

IFRS, financial development and income inequality: An empirical study using mediation analysis



Orhan Akisik*, Graham Gal

Isenberg School of Management, University of Massachusetts, Amherst, MA, USA

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ABSTRACT

Income inequality continues to be an issue of concern. Early work on economic development suggested that, as a country's economy grows, incomes would rise and reduce any income disparities. However, there is growing evidence that as countries develop, income inequality actually worsens. Some studies argue that this is the result of financial development and the growth of the financial sector. Although there is a good deal of empirical research on the relationship between financial development and income inequality, there is no prior work that examines how accounting standards, in particular International Financial Reporting Standards (IFRS), might influence this relationship. This study examines the relationship of IFRS and financial development with income inequality using mediation analysis over the period from 1998 to 2018. The results indicate that the impact of IFRS on income inequality is mediated by financial development. Moreover, there is a direct relationship between IFRS and inequality.

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1. Introduction

Countries have long seen growth of their economy as a vehicle for reducing income inequalities. A country's economy can be dichotomized into its real and financial sectors (Madni and Anwar, 2021). While these sectors are seen as distinct, the development of the financial sector does impact the real sector as it provides financial resources for projects that will impact the availability of goods as well as the level of employment. This reallocation of financial resources will result in "creative destruction", as financial resources will be channeled to projects with better returns and away from others (Bartelsman et al., 2004). For this creative destruction to provide the maximum benefit to a country's overall economic development, it is critical to have an efficient financial infrastructure. The optimum result stems from the efficient reallocation of resources to those projects with the greatest potential return. This reallocation will impact income inequality as certain groups benefit from these new opportunities, while groups in discontinued projects do not (Balder, 2018; Beck et al., 2007). To support the efficient reallocation of financial resources to productive investments, investors require access to high-quality accounting information about these investments (Bernanke and Gertler, 1986; Bernanke et al., 1994). One of the major objectives of high-quality accounting standards, such as the International Financial

* Correspondence to: Isenberg School of Management, Department of Accounting, University of Massachusetts, 121 Presidents Drive, Amherst, MA 01003, USA.

E-mail address: akisik@isenberg.umass.edu (O. Akisik).

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Reporting Standards (IFRS), is to provide investors with such information (Brown and Clinch, 1998; Lambert et al., 2007; Zeff, 2012). While the adoption of IFRS is relatively recent, the purpose of this study is to investigate whether there is a direct impact of IFRS on income inequality or whether its impact is mediated by financial development.

The development of the financial sector has resulted in it gaining greater influence on economic growth (Palley, 2007; Zalewski and Whalen, 2010). The growth and efficiency of countries' financial sectors are important to direct resources to more productive investments, and therefore have a significant impact on the economy's overall growth (Kim and Lin, 2011). This reallocation of resources toward the more productive financial sector investments is made more efficient when information concerning the return and risk of investments is made available to possible investors and lenders (Bernanke et al., 1994; Cabrales et al., 2013). There are enumerable avenues for investors and lenders to obtain information about investment opportunities, but there are benefits when firms use broadly accepted formats for their financial disclosures (Verrecchia, 2001). Firms that want to use the United States' financial markets must provide financial information using US-GAAP. Most other financial markets require financial disclosures using IFRS. The use of these accepted and standardized formats for financial disclosures certainly benefits investors and lenders as transparency and comparability increases (Brown and Clinch, 1998). For example, firms within the European Union experienced a lower cost of capital and an increase in liquidity when IFRS was mandated (Baiman and Verrecchia, 1996; Daske, 2006; Daske et al., 2008; Lambert et al., 2007, 2011). The development and success of financial markets and financial institutions, defined as financial development,¹ depend on the use of these accepted formats for information about the financial aspects of firms. This suggests that the adoption of IFRS will impact income inequality indirectly through financial intermediaries (institutions and markets). However, in addition to this indirect effect, the adoption of IFRS can also impact income inequality directly. The financial information contained in IFRS statements can also be used by stakeholders other than shareholders as they make their decisions. For example, when employees bargain for wages and other compensation, they make use of financial information (particularly financial statements) in decisions about the degree to which a firm can support their requirements (Hsieh et al., 2017; Lyall, 1981; Macintosh, 1987).

Our study addresses a call to investigate how IFRS impacts societal inequalities (Chiapello, 2016; Tweedie and Hazelton, 2019). In addition, we look to answer Brown's (2013) call for research to assess the broader benefits of adopting IFRS. To investigate our research question, we examine the relationship between financial development, IFRS and income inequality during the time period from 1998 to 2018 for 122 advanced, emerging and low-income countries. There are a number of studies that look at the relationship between financial development and inequality (for example Naceur and Zhang, 2016). However, to our knowledge, there is no study investigating the relationship of financial development and accounting standards with income inequality. Therefore, our study extends previous works about financial development and income inequality by additionally considering the impact of IFRS on financial development and income inequality. The study makes three important contributions to the literature.

It is argued that, as a set of high-quality accounting standards, IFRS primarily serves investors' interests among other stakeholders by contributing to financialization (Chiapello, 2016). The financialization of economies results in financial markets, financial institutions and financial professionals exerting greater influence over economic policy and economic outcomes (Epstein, 2002; Krippner, 2005; Palley, 2007). Previous studies provide evidence that financial development and financialization contribute to income inequality (Perelman, 2008; Van Arnum and Naples, 2013). Because the adoption of IFRS affects financial development, it is expected that it may also influence income inequality. Thus, as a first contribution, we examine the effect of IFRS on income inequality. Prior research reports mixed results about the impact of financial development on inequality; while some studies find a positive association between financial development and inequality, others conclude that there is a negative relationship, implying that financial development would reduce inequality (Bourguignon, 2018; Demetriades and Rousseau, 2016; Graff, 2003; Jauch and Watzka, 2016). In light of the argument that IFRS primarily serves the interests of shareholders by increasing financial development, the critical question is whether the effect of IFRS on inequality is mediated by financial development. Therefore, as a second contribution, we will look at the relationship between financial development and income inequality in countries adopting IFRS. Our third contribution examines the relationship of financial development and IFRS with inequality for different groups of countries based on their per capita income. Examining these issues is particularly relevant because income inequality is gaining attention in the public policy debate. Growing income and wealth disparity, especially within major advanced economies, has raised concerns about its economic and social consequences (Atkinson, 2015; Piketty, 2014). In principle, financial development should enhance growth by improving the efficiency of capital allocation and relaxing borrowing constraints (Levine, 1997). However, this disregards the issue of which members of society benefit from the growth enabled by financial development.

Using cross-section and fixed effects Generalized Method of Moments (GMM) estimation, our results indicate that, individually, financial development and IFRS adoption significantly decrease income inequality. In addition, we examine a country's years of experience using IFRS (years since adopting it as a national standard), and find a similar decrease in income inequality. Moreover, our results support the view that financial development mediates the impact of both measures of IFRS on income inequality. The remainder of the paper is organized as follows. Section 2 provides the literature review of financial development, IFRS and income inequality as it relates to our research question. Section 3 discusses the data and methodology. Section 4 reports the results of the empirical analyses, and Section 5 offers discussions and conclusions.

¹ There is no generally accepted definition of financial development, which is a generic, multifaceted phenomenon measured by a variety of indicators, such as market capitalization, domestic credits provided by the banking sector, value of stocks traded, financial system's share of GDP (Bascom, 1994; Graff, 2003; Pagano, 1993). For example, Calderón and Liu (2003) define financial development as an improvement in the quantity, quality and efficiency of financial intermediary services.

2. Literature review

2.1. Indirect effect of IFRS on income inequality through financial development

One of the consequences of financialization has been the “creative destruction” of firms, as resources become reallocated from less productive investments toward those that are more productive (Bartelsman et al., 2004). For this creative destruction to provide the maximum benefit to a country’s overall development, it is critical to have an efficient financial system. An efficient financial system allows for the efficient reallocation of resources, which will enhance incomes for those employed in new opportunities, while there is a reduction in the incomes of those in discontinued projects (Balder, 2018; Beck et al., 2007). Investors require high-quality accounting information in order to efficiently reallocate financial resources (Bernanke and Gertler, 1986; Bernanke et al., 1994). One of the major objectives of high-quality accounting standards, such as IFRS, is to provide investors with such information (Brown and Clinch, 1998; Lambert et al., 2007; Zeff, 2012). Standard setters argue that access to high-quality accounting information in general, and IFRS specifically, can improve investors’ economic decisions (International Accounting Standards Board, 2018).

There are numerous studies that examine the relationship between financial development and income inequality (for example, Agnello and Sousa, 2012; Agnello et al., 2012; Ang, 2010; Banerjee and Newman, 1993; Beck et al., 2007; Blau, 2018; Clarke et al., 2006; Demirgüç-Kunt and Levine, 2009; Greenwood and Jovanovic, 1990). Rajan and Zingales (1995) indicate that better disclosure rules, particularly accounting rules, are vital for financial development and improved corporate governance. The result is a reduced spread between domestic and foreign cost of capital that stimulates financial development, which in turn would promote economic growth. Therefore, an effective financial reporting system, which produces relevant and transparent accounting information for investors, will impact financial development and economic growth (Larson and Kenny-York, 1995; Nobes and Parker, 1995).

The accepted argument for creating internationally used high-quality accounting standards and an effective financial reporting system is that they should improve the transparency and comparability of financial statements and reduce information asymmetry, benefitting investors (Brown and Clinch, 1998; Lambert et al., 2007, 2011; Verrecchia, 2001). The development of IFRS was seen as a way to provide such a set of international accounting standards. IFRS’s conceptual framework specifically mentions these as its objectives (International Accounting Standards Board, 2018). The conceptual framework indicates that the objective of IFRS is to create, “... general purpose financial reporting [framework]...(SP1.3).” SP1.5a further indicates that the standards should increase transparency and enable investors to make economic decisions. SP1.5b argues that these standards will reduce information asymmetry between investors and firms that would use their capital. Finally, SP1.5c suggests that IFRS, as international standards, should help investors identify opportunities that would improve capital reallocation.

There is evidence of these benefits to IFRS-adopting countries as its use lowers risks due to reduced information asymmetry, which increases liquidity and decreases the cost of capital (Daske, 2006; Daske et al., 2008). These combined effects lead to greater availability of capital (Florou and Pope, 2012; Hail et al., 2010a, 2010b; Kythreotis, 2014). There is also evidence that these benefits improve international capital flows (Barth et al., 2008; Ramanna and Sletten, 2009; Turki et al., 2017). The introduction of IFRS, as high-quality accounting standards, is perhaps more important to foreign investors, as financial information becomes more comparable (Amiram, 2012; Barth et al., 2008, 2012). This empirical evidence seems to support that IFRS continues to meet the objectives of its conceptual framework.

In 2000, the EU commission observed that the IAS (which would become IFRS), were investor-oriented (Commission to the Council and the European Parliament, 2000). This emphasis on the impact of IFRS on investors results in an evaluation of its costs and benefits focused solely on investors. For example, in discussing the economic consequences of IFRS adoption, Daske et al. (2008) consider only consequences for investors, such as liquidity and cost of capital. Some researchers are convinced that well-functioning financial systems can boost economic growth and reduce poverty by ameliorating information and transaction costs (King and Levine, 1993). While financial development is associated with economic growth, there has been support for the view that economic growth, and therefore financial development, can also address other issues in the economy (Jain and Mukand, 2003). For example, there is a perception that economic growth can alleviate the uneven distribution of income and its causes (Hoffmann et al., 2020; Kuznets, 1955). While some studies propose that economic growth and financial development can be a remedy for income inequality, there is evidence that this may not be true (Hamori and Hashiguchi, 2012; Meyer and Sullivan, 2017).

While financial development is critical for economic growth and focuses primarily on investors, it can also be detrimental to other stakeholders as it can exacerbate income inequality (Basu and Guariglia, 2007). Demirgüç-Kunt and Levine (2009) conclude that financial development plays a central role in many theories of persistent income inequality. This theory has been confirmed in multiple studies that have examined the relationship between financial development and income inequality (Agnello et al., 2012; Banerjee and Duflo, 2003; Beck et al., 2007; Blau, 2018). However, there is also evidence in support of Kuznet’s (1955) argument that in later stages of economic growth, income inequality stabilizes and eventually declines (Ang, 2010). Kuznets’ (1955) argument that economic growth eventually ameliorates income inequality was made prior to the financial sector’s growth, and there is evidence that the increase in the number of financial sector transactions has had an impact on income inequality even in advanced economies (van Arnum and Naples, 2013). A study by De Haan and Strum (2017) supports this further by showing that the development of the financial sector increases income inequality. In contrast to these findings, Banerjee and Newman (1993), Beck et al. (2007), Clarke et al. (2006), Galor and Zeira (1993), Kappel (2010), and Rajan and Zingales (2003) provide evidence that financial development alleviates income inequality. Finally, Seven and Coskun (2016) find mixed results, reporting that in the finance-poverty relationship, neither banks nor stock markets play an important role in poverty reduction. Each of the components of the financial sector (stock markets, banks, and financial institutions) plays a different role in financial development, and their impact depends on a country’s financial infrastructure.

The functions of the financial sector are undertaken by two fundamental financial intermediaries; stock markets and banks (Brei et al., 2019). These intermediaries support a country's market-based and bank-based financial development, and thus have an impact on its overall economic development (Levine and Zervos, 1998). For example, Merton and Bodie (2005) argue that financial systems include functions which support ways of transferring economic resources through time, across borders and among industries, and to provide ways of managing risks. The size of financial systems has increased significantly, and plays an expanding role in the intermediation of financial activities, which in turn supports the growth of the real economy and growth of per capita GDP (Beck et al., 2014). While each intermediary has an impact on the overall size of the financial system and financial development, each plays a different role (Arestis et al., 2001; Seven and Coskun, 2016).

The banking system provides access to credit, and government policies and regulatory agencies regulate and oversee this access (Demirgüç-Kunt et al., 2011). Differences in a country's banking regulation can impact income inequality through access to these credits (Delis et al., 2014). Demetriades and Rousseau (2016) examine measures of financial liberalization, including the easing of banks' reserve requirements, that have an impact on the role of banks in GDP growth. A study by Tawiah and Gyapong (2021) documents that the adoption of IFRS increases domestic credits in developing countries. This result is also found in low-income countries, as alleviating constraints on the access to funds has influenced inequality and poverty (Agnello et al., 2012; Burgess and Pande, 2005). Other studies have concluded that credit and interest rate controls have the greatest impact on reducing income inequality (Delis et al., 2014). Kappel (2010) finds that improved markets for loans reduce both income inequality and poverty.² This result may be supported by evidence that in more developed banking systems, the experience of identifying quality investment opportunities improves banks' reallocation of savings to better investments (Lee, 1996). In addition to government policies to improve access to bank credit and experience in making credit allocation decisions, IFRS has also had an impact on the transparency of bank operations and potentially reduced banks' approach to risk-taking (Bushman and Williams, 2012; Gao and Jiang, 2018). Ball et al. (2008) argue, and provide evidence, that financial reporting is more critical for debt markets as debt contracts are based on numbers from financial statements. In addition, Luo et al. (2016) argue that banks' improved access to investment information, and the benefits of financial openness, led to a reduction in these institutions' risk-taking. While the adoption of IFRS has changed banking operations, it has also had a significant impact on financial markets.

The financial depth of an economy is a measure of the relative size of financial transactions compared to transactions in the real economy (Hamori and Hashiguchi, 2012). While the depth of the financial sector is a comparative measure, its ability to provide intermediation has a significant impact on per capita GDP (Beck et al., 2014). More developed financial markets, including their ability to support greater intermediation between investors and firms, have a direct effect on the ability of firms to obtain funds from investors (Baiman and Verrecchia, 1996). Additionally, investors benefit from financial development, as they use financial markets to find opportunities with financial returns commensurate with risk (Covrig et al., 2007; Florou and Pope, 2012). Thus, developed financial markets supported by quality financial information allow firms greater access to funds provided by investors, and support the reallocation of funds to more productive investments (Bangake and Eggoh, 2011).

While financial markets allow for the allocation of financial resources, the availability of standard accounting information improves the efficiency of this reallocation to different financial opportunities (Bernanke et al., 1994). Thus, the introduction of IFRS improves the reallocation of financial resources by providing investors with quality financial information (Brown and Clinch, 1998; Lambert et al., 2007; Zeff, 2012). This reallocation leads to some members of society benefiting from the creation of new opportunities, while those in firms that are eliminated do not (Bartelsman et al., 2004). Thus, the introduction of IFRS, which allows for efficient reallocation of financial resources, results in changes to the income distribution and may impact income inequality (Basu and Guariglia, 2007).

The discussion above suggests that there are conflicting findings concerning the relationship between financial development and income inequality. In light of these different views, we conclude that it is difficult to make a definitive statement about the direction of the relationship between financial development and income inequality, and the role of IFRS in this relationship.

2.2. Direct effect of IFRS on income inequality

The previous section shows that much of the discussion concerning the proposed value of IFRS as common financial reporting standards is centered around the benefits to investors, with no mention of other stakeholders. Clearly, the emphasis of IFRS as stated in its conceptual framework, is on financial statements and the firm's financial performance. Sikka (2015) argues that the role of accounting and accountants in sustaining and legitimizing reported income and economic inequalities has not received adequate attention, although accounting systems are central to the calculation of compensation and taxes. Rather, the accounting profession focuses on helping businesses to control costs (including labor cost), promote competition, profits and efficiency, while facilitating the inequitable distribution of income and wealth. The reduction in tax revenues, which is partially the outcome of consultancy services rendered by accounting firms to their clients, adversely affects disposable household incomes by reducing social and transfer payments (Sikka, 2015).

² However, financial development may also influence the economic opportunities and outcomes of many families without directly changing their use of financial services (Beck et al., 2009; Townsend and Ueda, 2006). For example, financial development that enhances economic activity may increase the demand for workers. If this increased demand is primarily for low-skilled workers, then this indirect effect of financial development will reduce inequality. Accordingly, even if financial development does not increase the use of financial services by the poor directly, it might cause income inequality to decrease by increasing the demand for labor services provided by the poor (Demirgüç-Kunt and Levine, 2009).

The focus of IFRS's income measures is increased when costs are reduced, one of which is labor. Porter (2008) suggests that one threat to measures of corporate profitability is labor, which again shows corporate value being considered primarily from the perspective of investors. Sikka (2015) argues that the IFRS's role in reducing Jensen and Meckling's (1976) agency costs ignores the role of employees in increasing wealth. The needs of other stakeholders are considered only after investors' information needs are satisfied (Chiapello, 2016; Mueller, 2014; Zhang and Andrew, 2014).

The view that companies' management is only accountable to owners (shareholders) has a number of consequences for other stakeholders. There are arguments that management should also be accountable to other stakeholders. It is argued that financial reports can be used as the basis for decision-making, and their content is determined by the nature of the decisions with which stakeholders are concerned (Lyll, 1981; Taylor, 1975). For example, employees, whether they act individually or collectively, are interested in decisions that will help them survive and prosper in their environments. Disclosures about earnings are important for employees as they bargain for wages and other compensation, which are important determinants of income inequality (Hsieh et al., 2017).³ To put it differently, employees need credible financial information that enables them to determine whether they are receiving a fair share of the wealth created by companies (Lyll, 1981).⁴ They use financial reports to negotiate wages and employee-related issues with the owners (Maunders and Foley, 1974; Jensen and Meckling, 1979). Transparent and credible financial reports based on high-quality accounting standards would enable employees to easily identify the earnings potential of companies. Prior literature suggests that high corporate earnings strengthen employees' hands in negotiating with management for salary increase and fringe benefits (Lin et al., 2021). In a study on German companies, Gleason et al. (2021) find that worker representation on the board prioritizes payroll maximization. Moreover, they provide evidence that workers on corporate boards will constrain aggressive tax planning for companies where there is a high risk to wage and job security from moving jobs to offshore centers (Gleason et al., 2021).⁵

Finally, there is evidence that the adoption of IFRS improves the comparability of financial statements (Opere et al., 2021).⁶ Thus, with the improvement in comparability, employees may also use financial reports of similar firms in order to identify the earnings potential and how their companies have done in comparison. This is important because negotiations with their companies on job-related issues can be based on information they have collected from the high-quality financial reports of comparable firms. The above discussions suggest that IFRS may also have a direct effect on income inequality.

3. Data and methodology

3.1. Data

The data in our sample include observations from the period 1998–2018 for countries that are classified into three groups determined by the International Monetary Fund (IMF): 1) advanced economies, 2) emerging markets economies, and 3) low-income economies. Macro-, and socio-economic data were obtained from the World Development Indicators (WDI) (The World Bank, 2021a), governance indicators were downloaded from the World Governance Indicators (WGI) website (The World Bank, 2021b). The financial development index database was extracted from International Monetary Fund (2019).

3.2. Methodology

The discussion in the previous section suggests that IFRS has both indirect and direct effects on income inequality. As an indirect effect, IFRS is expected to affect income inequality via financial development (line a), which in turn is likely to influence income inequality (line b), as shown in Fig. 1. To put it differently, the effect of IFRS on income inequality is mediated by financial development and is the product of these two effects (a*b is equal to c). The direct effect of IFRS on income inequality is indicated by line c.

In order to examine whether the relationship between IFRS and income inequality is mediated by financial development, we adopt Baron and Kenny's (1986) and Hayes' (2022) approach using the following models with pooled cross-section and fixed effect GMM estimators. Our estimation techniques are consistent with prior studies on income inequality (Hamori and Hashiguchi, 2012; Kim and Lin, 2011; Seven and Coskun, 2016). The model consists of the following equations:

$$findev_{it} = \alpha_0 + \alpha_1 gdp_{it} + \alpha_2 exim_{it} + \alpha_3 corrupt_{it} + \alpha_4 govexp_{it} + \alpha_5 infl_{it} + \alpha_6 grsvg_{it} + \alpha_7 ifrs_{it} + \varepsilon_{it} \quad (1)$$

³ For example, in the US, "the federal securities laws require clear, concise and understandable disclosure about compensation paid to CEOs, CFOs and certain other high-ranking executive officers of public companies" (Securities and Exchange Commission). When firms disclose the salaries of upper management, this is also used in the determination of what wages are appropriate for other employees in the firm (Huang et al., 2017).

⁴ "... it is generally assumed that employee informational needs relate to their economic relationships with their employer companies (Financial Accounting Standards Board (FASB), 1978, paragraph 24) and include information relating to their job security, achievement and performance indicators, financial matters affecting them, and their conditions of employment..." (Macintosh, 1987).

⁵ German law on codetermination requires that a board of directors consist of an equal number of owners and employee representatives if the number of domestic employees exceeds 500 (Gleason et al., 2021; Lin et al., 2021).

⁶ As a set of high-quality international accounting standards, IFRS enables companies to prepare financial reports in a manner that provides relevant, reliable, comparable and understandable financial information (IFRS, 2015).

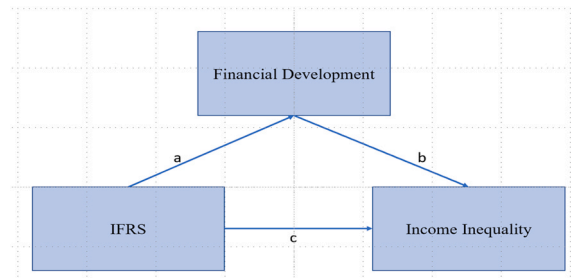


Fig. 1. Direct and Indirect Effects of IFRS on Income Inequality.

$$gini_{it} = \alpha_0 + \alpha_1 gdp_{pc\ it} + \alpha_2 gdp_{pc^2\ it} + \alpha_3 edu_{it} + \alpha_4 govexp_{it} + \alpha_5 unemp_{it} + \alpha_6 corrupt_{it} + \alpha_7 ifrs_{it} + \alpha_8 findev_{it} + \varepsilon_{it} \tag{2}$$

3.2.1. Dependent variables

In many studies, income inequality is measured by the GINI index, its growth rate and the share of income controlled by the highest ten percent of a country’s population (The World Bank, 2022).⁷ Consistent with prior studies, we use market income inequality (*ginimrkt*), disposable income inequality (*ginidisp*), which is market income inequality after taxes and transfers, the World Bank’s Giniindex (*gini*), and the share of income held by the highest 10% of the population as calculated by the World Bank (*incsh10*) (Agnello and Sousa, 2012; Agnello et al., 2012; Causa and Hermansen, 2017; Ostry et al., 2014; De La Cuesta-Gonzales et al., 2020; De Haan and Sturm, 2017).

3.2.2. Main variables

findev is the financial development indicator that represents multiple indices of financial development generated by the IMF; overall financial development (*fd*), financial markets (*fm*), financial institutions (*fin*), financial markets depth (*fmd*), and financial institutions depth (*find*) (Sahay et al., 2015).⁸ We use two indicators to measure the adoption of IFRS on income inequality: 1) the IFRS dummy (*ifrs^d*), and 2) IFRS experience (*ifrs^e* is a measure of the years since a country first adopted IFRS).

A number of studies employ binary adoption samples (Amiram, 2012; Gordon et al., 2012; Tawiah, 2022; Tawiah and Gyapong, 2021). For example, Ramanna and Sletten (2014) classify countries into three groups: a) non-adopters, b) partial adopters (voluntary adoption and limited adoption), c) full IFRS adopters. Nobes and Zeff (2016) employ a similar method by classifying countries into three groups: a) countries requiring IFRS legally, b) countries requiring IFRS for certain firms (for example, Canada), c) countries only permitting IFRS among other reporting standards (for example, Japan and Switzerland) (Song and Trimble, 2022). Given our large number of countries and years, and consistent with prior studies, we classify each country into one of three categories in each year: a) countries that require only the use of their own domestic accounting standards, b) countries that permit the use of IFRS, c) countries that require the use of IFRS. Accordingly, countries that either require or permit the use of IFRS receive a value of 1, while countries that only require the use of their own domestic accounting standards receive a value of 0. In order to make these classifications, we use information from several sources (Deloitte, 2022; International Accounting Standards Board, 2018; IFRS, 2022; Song and Trimble, 2022). Secondly, considering the possibility that countries could improve their use of IFRS with experience, we also create *ifrs^e*, which measures the IFRS experience based on the number of years they have been using it (Houqe and Monem, 2016; Tawiah and Gyapong, 2021).⁹

3.2.3. Control variables

All the control variables come from the WDI and WGI. They are: per capita real GDP in local prices (*gdppc*), per capita real GDP square in local prices (*gdppc²*), years spent in secondary education (*edu*), government final consumption expenditures (% of GDP) (*govexp*), openness of the economy (*exim*) as measured by the average of exports and imports as a percentage of GDP, control of corruption (*corrupt*), unemployment rate (*unemp*), and gross savings (% of GDP) (*grsvg*).¹⁰ Consistent with previous studies, per capita

⁷ The generally accepted measure of income inequality is the GINI index, which measures the area between the Lorenz curve and a hypothetical line of absolute equality expressed as a percentage of the maximum area under the line. The GINI index varies between 0 (perfect equality) and 100 (perfect inequality) (The World Bank, 2022). Thus, a decrease in the GINI index indicates a reduction in income inequality.

⁸ Financial Institutions Depth (*find*) is a measure of bank credit to the private sector in percent of GDP, pension fund assets to GDP, mutual fund assets to GDP and insurance premiums to GDP. Financial Market Depth (*fmd*) is a measure of stock market capitalization to GDP, stocks traded to GDP, international debt securities of government to GDP, and total debt securities of financial and nonfinancial corporations to GDP (International Monetary Fund, 2020).

⁹ This information is included in Appendix 3

¹⁰ The values for these variables are published by the World Bank (2022).

real GDP and per capita real GDP squared are included in the model in order to test the non-linear relationship between inequality and per capita GDP proposed by Kuznets (1955). Although theoretical studies argue that the relationship between education and income inequality is not clear, empirical works provide evidence that an increase in education would reduce inequality (Becker and Chiswick, 1966; De Gregorio and Lee, 2002; Kappel, 2010).¹¹ In addition to education, several studies documented that government expenditures are also effective in reducing income inequality (Doerrenberg and Peichl, 2014; Doumbia and Kinda, 2019; Guzi and Kahanec, 2018). We also add unemployment to the model in order to capture its potential effect on inequality. A positive relationship of unemployment with inequality has been documented, suggesting that a rise in unemployment increases income inequality (Cysne, 2009; Jantti, 1994).

4. Results of the empirical analysis

4.1. Univariate analysis

The descriptive statistics for the overall sample are presented in Table 1. *ginimrkt* has a mean of 46.757 followed by *ginidisp*, *gini* and *incsh10*, which have mean values of 38.214, 37.332 and 29.220, respectively. The mean of *ifrs^d* is 0.583, suggesting that more than half of our observations include the adoption of IFRS, whereas *ifrs^e* has a mean of 4.721, indicating slightly less than five years' experience using IFRS in our sample. The financial development composite index (*fd*) has a mean of 0.388. While the mean of *fm* is 0.467, *fm* has a mean of 0.295, suggesting that financial development arising from financial institutions is larger than that of financial markets. Similarly, in terms of depth, financial development from financial institutions (*find*) is greater than that of financial markets (*fmd*) (0.326 vs. 0.287).

In Table 1A and 1B, the description statistics for IFRS and Non-IFRS countries are reported. The mean of *ginimrkt* is similar in both IFRS and non-IFRS countries (47.018 vs. 46.385). However, IFRS countries have a lower mean for *ginidisp* than non-IFRS countries (36.848 vs. 40.162), suggesting that income redistribution policies are more effective in IFRS countries than in non-IFRS ones. Furthermore, IFRS countries appear to have more developed financial markets than non-IFRS countries, as suggested by higher mean values of financial development indicators.

Table 2 presents Pearson and Spearman correlations. In the Pearson matrix, all the financial development indicators are highly and positively correlated with each other. There is a positive and significant correlation of *ginimrkt* with *fd*, *fmd* and *find*, whereas the financial development indicators are significantly and negatively correlated with *ginidisp*, *gini* and *incsh10*. We obtain strong positive correlations between *ifrs^d* and *ifrs*. Both measures of IFRS are significantly and negatively correlated with all measures of inequality, with the exception of the market income measure. In addition, *edu* is negatively correlated with *ginimrkt*, *ginidisp*, *gini* and *incsh10*, implying that better education reduces inequality. Moreover, all the financial development indicators are significant and positively correlated with both measures of IFRS, suggesting that IFRS, as a set of high-quality accounting standards, contributes positively to financial development.

4.2. Multivariate analysis

We start our analysis by examining the effects of *ifrs^d* on financial development using a pooled cross-section analysis (line a in Fig. 1). Financial development is measured by the overall financial development index (*fd*), financial markets (*fm*), financial institutions (*fin*), financial markets depth (*fmd*), and financial institutions depth (*find*) (Sahay et al., 2015; Svirydzhenka, 2016). The results of the regression analysis are reported in Table 3. While *ifrs^d* has a significantly negative relationship with financial markets (*fm*), it has a positive and significant impact on financial institutions. Although the negative association of *ifrs^d* with *fm* is contrary to expectations, as IFRS being a set of high-quality accounting standards should contribute positively to the development of financial markets by enhancing the transparency of financial reporting, different economic, cultural, legal and social factors might affect the direction of its impact on financial development. For example, it is argued that, in contrast to its intended purpose, South Korea's national accounting transparency has declined, and large scale accounting fraud scandals occurred since the adoption of IFRS (Amiram, 2012; Hwang et al., 2018; Liu et al., 2011).¹² In contrast, the results suggest that financial institutions such as banks may benefit from the adoption of IFRS, as it provides credible and transparent financial information from stakeholders seeking their support. This is in line with the arguments of Ball et al. (2008), who find that debt contracts rely heavily on numbers from financial statements.

When we replicate our analysis of Table 3 using *ifrs^e* instead of *ifrs^d*, we obtain similar results, which we do not report to conserve space. Most of the control variables are highly significant. *gdppc*, *corrupt*, *govcexp* and *grsvg* have a significant positive effect on financial development, suggesting that increases in per capita income, control of corruption, government consumption expenditures and savings enhance financial development. In contrast, openness to foreign trade (*exim*) and inflation (*inifl*) reduce financial development (Ibhagui, 2020; International Monetary Fund, 2016; Lakshmi et al., 2021; Naceur et al., 2007).

¹¹ Using a dataset for more than 100 countries, De Gregorio and Lee (2002) indicate that higher educational attainment in terms of average years of schooling is inversely associated with the GINI coefficient.

¹² Unreported results of our analysis for country income groups confirm the view that different socio-economic factors might affect financial development. For advanced economies, we find that both indicators of IFRS (*ifrs^d* and *ifrs^e*) have a significant and positive impact on all measures of financial development. In contrast, there is a significant and negative relationship between IFRS and market-based financial development for emerging market economies. Furthermore, IFRS is found to be positively related to bank-based financial development.

Table 1
Descriptive Statistics Overall Sample.

Variable	N	Mean	Std. Dev.	Min.	Max.
<i>ginimrkt</i>	1,926	46.757	6.487	21.8	72.5
<i>ginidisp</i>	1,926	38.214	8.602	22.3	67
<i>gini</i>	1,101	37.332	8.628	23.7	64.8
<i>incsh10</i>	1,101	29.220	6.550	19.9	54.8
<i>ifrs^d</i>	1,926	0.583	0.493	0	1
<i>ifrs^e</i>	1,926	4.721	5.551	0	23
<i>fd</i>	1,926	0.388	0.248	0.036	1
<i>fm</i>	1,926	0.295	0.284	0	0.988
<i>fin</i>	1,926	0.467	0.232	0.068	1
<i>fmd</i>	1,926	0.287	0.306	0	1
<i>find</i>	1,926	0.326	0.284	0.006	1
<i>unemp</i>	1,926	7.88	5.598	0.21	37.03
<i>corrupt</i>	1,926	54.978	28.728	0.505	100
A. Descriptive Statistics, IFRS Countries					
Variable	N	Mean	Std. Dev.	Min.	Max.
<i>ginimrkt</i>	1,132	47.018	6.608	21.8	72.5
<i>ginidisp</i>	1,132	36.848	8.747	23.0	66.8
<i>gini</i>	730	35.290	7.629	23.7	64.8
<i>incsh10</i>	730	27.603	5.730	19.9	54.2
<i>ifrs^d</i>	1,132	0.992	0.089	0	1
<i>ifrs^e</i>	1,132	8.057	5.078	0	23
<i>fd</i>	1,132	0.428	0.245	0.036	1
<i>fm</i>	1,132	0.317	0.289	0	0.988
<i>fin</i>	1,132	0.523	0.222	0.068	1
<i>fmd</i>	1,132	0.323	0.313	0	1
<i>find</i>	1,132	0.375	0.286	0.008	1
<i>unemp</i>	1,132	8.428	5.910	0.45	33.58
<i>corrupt</i>	1,132	60.919	27.503	1.463	100
B. Descriptive Statistics, Non-IFRS Countries					
Variable	N	Mean	Std. Dev.	Min.	Max.
<i>ginimrkt</i>	794	46.385	6.296	22.3	70.5
<i>ginidisp</i>	794	40.162	8.002	22.3	67
<i>gini</i>	371	41.350	9.067	23.8	64.7
<i>incsh10</i>	371	32.402	6.895	20.1	54.8
<i>ifrs^d</i>	794	0	0	0	0
<i>ifrs^e</i>	794	0	0	0	0
<i>fd</i>	794	0.331	0.241	0.051	0.994
<i>fm</i>	794	0.262	0.273	0	0.980
<i>fin</i>	794	0.388	0.223	0.087	0.975
<i>fmd</i>	794	0.236	0.288	0.006	0.990
<i>find</i>	794	0.255	0.265	0.014	0.995
<i>unemp</i>	794	7.098	5.021	0.21	37.03
<i>corrupt</i>	794	46.506	28.327	0.505	100

Notes: For definitions of variables, see Sections 3.2.1 through 3.2.3

Tables 4 and 5 present the cross-section regression results of IFRS (*ifrs^d* and *ifrs^e*) and different measures of financial development on income inequality (*ginimrkt* and *ginidisp*) (lines b and c in Fig. 1). In both tables, we obtain similar results for IFRS (dummy and experience) and financial development on income inequality. We find that both indicators of IFRS reduce income inequality, as suggested by the negative and significant coefficients on *ifrs^d* and *ifrs^e*. Also, all measures of financial development with the exception of financial institutions depth (*find*) in regression (9) of Tables 4 and 5 have a significant and negative impact on income inequality, indicating that financial development would reduce income inequality. The positive association between *find* and *ginimrkt* suggests that financial institutions depth arising from an increase in bank credits, pension and insurance fund assets as a percentage of GDP increases inequality at market price. This supports the argument that financial development and speculation have a detrimental effect on income inequality (Casti, 2018). Also, financial development may foster risk taking, which in turn may increase the GINI of market income. The overall results in Tables 4 and 5 document that the impact of certain government policies providing transfer payments and access to bank credits reduces the disposable income inequality (Mishra and Montiel, 2013; Nkegbe, 2018). While *gdppc* is positively related to *ginimrkt*, there is a negative association between *gdppc*² and *ginimrkt*. This supports the validity of the Kuznets hypothesis for market income inequality. In contrast, the relationship between *gdppc*² and *ginidisp* is significantly positive in nearly all regressions, suggesting that income redistribution policies become ineffective when per capita income increases. Nearly all the control variables are highly significant and their impacts on inequality are consistent with those in prior studies.

Table 6 presents the results of Sobel's tests for mediation based on regressions in Tables 4 and 5. This test quantifies the indirect effect of an independent variable on a dependent variable through a third variable (mediator) (Hayes, 2022; Mehmetoglu, 2018).¹³ In

Table 3
Cross-Section Regression Results Overall Sample.

Dependent variable	(1) <i>fd</i>	(2) <i>fm</i>	(3) <i>fin</i>	(4) <i>fmd</i>	(5) <i>find</i>
<i>gdppc</i>	0.002** (0.001)	0.004** (0.002)	0.001 (0.001)	0.001 (0.001)	0.002 (0.001)
<i>exim</i>	-0.028*** (0.005)	-0.062*** (0.007)	0.003 (0.004)	-0.042*** (0.007)	0.001 (0.006)
<i>corrupt</i>	0.106*** (0.003)	0.124*** (0.005)	0.088*** (0.003)	0.137*** (0.005)	0.136*** (0.003)
<i>govexp</i>	0.032*** (0.008)	-0.002 (0.011)	0.059*** (0.007)	-0.002 (0.010)	0.038*** (0.008)
<i>infl</i>	-0.027*** (0.003)	-0.024*** (0.005)	-0.030*** (0.003)	-0.029*** (0.004)	-0.026*** (0.003)
<i>grsavg</i>	0.063*** (0.006)	0.098*** (0.009)	0.028*** (0.004)	0.071*** (0.008)	0.027*** (0.005)
<i>ifrs^d</i>	0.006 (0.005)	-0.018** (0.007)	0.027*** (0.004)	-0.009 (0.008)	0.001 (0.006)
<i>constant</i>	0.132*** (0.039)	0.154*** (0.055)	0.125*** (0.032)	0.183*** (0.053)	0.071* (0.037)
Observations	1,848	1,848	1,848	1,848	1,848
R ²	0.638	0.503	0.702	0.540	0.706
R ² -adj	0.637	0.501	0.701	0.539	0.704
F test	663.1	361.5	789.3	380.4	911.5
Prob > F test	0.000	0.000	0.000	0.000	0.000

Notes: Robust standard errors are in parentheses [*** p < 0.01, ** p < 0.05, * p < 0.1]. All of the variables except for *ifrs^d* are in natural logarithms. Dependent variables are financial development (*fd*), financial markets (*fm*), financial institutions (*fin*), financial markets depth (*fmd*), and financial institutions depth (*find*).

all cases where income inequality is measured in terms of market income (*gimmrkt*), the impact of IFRS adoption on income inequality is completely mediated by the different measures of financial development, with the exception of regression (3) in Table 5. These results mean that the direct effect of IFRS on income inequality is statistically non-existent when financial development is used as the mediator variable. In contrast, when income inequality is measured in terms of disposable income (*ginidisp*), the impact of IFRS is only partially mediated by the different measures of financial development. As disposable income includes certain government transfer payments to stakeholders, this suggests that governments' measures to ameliorate some of the income inequality reduce the impact of financial development on this measure of income inequality. These findings offer support for our research question and show that financial development does mediate the impact of IFRS on income inequality. Mediation analysis also reports RIT (Indirect effect / Total effect) and RID (Indirect effect / Direct effect). For example, in column (1) of Panel A, RIT is 0.472 while RID is 0.895. Accordingly, about 47.2% of the effect of *ifrs^d* on *gimmrkt* is mediated by *fd*. The value of RID suggests that the mediated effect is about 0.895 times as large as the direct effect of *ifrs* on *gimmrkt*.

4.3. Robustness tests and additional analyses

4.3.1. Alternative measures of income inequality

In order to check the robustness of our results, we conduct two additional analyses. First, we replicate our analysis with inequality proxied by the GINI index (*gini*) and the income share held by the highest 10 percent of the population (*incsh10*) using *ifrs^d* and *ifrs^e* as an indicator of IFRS. The regression results that are reported in Table 7 and Appendix 1 are very similar to those in Tables 4 and 5. Again, we find in all regressions that all forms of financial development together with *ifrs^d* and *ifrs^e* are highly significant and negatively associated with *gini* and *incsh10*. Accordingly, it can be argued that financial development and IFRS significantly reduce income inequality. Furthermore, the untabulated results of the mediation analyses in Table 7 and Appendix 1 are also consistent with the results of the mediation analyses in Tables 4 and 5. Therefore, IFRS impacts income inequality directly, but financial development also mediates this impact. As previously noted, one reason for the direct impact could be that the increase in the transparency of financial reporting, as a result of using IFRS, would enable employees and regulatory organizations to negotiate employment-related issues such as job security, wages and pensions with employers effectively. If these negotiations result in gains for employees, income inequality will decrease.¹⁴ The indirect effect of IFRS on income inequality through financial development may increase investments

¹³ Mediation analysis examines the indirect relationship between independent and dependent variables in situations where there appears to be no direct relationship between them. In the case of full mediation, the relationship between independent and dependent variables is expected to be weak or statistically insignificant (Baron and Kenny, 1986; Mehmetoglu, 2018).

¹⁴ In addition to wages and pensions, job security is an important factor affecting inequality. In a study on the US between 1977 and 2002, Fullerton and Wallace (2007) find that workers' perceptions of job security are positively associated with real wages and union density, and negatively with income inequality and deindustrialization.

Table 4
Cross-Section Regression Results – Overall Sample.

Dependent var.	(1) <i>ginmrkt</i> <i>fd</i>	(2) <i>ginidisp</i> <i>fd</i>	(3) <i>ginmrkt</i> <i>fm</i>	(4) <i>ginidisp</i> <i>fm</i>	(5) <i>ginmrkt</i> <i>fin</i>	(6) <i>ginidisp</i> <i>fin</i>	(7) <i>ginmrkt</i> <i>fund</i>	(8) <i>ginidisp</i> <i>fund</i>	(9) <i>ginmrkt</i> <i>fund</i>	(10) <i>ginidisp</i> <i>fund</i>
<i>gdppc</i>	0.081*** (0.008)	-0.015 (0.010)	0.081*** (0.008)	-0.014 (0.010)	0.080*** (0.008)	-0.019* (0.010)	0.082*** (0.008)	-0.010 (0.010)	0.080*** (0.008)	-0.015 (0.010)
<i>gdppc</i> ²	-0.003*** (0.000)	0.001* (0.000)	-0.003*** (0.000)	0.001* (0.000)	-0.003*** (0.000)	0.001** (0.000)	-0.003*** (0.000)	0.000 (0.000)	-0.003*** (0.000)	0.001* (0.000)
<i>edu</i>	-0.298*** (0.022)	-0.776*** (0.032)	-0.306*** (0.023)	-0.806*** (0.032)	-0.293*** (0.023)	-0.728*** (0.033)	-0.317*** (0.022)	-0.860*** (0.032)	-0.284*** (0.022)	-0.831*** (0.032)
<i>govexp</i>	0.005* (0.003)	0.018*** (0.003)	0.007** (0.003)	0.011*** (0.003)	-0.000 (0.002)	-0.001 (0.003)	0.004* (0.002)	0.003 (0.003)	-0.004** (0.002)	-0.010*** (0.003)
<i>unemp</i>	0.063*** (0.006)	0.026*** (0.008)	0.060*** (0.006)	0.024*** (0.007)	0.066*** (0.006)	0.045*** (0.008)	0.061*** (0.006)	0.028*** (0.008)	0.068*** (0.006)	0.043*** (0.008)
<i>corrupt</i>	0.048*** (0.007)	-0.006 (0.007)	0.045*** (0.006)	-0.043*** (0.006)	0.042*** (0.006)	-0.004 (0.007)	0.044*** (0.007)	-0.043*** (0.007)	0.031*** (0.007)	-0.031*** (0.008)
<i>ifrs</i> ^d	-0.011* (0.006)	-0.038*** (0.008)	-0.014** (0.006)	-0.058*** (0.008)	-0.012* (0.006)	-0.028*** (0.009)	-0.012** (0.006)	-0.051*** (0.008)	-0.016** (0.006)	-0.049*** (0.009)
<i>findev</i>	-0.119*** (0.034)	-0.786*** (0.040)	-0.113*** (0.028)	-0.477*** (0.033)	-0.045 (0.030)	-0.694*** (0.042)	-0.087*** (0.021)	-0.395*** (0.030)	0.050** (0.022)	-0.342*** (0.038)
<i>constant</i>	3.595*** (0.090)	5.079*** (0.102)	3.567*** (0.092)	5.303*** (0.099)	3.697*** (0.077)	5.400*** (0.104)	3.636*** (0.076)	5.561*** (0.093)	3.776*** (0.072)	5.748*** (0.094)
Observations	1,926	1,926	1,926	1,926	1,926	1,926	1,926	1,926	1,926	1,926
R-squared	0.236	0.472	0.239	0.442	0.232	0.457	0.237	0.438	0.233	0.422
R-adj.	0.233	0.470	0.236	0.440	0.229	0.455	0.234	0.435	0.230	0.420
F test	72.97	291.4	75.42	228	72.02	303.9	74.28	233	75.54	220.6
Prob > F test	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Notes: Robust standard errors are in parentheses [*** p < 0.01, ** p < 0.05, * p < 0.1]. All of the variables except for *ifrs*^d are in natural logarithms. Dependent variables are GINI based on market income (*ginmrkt*) and disposable income (*ginidisp*). *findev* is financial development, which is measured by financial development (*fd*), financial markets (*fm*), financial institutions (*fin*), financial markets depth (*fund*), and financial institutions depth (*fund*).

Table 5
Cross-Section Regression Results – Overall Sample.

Dependent var.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<i>find</i>	<i>ginimkt</i> <i>fd</i>	<i>ginidisp</i> <i>fd</i>	<i>ginimkt</i> <i>fm</i>	<i>ginidisp</i> <i>fm</i>	<i>ginimkt</i> <i>fm</i>	<i>ginidisp</i> <i>fm</i>	<i>ginimkt</i> <i>fm</i>	<i>ginidisp</i> <i>fm</i>	<i>ginimkt</i> <i>fm</i>	<i>ginidisp</i> <i>fm</i>
<i>gdppc</i>	0.079*** (0.008)	-0.017* (0.010)	0.079*** (0.008)	-0.017* (0.010)	0.078*** (0.008)	-0.020* (0.010)	0.080*** (0.008)	-0.013 (0.010)	0.077*** (0.008)	-0.018* (0.010)
<i>gdppc</i> ²	-0.003*** (0.000)	0.001** (0.000)	-0.003*** (0.000)	0.001** (0.000)	-0.003*** (0.000)	0.001** (0.000)	-0.003*** (0.000)	0.001** (0.000)	-0.003*** (0.000)	0.001** (0.000)
<i>edu</i>	-0.299*** (0.022)	-0.777*** (0.032)	-0.307*** (0.022)	-0.807*** (0.032)	-0.295*** (0.023)	-0.728*** (0.033)	-0.317*** (0.022)	-0.860*** (0.032)	-0.285*** (0.022)	-0.832*** (0.033)
<i>govexp</i>	0.004 (0.003)	0.017*** (0.003)	0.006** (0.003)	0.010*** (0.003)	-0.001 (0.002)	-0.001 (0.003)	0.004 (0.002)	0.002 (0.003)	-0.004** (0.002)	-0.011*** (0.003)
<i>unemp</i>	0.064*** (0.006)	0.026*** (0.008)	0.061*** (0.006)	0.024*** (0.007)	0.067*** (0.006)	0.044*** (0.008)	0.063*** (0.006)	0.027*** (0.008)	0.069*** (0.006)	0.042*** (0.008)
<i>corrupt</i>	0.046*** (0.007)	-0.008 (0.007)	0.044*** (0.006)	-0.046*** (0.007)	0.040*** (0.008)	-0.005 (0.007)	0.043*** (0.007)	-0.046*** (0.007)	0.029*** (0.007)	-0.033*** (0.008)
<i>ifrs</i> ^e	-0.001** (0.001)	-0.003*** (0.001)	-0.001** (0.000)	-0.004*** (0.001)	-0.001** (0.001)	-0.003*** (0.001)	-0.001** (0.000)	-0.004*** (0.001)	-0.002*** (0.001)	-0.004*** (0.001)
<i>find</i>	-0.109*** (0.034)	-0.784*** (0.041)	-0.111*** (0.028)	-0.468*** (0.033)	-0.031 (0.031)	-0.693*** (0.043)	-0.081*** (0.021)	-0.389*** (0.031)	0.054** (0.022)	-0.342*** (0.039)
<i>constant</i>	3.624*** (0.092)	5.101*** (0.104)	3.590*** (0.093)	5.348*** (0.101)	3.728*** (0.078)	5.417*** (0.106)	3.660*** (0.077)	5.594*** (0.095)	3.800*** (0.073)	5.778*** (0.096)
Observations	1,913	1,913	1,913	1,913	1,913	1,913	1,913	1,913	1,913	1,913
R-squared	0.234	0.472	0.238	0.441	0.231	0.458	0.236	0.436	0.233	0.423
R-adj.	0.231	0.469	0.234	0.438	0.227	0.456	0.232	0.434	0.229	0.420
F test	72.85	289.3	75.30	216.7	72.27	299.8	73.81	221.1	75.86	211.2
Prob > F test	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Notes: Robust standard errors are in parentheses [*** p < 0.01, ** p < 0.05, * p < 0.1]. All of the variables except for *ifrs*^e are in natural logarithms. Dependent variables are GINI based on market income (*ginimkt*) and disposable income (*ginidisp*). *find* is financial development, which is measured by financial development (*fd*), financial markets (*fm*), financial institutions (*fm*), financial markets depth (*fm*), and financial institutions depth (*fm*).

Table 6
Sobel's Test Results; Baron and Kenny Approach to Mediation Panel A: Sobel's Test Results (based on Regressions in Table 4).

Dependent variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<i>findev</i>	<i>ginimrkt</i> <i>fd</i>	<i>gmidisp</i> <i>fd</i>	<i>ginimrkt</i> <i>fin</i>	<i>gmidisp</i> <i>fn</i>	<i>ginimrkt</i> <i>fin</i>	<i>gmidisp</i> <i>fin</i>	<i>ginimrkt</i> <i>fmnd</i>	<i>gmidisp</i> <i>fmnd</i>	<i>ginimrkt</i> <i>fmnd</i>	<i>gmidisp</i> <i>fmnd</i>
Step 1: <i>findev: ifrs^d</i> (<i>x</i> → <i>m</i>)	$\beta = 0.076$ $p = 0.000$	$\beta = 0.076$ $p = 0.000$	$\beta = 0.046$ $p = 0.000$	$\beta = 0.046$ $p = 0.000$	$\beta = 0.099$ $p = 0.000$	$\beta = 0.099$ $p = 0.000$	$\beta = 0.069$ $p = 0.000$	$\beta = 0.069$ $p = 0.000$	$\beta = 0.095$ $p = 0.000$	$\beta = 0.095$ $p = 0.000$
Step 2: <i>gini: findev</i> (<i>m</i> → <i>y</i>)	$\beta = 0.083$ $p = 0.000$	$\beta = -0.641$ $p = 0.000$	$\beta = 0.037$ $p = 0.017$	$\beta = -0.462$ $p = 0.000$	$\beta = 0.135$ $p = 0.000$	$\beta = -0.739$ $p = 0.000$	$\beta = 0.058$ $p = 0.000$	$\beta = -0.398$ $p = 0.000$	$\beta = 0.155$ $p = 0.000$	$\beta = -0.415$ $p = 0.000$
Step 3: <i>gini: ifrs^d</i> (<i>x</i> → <i>y</i>)	$\beta = 0.007$ $p = 0.295$	$\beta = -0.046$ $p = 0.000$	$\beta = 0.010$ $p = 0.121$	$\beta = -0.074$ $p = 0.000$	$\beta = -0.000$ $p = 0.995$	$\beta = -0.021$ $p = 0.015$	$\beta = 0.009$ $p = 0.163$	$\beta = -0.067$ $p = 0.000$	$\beta = -0.001$ $p = 0.831$	$\beta = -0.055$ $p = 0.000$
RIT	0.472	0.513	0.127	0.223	1.003	0.774	0.303	0.292	1.106	0.416
RID	0.895	1.054	0.145	0.287	343.63	3.419	0.435	0.413	10.428	0.711
Mediation	Complete	Partial	Complete	Partial	Complete	Partial	Complete	Partial	Complete	Partial
Panel B: Sobel's Test Results (based on Regressions in Table 5)										
Dependent variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<i>findev</i>	<i>ginimrkt</i> <i>fd</i>	<i>gmidisp</i> <i>fd</i>	<i>ginimrkt</i> <i>fm</i>	<i>gmidisp</i> <i>fm</i>	<i>ginimrkt</i> <i>fm</i>	<i>gmidisp</i> <i>fm</i>	<i>ginimrkt</i> <i>fmnd</i>	<i>gmidisp</i> <i>fmnd</i>	<i>ginimrkt</i> <i>fmnd</i>	<i>gmidisp</i> <i>fmnd</i>
Step 1: <i>findev: ifrs^e</i> (<i>x</i> → <i>m</i>)	$\beta = 0.077$ $p = 0.000$	$\beta = 0.077$ $p = 0.000$	$\beta = 0.047$ $p = 0.000$	$\beta = 0.047$ $p = 0.000$	$\beta = 0.099$ $p = 0.000$	$\beta = 0.099$ $p = 0.000$	$\beta = 0.070$ $p = 0.000$	$\beta = 0.070$ $p = 0.000$	$\beta = 0.096$ $p = 0.000$	$\beta = 0.096$ $p = 0.000$
Step 2: <i>gini: findev</i> (<i>m</i> → <i>y</i>)	$\beta = 0.080$ $p = 0.000$	$\beta = -0.641$ $p = 0.000$	$\beta = 0.034$ $p = 0.030$	$\beta = -0.463$ $p = 0.000$	$\beta = 0.134$ $p = 0.000$	$\beta = -0.739$ $p = 0.000$	$\beta = 0.056$ $p = 0.000$	$\beta = -0.399$ $p = 0.000$	$\beta = 0.153$ $p = 0.000$	$\beta = -0.415$ $p = 0.000$
Step 3: <i>gini: ifrs^e</i> (<i>x</i> → <i>y</i>)	$\beta = 0.009$ $p = 0.177$	$\beta = -0.046$ $p = 0.000$	$\beta = 0.014$ $p = 0.040$	$\beta = -0.073$ $p = 0.000$	$\beta = 0.002$ $p = 0.776$	$\beta = -0.022$ $p = 0.020$	$\beta = 0.011$ $p = 0.091$	$\beta = -0.067$ $p = 0.000$	$\beta = 0.001$ $p = 0.930$	$\beta = -0.055$ $p = 0.000$
RIT	0.403	0.517	0.104	0.230	0.871	0.772	0.260	0.295	0.962	0.419
RID	0.676	1.070	0.116	0.299	6.782	3.383	0.352	0.419	25.300	0.720
Mediation	Complete	Partial	Partial	Partial	Complete	Partial	Complete	Partial	Complete	Partial

Notes: RIT = Indirect effect / Total effect; RID = Indirect effect / Direct effect

Table 7
Robustness Test – Overall Sample.

Dependent var.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<i>find</i>	<i>gini</i> <i>fd</i>	<i>incsh10</i> <i>fd</i>	<i>gini</i> <i>fm</i>	<i>incsh10</i> <i>fm</i>	<i>gini</i> <i>fm</i>	<i>incsh10</i> <i>fm</i>	<i>gini</i> <i>fm</i>	<i>incsh10</i> <i>fm</i>	<i>gini</i> <i>fm</i>	<i>incsh10</i> <i>fm</i>
<i>gdppc</i>	(-0.092) ^{***} (0.022)	(-0.072) ^{***} (0.019)	(-0.088) ^{***} (0.021)	(-0.068) ^{***} (0.019)	(-0.110) ^{***} (0.025)	(-0.087) ^{***} (0.022)	(-0.085) ^{***} (0.021)	(-0.067) ^{***} (0.019)	(-0.104) ^{***} (0.022)	(-0.083) ^{***} (0.020)
<i>gdppc</i> ²	0.003 ^{***} (0.001)	0.003 ^{***} (0.001)	0.003 ^{***} (0.001)	0.003 ^{***} (0.001)	0.004 ^{***} (0.001)	0.003 ^{***} (0.001)	0.003 ^{***} (0.001)	0.003 ^{***} (0.001)	0.004 ^{***} (0.001)	0.003 ^{***} (0.001)
<i>edu</i>	(-0.689) ^{***} (0.039)	(-0.648) ^{***} (0.037)	(-0.735) ^{***} (0.039)	(-0.689) ^{***} (0.037)	(-0.657) ^{***} (0.040)	(-0.617) ^{***} (0.039)	(-0.803) ^{***} (0.039)	(-0.748) ^{***} (0.038)	(-0.764) ^{***} (0.040)	(-0.712) ^{***} (0.038)
<i>govexp</i>	0.040 ^{***} (0.004)	0.033 ^{***} (0.004)	0.040 ^{***} (0.004)	0.032 ^{***} (0.004)	0.014 ^{***} (0.003)	0.011 ^{***} (0.003)	0.031 ^{***} (0.004)	0.024 ^{***} (0.004)	0.014 ^{***} (0.003)	0.009 ^{***} (0.003)
<i>unemp</i>	(-0.002 (0.011)	(-0.012 (0.011)	(-0.003 (0.011)	(-0.012 (0.010)	0.016 (0.011)	0.003 (0.011)	(-0.000 (0.011)	(-0.010 (0.011)	0.006 (0.012)	(-0.004 (0.012)
<i>corrupt</i>	0.019 (0.012)	0.009 (0.011)	(-0.022) ^{**} (0.011)	(-0.029) ^{***} (0.010)	0.006 (0.013)	0.001 (0.012)	(-0.017 (0.012)	(-0.026) ^{**} (0.010)	0.004 (0.015)	(-0.009 (0.013)
<i>ifrs</i> ^d	(-0.071) ^{***} (0.012)	(-0.070) ^{***} (0.011)	(-0.091) ^{***} (0.012)	(-0.088) ^{***} (0.011)	(-0.067) ^{***} (0.013)	(-0.065) ^{***} (0.012)	(-0.085) ^{***} (0.012)	(-0.084) ^{***} (0.011)	(-0.082) ^{***} (0.012)	(-0.082) ^{***} (0.012)
<i>find</i>	(-0.820) ^{***} (0.054)	(-0.749) ^{***} (0.050)	(-0.552) ^{***} (0.044)	(-0.483) ^{***} (0.039)	(-0.599) ^{***} (0.054)	(-0.578) ^{***} (0.051)	(-0.476) ^{***} (0.039)	(-0.413) ^{***} (0.035)	(-0.431) ^{***} (0.048)	(-0.359) ^{***} (0.046)
<i>constant</i>	4.919 ^{***} (0.185)	4.640 ^{***} (0.162)	5.007 ^{***} (0.185)	4.761 ^{***} (0.161)	5.539 ^{***} (0.184)	5.179 ^{***} (0.161)	5.289 ^{***} (0.172)	5.015 ^{***} (0.150)	5.630 ^{***} (0.169)	5.326 ^{***} (0.150)
Observations	1,101	1,101	1,101	1,101	1,101	1,101	1,101	1,101	1,101	1,101
R-squared	0.432	0.454	0.417	0.434	0.389	0.419	0.417	0.433	0.390	0.407
R-adj.	0.428	0.450	0.413	0.430	0.385	0.413	0.413	0.429	0.386	0.402
F test	157.1	166.5	134.2	142.3	126.3	143.8	139.7	145.1	133	140.7
Prob > F test	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Notes: Robust standard errors are in parentheses [*** p < 0.01, ** p < 0.05, * p < 0.1]. All of the variables except for *ifrs*^d are in natural logarithms. Dependent variables are Gini index (*gini*) and income share held by highest 10 percent (*incsh10*). *find* is financial development, which is measured by financial development (*fd*), financial markets (*fm*), financial institutions (*fin*), financial markets depth (*fm*), and financial institutions depth (*find*).

Table 8
Cross-Section Regression Results: Summary for Country Income Groups.

Dependent variables <i>find</i> =	(1) <i>ginimkt</i> <i>fd</i>	(2) <i>ginidisp</i> <i>fd</i>	(3) <i>ginimkt</i> <i>fm</i>	(4) <i>ginidisp</i> <i>fm</i>	(5) <i>ginimkt</i> <i>fm</i>	(6) <i>ginidisp</i> <i>fm</i>	(7) <i>ginimkt</i> <i>fm</i>	(8) <i>ginidisp</i> <i>fm</i>	(9) <i>ginimkt</i> <i>fm</i>	(10) <i>ginidisp</i> <i>fm</i>
<i>Advanced Economies</i>										
<i>ifrs^d</i>	0.027*** (0.006)	-0.020 (0.012)	0.027*** (0.006)	-0.017 (0.012)	0.026*** (0.006)	-0.020* (0.012)	0.027*** (0.006)	-0.022* (0.013)	0.023*** (0.006)	-0.026** (0.012)
<i>find</i>	-0.120*** (0.034)	0.199** (0.071)	-0.093*** (0.025)	0.091 (0.056)	-0.049 (0.037)	0.233*** (0.066)	-0.058*** (0.021)	0.158*** (0.058)	0.024 (0.027)	0.297*** (0.066)
<i>ifrs^{exp}</i>	0.002*** (0.000)	-0.001 (0.001)	0.002*** (0.000)	-0.001 (0.001)	0.002*** (0.000)	-0.001 (0.001)	0.002*** (0.000)	-0.001 (0.001)	0.002*** (0.000)	-0.002* (0.001)
<i>find</i>	-0.106*** (0.033)	0.184*** (0.069)	-0.091** (0.025)	0.087 (0.056)	-0.029 (0.036)	0.214*** (0.064)	-0.049** (0.020)	0.146** (0.057)	0.024 (0.028)	0.288*** (0.064)
<i>Emerging Market Economies</i>										
<i>ifrs^d</i>	-0.047*** (0.011)	-0.086*** (0.011)	-0.040*** (0.011)	-0.086*** (0.012)	-0.059*** (0.012)	-0.098*** (0.012)	-0.039*** (0.011)	-0.085*** (0.011)	-0.045*** (0.011)	-0.092*** (0.011)
<i>find</i>	0.209*** (0.079)	0.027 (0.068)	0.029 (0.056)	-0.087*** (0.044)	0.285*** (0.066)	0.190*** (0.072)	-0.027 (0.042)	-0.004 (0.043)	0.253*** (0.047)	0.293*** (0.048)
<i>ifrs^{exp}</i>	-0.005*** (0.001)	-0.007*** (0.001)	-0.004*** (0.001)	-0.007*** (0.001)	-0.006*** (0.001)	-0.008*** (0.001)	-0.004*** (0.001)	-0.007*** (0.001)	-0.004*** (0.001)	-0.007*** (0.001)
<i>find</i>	0.264*** (0.081)	0.049 (0.072)	0.042 (0.056)	-0.061 (0.046)	0.336*** (0.072)	0.170*** (0.081)	0.001 (0.043)	0.028 (0.045)	0.255*** (0.047)	0.279*** (0.049)
<i>Low Income Economies</i>										
<i>ifrs^d</i>	0.010 (0.010)	0.021** (0.009)	0.032*** (0.009)	0.019* (0.011)	0.002 (0.010)	0.005 (0.010)	0.011 (0.010)	-0.001 (0.010)	-0.003 (0.010)	-0.006 (0.010)
<i>find</i>	-0.274* (0.169)	-1.514*** (0.132)	-1.470*** (0.147)	-1.431*** (0.150)	0.151 (0.095)	-0.673*** (0.081)	-0.502*** (0.129)	-0.458*** (0.121)	0.536*** (0.076)	-0.063 (0.079)
<i>ifrs^{exp}</i>	-0.002*** (0.001)	0.000 (0.001)	0.001 (0.001)	-0.000 (0.001)	-0.002*** (0.001)	-0.002*** (0.001)	-0.001* (0.001)	-0.002*** (0.001)	-0.003*** (0.001)	-0.003*** (0.001)
<i>find</i>	-0.135 (0.164)	-1.431*** (0.136)	-1.361*** (0.152)	-1.322*** (0.137)	0.207** (0.090)	-0.631*** (0.083)	-0.426*** (0.124)	-0.380*** (0.115)	0.651*** (0.079)	0.027 (0.085)

Notes: Robust standard errors are in parentheses [***, ** p < 0.01, * p < 0.05, * p < 0.1]. All of the variables except for *ifrs^d* and *ifrs^{exp}* are in natural logarithms. Dependent variables are GINI based on market income (*ginimkt*) and disposable income (*ginidisp*). *find* is financial development, which is measured by financial development (*fd*), financial institutions (*fm*), financial markets depth (*fm*), and financial institutions depth (*find*).

by improving the efficiency of financial markets and relaxing the funding constraints of financial institutions (Aghion and Bolton, 1997; Galor and Zeira, 1993; Seven and Coskun, 2016; Kim and Lin, 2011). If these investments increase productive capacity and employment primarily in low-income groups, inequality might decrease.

As heteroskedasticity could be an issue, our second robustness test includes the use of feasible generalized least squares (FGLS), which is suggested as an alternative to OLS (Cameron and Trivedi, 2010, pp. 153-154). Therefore, as a second analysis, we use FGLS, with the results remaining consistent. To conserve space these results are not reported.

4.3.2. Results for country income groups and inequality

Kuznets (1955) and others have observed that a country's level of income inequality depends on its stage of economic development. Prior studies confirm this by showing that the relationship between financial development and inequality differs between developed and developing countries. For example, Kappel (2010) finds that financial development reduces income inequality in more developed countries compared to less developed countries. In order to determine if there is a difference between these country income groups, we examine the relationship between financial development, IFRS ($ifrs^d$ and $ifrs^e$) and inequality for IMF country income groups that are classified as advanced economies, emerging market economies, and low-income economies.

For the sake of brevity, we only report the summary results including our two measures of IFRS, financial development and inequality in Table 8. As in the regressions for the overall sample in Tables 4 and 5, the untabulated regression results provide evidence that in advanced and emerging market economies, the validity of Kuznets' inverted U-shaped hypothesis is confirmed for $ginimrkt$ as suggested by the significantly positive and negative coefficients on $gdppc$ and $gdppc^2$, respectively. However, for inequality of disposable income ($ginidisp$), our findings are in contrast to Kuznets' hypothesis. These findings suggest that income redistribution policies are ineffective not only in advanced, but also in emerging market countries.¹⁵ This positive relationship between $gdppc^2$ and $ginidisp$ could be due to government policies, particularly those related to unemployment benefits, discouraging job search and work efforts and increasing the level of income inequality for disposable income (De Nardi et al., 2000).

For advanced economies, we find that the adoption of IFRS and years of experience using IFRS tend to increase market income inequality for all measures of financial development. In this group, financial market development (fm) and its depth (fmd) decrease market-based income inequality ($ginimrkt$), as shown in regressions (3) and (7). These results indicate that in advanced economies, the development of stock markets contributes to economic activity, which benefits incomes at all levels and thus decreases income inequality. This could be due to the increase in economic opportunities even for those groups that do not use financial services directly (Demirgüç-Kunt and Levine, 2009). However, there is a positive association between fmd and inequality of disposable income ($ginidisp$) as shown in regression 8. This may arise from changes in tax laws in favor of high-income groups and the reduction of transfer payments in advanced economies. In addition to the US, it is observed in advanced European economies that there has been an erosion of progressive tax systems, as income tax rates on high-income groups have fallen in these countries. In these economies, capital is taxed more favorably than labor. Favorable tax treatment of capital results in regressive taxation, since capital is a more important source of income for high-income groups (Stiglitz, 2020, p. 190).¹⁶

Furthermore, both in advanced and emerging market economies, the development (fin) and depth ($find$) of financial institutions are highly significant and positively associated with inequality of disposable income. In other words, development of financial institutions, comprising banks, mutual funds, pension funds and insurance companies, and an increase in their products, appear to have a positive impact on inequality of disposable income. It is argued that widespread pension privatizations in the 1990s and 2000s led to an increase in inequalities, in particular when economies entered into recession and experienced high unemployment rates (Stiglitz, 2020, p. 244).¹⁷ In such periods, people with low incomes had very small savings and thereby small pensions. According to Stiglitz (2020, p. 245), the desire of financial sectors to privatize social security systems arises from high profits based on fees collected from employees. Although pension funds are concerned with long-term savings, their managers focus on high financial performance in the short run (Atkinson, 2015, p. 257). For example, as an emerging market economy, China's public pension income has been the largest source of inequality of disposable income since 2002 (Li et al., 2020). In addition to pension privatizations, financial development may also foster the creative destruction of firms as capital is moved to more productive projects, which results in unemployment for the displaced workers (Bartelsman et al., 2004; Perelman, 2008; Van Arnum and Naples, 2013).

¹⁵ The difference between GINI coefficients for market income and disposable income arises from the level of redistribution in countries. Of the advanced economies, the U.S., the U.K., France and Germany have approximately the same level of inequality of market income. However, the U.S. has the highest level of disposable income inequality since it does not have extensive redistribution policies. Even after taxes and transfers, the U.S. exhibits the most unequal distribution of disposable income, followed by Canada, Germany, Finland and Sweden (De Nardi, et al., 2000). Some emerging market economies such as Mexico, Russia and Turkey certainly have higher inequality of disposable income than the U.S. (Fisher and Smeeding, 2016).

¹⁶ "Taxing some forms of capital income at lower rates than wages is not only inequitable; it also causes distortion. There is an incentive to convert income into the category taxed at a lower rate. For instance, if capital gains are taxed at a lower rate than dividends, corporations can distribute their profits to their shareholders in the form of capital gains through the share buyback rather than in dividends" (Stiglitz, 2020, p. 190).

¹⁷ The objective of pension privatizations is to reduce the pressure on government spending, foster individual savings, and encourage the development of the private financial sector to manage people's savings.

In low-income economies, *ifrs^e* appears to reduce inequality, while in a few regressions *ifrs^d* increases it. For this group, financial development is significantly and negatively related to income inequality, with the exception of regressions (5) and (9). In addition to the negative impact of market-based financial development on inequality, our findings on financial institutions-based development for low-income countries are consistent with the results of prior studies showing that domestic banking sector development would reduce income inequality (Beck et al., 2007; Gimet and Lagoarde-Segot, 2011).¹⁸ Thus, the development of credit markets is important to improve income inequality. If credit markets are less developed, access to finance will be dependent on dynastic assets such as personal wealth and political connections, which creates barriers, and therefore fewer opportunities for low-income groups, leading to slower economic growth and higher income inequality (Banerjee and Newman, 1993).

Moreover, we conducted mediation analysis for different income groups. For advanced economies where the impact of IFRS on inequality is measured by *ifrs^e*, the results indicate partial mediation. For emerging market economies, the mediation test results for regressions using *ifrs^d* and *ifrs^e* are consistent for most measures of income inequality.

4.3.3. Endogeneity tests

Previous studies on financial development report endogeneity (Soumare and Tchana, 2015; Alfaro et al., 2006). Therefore, we conduct the Hausman test in order to determine whether there is endogeneity from the correlation of explanatory variables with the error term (Kennedy, 2003, p. 403). As the test result suggests endogeneity, we use the GMM estimator.¹⁹ The fixed effect GMM estimator controls for country-specific characteristics that do not change over time, but are potentially important with respect to income inequality (Jauch and Watzka, 2016). The GMM that yields heteroskedasticity-robust standard errors is widely used in studies about financial development (Baum, 2006; Baum et al., 2003). Table 9 presents the results of fixed effect two-stage GMM regressions. Our results indicate that all measures of financial development reduce income inequality significantly, which is similar to our results and confirms the findings of prior studies (Banerjee and Newman, 1993; Galor and Zeira, 1993). The income inequality-reducing effect of financial development appears to be larger for income inequality of disposable income than that of market income.

In addition to *gdp* and *gdppc²*, all control variables are highly significant and have the expected signs with their relationships of income inequality. While an increase in unemployment contributes to inequality positively, better education in terms of schooling years and government consumption expenditures reduces inequality, suggesting that human development through education and government consumption expenditures are important factors to reduce inequality (Kenworthy and Pontusson, 2005; Rueda and Pontusson, 2000).

In the first-stage regressions, we use IFRS, control of corruption, and gross savings as a percentage of GDP as instruments. IFRS is regarded as high-quality accounting standards that enhance the accuracy, transparency and comparability of financial statements, thereby leading to financial development by reducing the cost of capital (Daske, 2006) and facilitating cross-border investments (Louis and Urcan, 2015). Untabulated regression results indicate that IFRS and control of corruption have a significant positive impact on financial development in all regressions. Accordingly, it can be argued that the adoption of IFRS and effective control of corruption influence all types of financial development positively. The GMM provides three statistics to test the validity of the selected instruments (Baum, 2006; Baum et al., 2003). The results provide evidence that the model is suitable. The Kleibergen Paap statistics is a test of under-identification and determines if the excluded instruments are correlated with the endogenous variable, while the Hansen-J statistic is a test of overidentification. The test results indicate that the joint hypothesis that the instruments are relevant is accepted. This means that the instruments are uncorrelated with the error term, and that the excluded instruments are correctly excluded from the model. Finally, the endogeneity test statistic suggests that the null hypothesis that the instrumented variable is exogenous should be rejected in all estimations, indicating that financial development is endogenous.

Appendix 2 shows the two-stage regression results for *gini* and *incsh10*. The coefficients on all measures of *findev* indicate that the impact of financial development on income inequality is negatively related to Gini, and that of income share held by the highest 10 percent of the population is larger than those on inequality of market and disposable incomes in Table 9. Our findings of *gdppc* and *gdppc²* are consistent with those in previous estimations. However, in contrast to the findings in Table 9, we obtain significantly positive results between education and inequality. Accordingly, it appears that improvement in education increases the GINI and the income share of the highest 10 percent.

In addition to GMM, when we use 2SLS following previous studies (Gordon et al., 2012; Nnadi and Soobaroyen, 2015; Tawiah and Gyapong, 2021), our results remain consistent with those in the GMM estimations. The results are not reported for the sake of brevity.

¹⁸ However, it is argued that the size of the banking sector and capital markets may not entirely capture the complex mechanisms linking finance with income distribution as the relationship between finance and welfare ultimately depends on the capital markets' and banks' abilities to identify lucrative projects, monitor internal and external risk levels, and ease transactions (Gimet and Lagoarde-Segot, 2011). This view is important, implying that the impact of high-quality accounting standards, such as IFRS, helps investors and creditors to make true decisions about investments.

¹⁹ The null hypothesis of the Hausman test is that the variable under consideration can be treated as exogenous. The test statistics are highly significant. [$\chi^2(6) = 72.72$, $\text{prob} > \chi^2 = 0.000$], so that the null hypothesis of exogeneity is rejected. www.stata.com/manuals13/ivregresspostestimation).

Table 9
Two-Stage GMM Regression Results Overall Sample.

Dependent variable <i>find</i> =	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	<i>gimrkt</i> <i>fd</i>	<i>grnidisp</i> <i>fd</i>	<i>gimrkt</i> <i>fn</i>	<i>grnidisp</i> <i>fn</i>	<i>gimrkt</i> <i>fn</i>	<i>grnidisp</i> <i>fn</i>	<i>gimrkt</i> <i>fn</i>	<i>grnidisp</i> <i>fn</i>	<i>gimrkt</i> <i>fn</i>	<i>grnidisp</i> <i>fn</i>
<i>gdppc</i>	-0.001 (0.029)	0.005 (0.037)	-0.037 (0.026)	-0.049 (0.034)	0.011 (0.032)	0.019 (0.041)	-0.058** (0.027)	-0.087** (0.036)	-0.041 (0.026)	-0.055 (0.034)
<i>gdppc</i> ²	0.002** (0.001)	0.003** (0.001)	0.002** (0.001)	0.003* (0.001)	0.003** (0.001)	0.003** (0.001)	0.004*** (0.001)	0.006*** (0.002)	0.004*** (0.001)	0.005*** (0.001)
<i>edu</i>	-0.097*** (0.029)	-0.112*** (0.040)	-0.106*** (0.027)	-0.121*** (0.040)	-0.093*** (0.033)	-0.114** (0.046)	-0.102*** (0.030)	-0.111*** (0.043)	-0.143*** (0.029)	-0.186*** (0.042)
<i>govexp</i>	-0.024*** (0.005)	-0.026*** (0.006)	-0.022*** (0.006)	-0.023*** (0.007)	-0.024*** (0.005)	-0.025*** (0.006)	-0.018*** (0.005)	-0.014** (0.006)	-0.021*** (0.004)	-0.020*** (0.005)
<i>unemp</i>	0.030*** (0.004)	0.017*** (0.005)	0.026*** (0.005)	0.011 (0.007)	0.033*** (0.004)	0.022*** (0.005)	0.035*** (0.004)	0.025*** (0.005)	0.037*** (0.004)	0.029*** (0.005)
<i>find</i> _{dev}	-0.428*** (0.128)	-0.664*** (0.159)	-0.433*** (0.175)	-0.742*** (0.241)	-0.352*** (0.105)	-0.518*** (0.129)	-0.323*** (0.121)	-0.593*** (0.166)	-0.332*** (0.103)	-0.580*** (0.131)
Observations	1,834	1,834	1,834	1,834	1,834	1,834	1,834	1,834	1,834	1,834
<i>p</i> -value	86.72	86.72	22.07	22.07	88.81	88.81	34.98	34.98	84.72	84.72
Hansen-J stat.	0.186	3.379	2.291	3.314	0.965	6.956	1.368	0.271	0.496	0.401
<i>p</i> -value	0.911	0.185	0.318	0.191	0.617	0.031	0.505	0.873	0.781	0.818
Endogeneity stat.	11.00	19.85	11.41	21.47	6.47	13.73	15.67	31.47	13.62	29.36
<i>p</i> -value	0.000	0.000	0.000	0.000	0.011	0.000	0.000	0.000	0.000	0.000

Notes: Robust standard errors are in parentheses [*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$]. Dependent variables are GINI based on market income (*gimrkt*) and disposable income (*grnidisp*). *find* is financial development, which is measured by financial development (*fd*), financial markets (*fn*), financial institutions (*fin*), financial markets depth (*fn*d), and financial institutions depth (*fn*d).

5. Conclusions

Multiple studies have shown the association of financial development and economic development. Early works argued that economic development should reduce income inequality, as the benefits from an expanded economy will be distributed to all stakeholders in a country. However, this result has not been universally accepted. In addition, a number of studies have looked at the direct impact of financial development on income inequality. The role of financial development in economic development is supported by information about potential investment opportunities as the movement of capital to the most productive projects is critical. The IFRS's conceptual framework specifically mentions its ability to provide quality information to investors and lenders, and to increase transparency. Thus, the adoption of IFRS should support financial development by providing improved information about investment opportunities. Our findings show that both financial development and the adoption of IFRS reduce income inequality. This study extends the investigation of income inequality by examining whether financial development mediates the impact of IFRS on different measures of income. Moreover, we find that for market income inequality the mediation is complete, whereas for disposable income inequality the mediation is partial. This may be due to government transfer payments and tax policies that increase disposable income. Our results also confirm that the impact of IFRS and measures of financial development on income inequality depend on the countries' level of economic development. The results also show the benefit to countries that use high-quality financial reporting standards as we have evidence of their direct impact on reducing income inequality. Finally, our results also show the additional benefit to countries that create a financial infrastructure capable of making efficient use of these accounting standards, as this also reduces income inequality. The study contributes to the discussion of accounting standards as a tool to improve transparency and liquidity. However, we also demonstrate that the benefits of high-quality accounting standards do not accrue to all stakeholders. As with any study, there are both implications for additional research and issues that may limit the interpretation of the results.

Clearly, additional research could look at the role that accounting standards play in different types of political settings. Two issues need further investigation. First, different "types" of IFRS have been adopted. These differences combined with a country's reliance on different financial institutions may result in different impacts on country-level income inequality. The second issue is the role that political institutions play in the choices of financial intermediaries, and how these choices impact the IFRS's association with income inequality. One of the limitations of this study is the availability of data. While we relied on the World Bank and the IMF for much of our data, there could be issues in relation to how income is measured. For example, there could be a difference between income and consumption inequality as certain countries have safety nets for their citizens that other countries do not.

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Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at [doi:10.1016/j.ecosys.2022.101069](https://doi.org/10.1016/j.ecosys.2022.101069).

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