2010). Banking crises impact income distribution via two channels (Honohan, 2005). If high income households and firms export their capital ahead of the crash, then only the most vulnerable agents suffer, resulting in higher inequality levels. If wealthier households and firms are affected by the crisis too, inequalities could temporarily narrow, but the ensuing increase in domestic bankruptcies and lay-offs would first impact most vulnerable households, with, again, undesirable consequences for income distribution. Overall, the mechanisms uniting banks and income distribution are complex and may vary over time according to the domestic institutional context.

#### 2.2. Capital market and inequalities

International finance suggests that equity market development lowers discount rates and provides additional financing sources to the real sector, resulting in increased investment levels. This dynamic could improve income distribution in the middle run by transferring wealth from creditors to debtors (Aghion and Bolton, 1997). Valuation gains and losses may nonetheless impact different income quintiles asymmetrically if equity market participation is segmented by income groups. Lower discount rates also result in an upward shift in average NPV, which can increase inequalities if operating cash flows are not reinvested in the real sector but distributed as dividends instead (Das and Mohapatra, 2003). Finally, recent studies suggest that market-based economies tend to be more unequal due to the fact that large firms disproportionately benefit from stock market development (Aggarwal and Goodell, 2009).

It should be noted that market microstructures also affect the relationship. Without adequate informational efficiency levels, a restricted set of dominant players would cause stock prices to deviate from their intrinsic value, so that the gains of equity market development and integration would be captured by crony institutions and rent-seeking individuals.

Capital account convertibility has separate distributional implications. On the one hand, long term capital flows ease the financing constraint for local projects, and should have a similar distributional impact than domestic market development. On the other hand, foreign direct investment usually increases the demand for skilled workers. This boosts returns to skills and flattens the income distribution curve if human capital is unevenly distributed in the host economy. In the absence of adequate efficiency levels, financial integration favours insiders by giving them access to international capital. Capital flights to offshore accounts are a related issue implying fiscal losses, less investment, and less redistribution (Claessens and Perotti, 2007).

Analyzing the impact of financial development on income distribution should therefore take into account not only the size, but also the characteristics of banks and financial markets as well as time-varying dynamics. In what follows, we thus first develop annual variables capturing the size, efficiency, liquidity, and international exposure of the banking sector. Turning to capital markets, we measure size as well as *de facto* international integration, volatility, and efficiency. We then analyze the impact of these factors on income inequality, controlling for nonlinearities and reciprocal causality. This approach should raise useful information for policy makers operating in developed and emerging countries.

#### 3. Dataset

#### 3.1. Income distribution data

Most existing empirical research papers on inequality rely on GINI coefficients as taken from Deininger and Squire (1996). However, this master dataset suffers from a few inconsistencies. It mixes three data types: gross versus net income data, household versus individual income data and income versus expenditure data. In addition, observation frequency is low, and the series are plagued by many unexplained jumps. To correct for these biases, researchers sometimes extrapolated coefficient values between two surveys, or used extended data interval. This, however, creates serial dependencies in measurement errors and affects the robustness of estimation parameters.

To avoid these problems, we rely on an alternative inequality indicator named Estimated Household Income Inequality (EHII). This indicator was originally developed by Galbraith and Kum (2003) and subsequently updated by Daymon and Gimet (2009). It proxies income inequality by combining information from the GINI coefficient with a more precise (although more restrictive) Theil-index based measure of dispersion of pay within the industrial sector, which is taken from the UTIP-UNIDO database. Assuming that all measurement errors except those related to data type

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