

FINANCIAL INCLUSION FOR SELECTED OECD COUNTRIES

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ABSTRACT

Purpose- Financial inclusion is defined as a process that ensures the ease of access, availability, and usage of the formal financial system for all members of an economy by emphasizing the use of accessibility and availability of financial services. A financial sector is measured and compared on four main features; debt is the size of financial institutions, access is the access and use of financial services by the users, efficiency is the efficiency in the provision of financial services, and stability is the stability in the provision of financial services. Financial inclusion, in short, is adults' access to and use of financial services. This study aims to measure the financial inclusion level for selected OECD countries from 2010-2021. Also, this study aims to estimate the effect of financial inclusion on economic growth and income inequality for selected countries.

Methodology- The data used in this study cover a range of variables related to financial inclusion from various institutions, including the IMF-Financial Access Survey (IMF-FAS), the World Bank - World Development Indicators (WB-WDI), the World Bank - Global Financial Development Database (WB-GFDD) and the Standardized World Income Inequality Database (SWIID). These variables provide insights into the dimensions and determinants of financial inclusion and their impact on economic and social outcomes for selected OECD countries. In the study, we run panel data regressions for each group separately, using GDP per capita as the dependent variable to determine the impact of the Financial Inclusion Index on economic growth. We also construct two different models for each group of countries with and without the added control variables into the models.

Findings- The analysis reveals that the effect of financial inclusion on economic growth is negative for all groups of countries. The impact is significant for Group 1 and Group 2. The magnitude of coefficients changes when we add control variables to the model. However, it does not change the significance level of the coefficients. The magnitude of the coefficients increases as countries' per capita income increases. At the same time, the effect of financial inclusion on the GINI index is significant only in the model for Group 3 with control variables. The sign of the impact is negative. It implies that the GINI index decreases as the financial inclusion index increases. So, the effect of financial inclusion on income inequality is positive for countries in Group 3.

Conclusion- The empirical results did not support the relationship between financial inclusion and economic growth (GDP per capita). These results may be explained by advocating the financial sector's quick and fundamental digital transformation. Hence, the rules for availability, accessibility, and usage of financial products and system are completely changed in the past ten years. On the other hand, the relationship between financial inclusion and income inequality, measured by GINI Index, is consistent with the literature only for Group 3 countries (developing countries). The increase in the gap between rich-developed and developing countries may explain these results. An increase in financial inclusion still supports adjustments in income inequality in developing countries, but its effect is disappeared in developed countries in the last 12 years.

Keywords: Financial inclusion, economic growth, OECD countries, financial indicators, income inequity.

JEL Codes: G20, G21, G23

1. INTRODUCTION

Financial inclusion is one of the most controversial issues recently and has gained a prominent place in the literature. According to Demirgüç-Kunt et. al., (2017), by using financial services through any financial institutions, financial inclusion start with having a deposit or transaction account, saving money, using credits to invest, making and receiving payments, using insurance products to manage financial risks(Demirgüç-

Kunt et al., 2017). In other words, financial inclusion is a process that ensures the ease of access, availability, and usage of the formal financial system for all members of an economy by emphasizing the use of accessibility, availability, and usage of financial services (Sarma, 2008).

This study investigates the relationship between financial inclusion, economic growth, and income inequality for selected OECD economies. We identify country groups consisting of five countries representing three different income levels and analyze them using the panel data method.

2. LITERATURE REVIEW

The literature on financial inclusion often focuses on the effect of financial inclusion on economic growth. In addition, it is stated that financial inclusion has a positive effect on income inequality (Appiah-Otoo & Song, 2021; Dahiya & Kumar, 2020; Demircuc-Kunt et al., 2017; Khan et al., 2021).

Ratnawati K. (2020) studied ten developing Asian countries from 2009 to 2018. Using data from the World Bank, they found that financial inclusion positively affects economic growth. Furthermore, they discovered that financial stability has a negative effect on the poverty rate and income inequality, suggesting the importance of an inclusive and stable financial system (Ratnawati, 2020).

Polloni-Silva et al. (2021) focused on 13 Latin American countries from 2004 to 2017, employing the World Bank and IMF-FAS data. Their findings highlighted the positive impact of financial inclusion and technology adoption on reducing the poverty headcount ratio and the Gini Index. This indicates that enhancing financial inclusion and embracing technological advancements can contribute to poverty reduction and income equality in Latin American countries (Polloni-Silva et al., 2021).

Nandi et al. (2021) examined 76 developing countries from 2011 to 2017 using World Bank data. Their research revealed a strong and positive relationship between financial inclusion and per capita GDP growth in developing economies. Additionally, they observed that the impact of financial inclusion is more pronounced in countries with higher levels of financial inclusion, emphasizing its significance in promoting economic growth (Nandi et al., 2021).

Fouejieu, Sahay, Cihak, and Chen (2020) conducted a study encompassing developed and developing countries from 2004 to 2015. They employed the GINI coefficient to indicate income inequality and found a negative relationship between income inequality and financial inclusion. Their findings suggest that increasing financial inclusion can reduce income inequality (Fouejieu et al., 2020).

Sethi and Sethy (2018) concentrated on India and utilized the IMF's FAS data from 2004 to 2014. They developed demand and supply indicators of financial inclusion and found a significant impact on economic growth. Their study emphasizes the importance of financial inclusion in driving economic growth in India (Sethi & Sethy, 2018).

Sawadogo and Semedo (2021) examined 28 sub-Saharan African countries from 2004 to 2015. Their study found that the impact of financial inclusion on income inequality varies across countries. Notably, countries with high institutional quality were more likely to experience a reduction in income inequality through financial inclusion (Sawadogo & Semedo, 2021).

The reviewed literature consistently indicates that financial inclusion is crucial in achieving economic growth and reducing poverty and income inequality. These findings highlight the importance of policies and initiatives to enhance financial inclusion to achieve sustainable and inclusive development in various regions worldwide. The general results of the literature are a strong positive relationship between financial inclusion and economic growth and a strong positive relationship between the level of financial inclusion and income inequality.

3. DATA AND METHODOLOGY

The data used in this study cover a range of variables related to financial inclusion from various institutions, including the IMF - Financial Access Survey (IMF-FAS), the World Bank - World Development Indicators (WB-WDI) (World Development Indicators | DataBank, 2023), the World Bank - Global Financial Development Database (WB-GFDD) (Global Financial Development Database, 2022) and the Standardized World Income Inequality Database (SWIID) (Solt, 2022). The control variable, education, is obtained from OECD data. These variables provide insights into the dimensions and determinants of financial inclusion and their impact on economic and social outcomes for selected OECD countries. Variables and data sources are summarized in the table below.

Table 1: Variables and Data Sources

Variable	Symbols	Description	Source
Availability	ATM	Number of ATMs per 100,000 adults	IMF - FAS
Availability	CREDIT_DEBIT	Number of credit + debit cards per 1,000 adults	IMF - FAS
Accessibility	DEPOSITS	Number of deposit accounts with commercial banks per 1,000 adults	IMF - FAS
Accessibility	POP	Urban population (% of total population)	WB - WDI
Usage	CREDIT_GDP	Private credit by deposit money banks and other financial institutions to GDP (%)	WB - GFDD
Usage	FUNDS_GDP	Mutual fund assets to GDP (%)	WB - GFDD
Dependent	GDPPC	GDP Per Capita	WB - WDI
Dependent	GINI	GINI Index	SWIID
Control	UNEMP	Unemployment, total (% of total labor force)	WB - WDI

Variable	Symbols	Description	Source
Control	EDUC	Population with tertiary education 25-34 year-olds, % in same age group	OECD

We construct a financial inclusion index with three dimensions: availability, accessibility, and usage.

The availability dimension of the financial inclusion index consists of the average number of ATMs per 100,000 adults and the number of credit plus debit cards per 1,000 adults. The accessibility dimension of the index is the average number of deposit accounts with commercial banks per 1,000 adults and the urban population as a share of the total population. The usage dimension of the index is the average of private credit by deposit money banks and other financial institutions as a share of GDP and mutual funds as a share of GDP.

Then we defined the Financial Inclusion Index as the average of these three dimensions:

$$FII = \frac{\text{Accessibility} + \text{Availability} + \text{Usage}}{3}$$

We use GDP per capita growth to capture the relationship between economic growth and financial inclusion. We also use GINI Index to represent income inequality as the dependent variable. We use the unemployment rate of the total labor force as the control variable. Our second control variable is the population with tertiary education 25-34 year-olds as a share of the same age group.

We identified 15 OECD countries based on data availability. We have divided these countries into three subgroups according to their GDP per capita size. We identified five countries with a GDP per capita above \$40,000 as "Rich Countries. We identified countries with a GDP per capita between \$20,000 and \$40,000 as "Economically Advanced Countries." Lastly, we defined five countries whose GDP per capita is less than \$20,000 as "Developing Countries."

Table 2: Groups of Countries

Group 1	Group 2	Group 3
Austria	Czech Republic	Chile
Japan	Estonia	Greece
Netherlands.	Korea	Mexico
Norway	Portugal	Poland
Sweden	Spain	Turkey

In the study, we run panel data regressions to see the relationship between dependent variables and the financial inclusion index. We run separate regressions for each country group, using the GINI index and GDP per capita as dependent variables. We also examine the effect of control variables by adding them to the models.

4. FINDINGS

In the study, we run panel data regressions for each group separately, using GDP per capita as the dependent variable to determine the impact of the Financial Inclusion Index on economic growth. We also constructed two different models for each group with and without the added control variables into the models. The results of the models are presented in the table below.

Table 3: GDP per capita as Dependent Variable

	(1)	(2)	(3)	(4)	(5)	(6)
	Group 1: G~l	Group 1: G~t	Group 2: G~l	Group 2: G~t	Group 3: G~l	Group 3: G~t
	b/se	b/se	b/se	b/se	b/se	b/se
fii	-1.28** (0.59)	-1.43** (0.72)	-0.66*** (0.16)	-0.71*** (0.23)	-0.05 (0.27)	-0.19 (0.23)
unemp_ch	-0.08 (0.09)		-0.13** (0.05)		-0.28*** (0.09)	
educ_ch	0.34 (0.52)		0.06 (0.20)		-0.12 (0.17)	
Constant	2.17*** (0.80)	2.91** (1.18)	2.85 (2.16)	3.39** (1.61)	2.34* (1.29)	2.32 (1.82)
Observations	60	60	60	60	60	60

The effect of the financial inclusion index on GDP per capita is negative for all groups. It is statistically significant for Group 1 and Group 2 but not for Group 3. The magnitude of the effect changes when we add control variables to the models. However, it does not change the significance level of the coefficient. The magnitude of the impact increases as countries' per capita income increases.

Table 4: GINI Index as Dependent Variable

	(1)	(2)	(3)	(4)	(5)	(6)
	Group 1: G~	Group 1: G~o	Group 2: G~	Group 2: G~o	Group 3: G~	Group 3: G~o
	b/se	b/se	b/se	b/se	b/se	b/se
fii	0.04 (0.03)	0.05 (0.04)	-0.02 (0.04)	-0.00 (0.04)	-0.03*** (0.01)	-0.01 (0.01)
unemp_ch	0.01 (0.01)		0.02** (0.01)		0.03** (0.01)	
educ_ch	0.02 (0.03)		-0.04* (0.02)		0.00 (0.04)	
Constant	0.25* (0.13)	0.28** (0.12)	0.09 (0.17)	-0.09 (0.14)	-0.29 (0.27)	-0.35*** (0.10)
Observations	60	60	60	60	60	60

As can be seen from the table above, the coefficient on the financial inclusion index is significant only in the model for Group 3 with control variables. The sign of the coefficient is negative. It implies that the GINI index decreases as the financial inclusion index increases. So, the effect of financial inclusion on income inequality is positive for countries in Group 3. This effect is the opposite for countries in Group 2 and Group 1.

5. CONCLUSION

The empirical results did not support the relationship between financial inclusion and economic growth (GDP per capita). These results may be explained by advocating the financial sector's quick and fundamental digital transformation. Hence, the rules for availability, accessibility, and usage of financial products and system are completely changed in the past ten years. For instance, the number of ATMs is decreased. Local financial investments are quickly dispersed to other countries with the global integration of financial systems.

On the other hand, the relationship between financial inclusion and income inequality, measured by GINI Index, is consistent with the literature only for Group 3 countries (developing countries). The increase in the gap between rich-developed and developing countries may explain these results. An increase in financial inclusion still supports adjustments in income inequality in developing countries, but its effect has disappeared in developed countries in the last 12 years.

In conclusion, distractive digital transformation in the last 12 years in the financial sector has changed the traditional measurements of financial inclusion. (e.g., the number of ATMs). New measures are needed. The differences in availability, accessibility, and usage between rich-developed and developing countries have widened in recent years. The saturation of financial inclusion in rich-developed countries has reached chiefly. Therefore, the negligible increases in financial inclusion in rich-developed countries do not affect increasing GDP per capita and income inequality.

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