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Financial Development and Local Government Social Protection

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Abstract

The existing theories that explain social protection do not incorporate the potential role of financial development. This research empirically examines whether financial development influences local government social protection expenditures. We use panel data on nearly 65 developed and developing countries for the period 1980-2021 and adopt IV/FE and system GMM estimation methodologies to address potential endogeneity. IV/FE estimation results show that financial development, financial institutions and the depth of financial institutions increase local government social protection expenditures. System GMM results confirm the positive influence of the depth of financial institutions. The depth of financial institutions can therefore be conducive to enhancing social protection and supplementing the government equity role, while the access to financial institutions can help reduce the burden of social protection on government.

Keywords: Social protection; local government; financial development; panel data
Jel codes: H53; G21; G23; O16

1. Introduction

Social protection is important in economic development: It reduces the size of the shadow economy and informality and increases GDP. Expenditures on social protection are the most important determinant of the size of shadow economy (Ivașcu and Ștefoni, 2023; Mara, 2021). Ivașcu and Ștefoni (2023) find that when social protection expenditures exceed 20% of GDP, the shadow economy reaches its lowest size. Mara (2021) also finds that the increase in social protection expenditures and the improvement in government efficiency reduce the size of the shadow economy.

Social protection expenditures and programs protect the poor, the unemployed and vulnerable groups (Asher and Zen, 2015; Ganßmann, 2000; Mina 2021). The recent COVID-19 pandemic of 2020-2021, the ongoing Russia-Ukraine war which has created energy and wheat supply shortages, the growing global inequality, and the rising inflation worldwide are all global factors that have hurt the existing poor further and increased the number of low-income people.[1] These global trends underscore the important role of social protection in reducing poverty and income inequality. Being a component of government expenditures and a fiscal policy tool, social protection expenditures reinforce the government equity role.

[1] Chancel, Piketty, Saez and Zucman (2022) in the World Inequality Report address the growing global inequality over the past two centuries (1820-2021).

Government expenditures, which include social protection expenditures, have been explained in the literature mostly in terms of demand and supply. Heller and Tait (1982) and Heller and Diamond (1990) find that demographic changes and rapid population growth, which constitute demand, explain the growth in government expenditures in developing countries on health, education, and social security.

Lindauer and Velenchik (1992) explain the growth in government expenditures in terms of demand and supply factors. The demand for public goods is influenced by income, which forms the basis of Wagner's law. As the country becomes more developed, the demand for public goods grows to support the transition towards industrialization. On the supply side, the provision of public goods is determined by the availability of government resources. Tax revenues determine the provision of public goods. Kau and Rubin (1981) argue that increased market production, increased record keeping associated with technological improvements, and female labor force participation reduce the burden of collecting taxes and increase the size of the public sector.

Development theories relate the provision of public goods to industrialization. To support industrialization and the development and restructuring of the economy, governments need investment in health and education for the development of human capital. In other words, industrialization requires government investment in social protection.

Theories of social protection have been developed in Di Gioacchino et al. (2014), Hong (2014) and Sepalika et al. (2014). Di Gioacchino et al. (2014) examine theoretically how the income level shapes the preferences for social protection. Individuals with above (below) average income should support a reduction (increase) in social protection. In addition, unemployment risk increases the demand for social protection.

Capturing the economic and political dimensions of Wagner's law, Hong (2014) explains social protection in terms of modernization and power resource theories. Demand for social protection increases in underdeveloped economies according to the modernization theory (Williams, 2014; Williams and Windebank, 2015). In economies with strong labor unions and socialist parties, where labor rights and social equity are valued, the demand for social protection increases according to the power resource theory (Korpi, 1983; Moller et al., 2003).

Besides addressing the demand side of social protection based on Wagner's law, Sepalika et al. (2014) explain social protection in terms of lack of fiscal transparency. Lack of fiscal transparency lowers taxpayers perceived cost of government services provision and increases the demand for them.

Recently, Haelg et al. (2022) examine the determinants of social expenditures in 31 OECD countries in 1980-2016. They find that unemployment, aging population, banking crises, social globalization, and public debt increase social protection expenditures. In contrast, trade globalization, party system fractionalization, and fiscal balances decrease them.

The literature on social protection to the best of our knowledge has overlooked the role that financial development can play in extending government social protection. Financial development can influence the demand for government social protection in two opposing directions. On the one hand, financial development promotes economic growth and development (Levine, 1997; Calderon and Liu, 2003; Panizza, 2014; Valickova et al. 2014; Durusu-Ciftci et al. 2017; Nguyen et al. 2022) through the mobilization of domestic savings to domestic investment, formation of SMEs, attracting inflows of foreign capital, and increasing access of the poor and the vulnerable groups to the banking system. In other words, financial development characterized by depth, accessibility and efficiency promotes growth and development and increases the demand for social protection in consistency with Lindauer and Velenchik (1992). On the other hand, financial development facilitates the inflows of remittances providing a form of private social protection, which reduces the demand for government social protection. In other words, the same deep, accessible, and efficient financial development therefore reduces the demand for social protection.

Financial development can influence the supply of government social protection. A well-developed and functioning banking system may encourage the taxation of financial services. Similarly, a well-developed money and capital markets may encourage the taxation of income and capital gains on financial instruments. Increased tax revenues can increase the government capacity to supply social protection. In other words, developed – deep, accessible, and efficient - financial institutions and markets can boost tax revenues and the supply of social protection services.

The financial development literature suggests the relationship between financial development and tax revenues could flow in both directions in large panels of developing countries (Ilievski, 2015; Petrescu, 2013; Tsaurai 2020). Lompo (2023), using panel data on developing countries in 1995-2017, finds that financial development

positively influences the ability of government to raise tax revenues, in particular those from direct taxes.[2] Gnangnon (2022), using panel data on 104 developing economies in 1980-2014, examines the effect of financial development on non-resource tax revenue through the international trade channel and finds that financial development has a positive effect on non-resource tax revenues through trade openness, export product diversification, and the share of manufactured exports in total export products.

In this research, we examine the question of whether financial development influences government social protection. This question has been overlooked in the social protection literature. Being a key characteristic of a developed economy, financial development can influence the demand and supply of social protection. We noted above the recent evidence on the impact of social protection on the size of the shadow economy. Shadow economies tend to flourish in less developed, mostly rural economies or areas. The level of local governments, as opposed to the general or central government, tend to be the closest to rural, underdeveloped areas.

Therefore, we measure social protection at the local government level and examine whether financial development influences *local* government social protection expenditures. We use panel data on nearly 65 developed and developing countries for the period 1980-2021. To address potential endogeneity arising from unobserved country effects, reverse causality, and variable omission, we adopt IV/FE and system GMM estimation methodologies.

The IV/FE estimation results show that financial development, financial institutions and the depth of financial institutions increase local government social protection expenditures. Preliminary system dynamic GMM results seem to confirm the positive influence of the depth of financial institutions. The depth of financial institutions can therefore be conducive to enhancing social protection and supplementing the government equity role. Access to financial institutions can help reduce the burden of social protection on the government.

The remainder of the paper is structured as follows: Section 2 furnishes the empirical model adopted in the paper along with a description of the data used. Section 3 offers a discussion of the empirical issues and methodology, while section 4 presents the empirical results. Section 5 concludes.

2. Empirical model and data

In exploring the influence of financial development on social protection, we compile panel data on a sample of nearly 65 countries over the period 1980-2021. Our empirical strategy involves estimating a panel regression model to account for unobserved country effects along the lines of Baltagi (2021). The model is specified as follows:

$$SP_{it} = \beta_0 + \gamma_i + \beta_1 FD_{it} + \theta Z_{it} + \varepsilon_{it}$$

where *SP* is local government social protection, measured by local government social protection expenditures as a percentage of GDP. *FD* is an index of financial sector development. It comprises subindexes of access, depth and efficiency of financial institutions and markets.[3] *Z* is a vector representing determinants of social protection as explained in Mina (2021) and discussed in section 1 above. It includes the income level (*INCOME*), population dependency (*DEPENDENCY)*, the degree of industrialization (*INDUSTRY)*, the state of the economy (*UNEMPLOYMENT*), and the degree of globalization (*GLOBALIZATION). INCOME*, *DEPENDENCY*, *INDUSTRY*, *UNEMPLOYMENT*, and *GLOBALIZATION* account for the demand side of social protection, while *GSIZE* accounts for the supply side and resource availability. γ captures the unobserved country-specific effects. B_1 and θ are the coefficients of the variable of interest *FD* and the vector of social protection determinants *Z* to be estimated. ε is the idiosyncratic error term. The subscripts *i* and *t* are country and time indicators, respectively. Appendix A defines and describes how these variables are measured and provides the data sources.

FD can influence the demand and supply for social protection. As discussed in section 1, it can increase economic growth and development, which exerts an ambiguous influence on the demand for social protection. *FD* can also increase tax revenues and therefore the size and ability of government to supply social protection services. Therefore, the association between *FD* and *SP* is ambiguous *a priori*.

INCOME accounts for the demand for social services. A higher income level is associated with a more developed and modernized economy and more demand for public goods. However, a higher income level may

[2] Ilievski (2015) defines financial development in terms of stock market development, namely value traded and market capitalization. Tsaurai (2020) measures financial development using an aggregate financial index, which covers the depth and access to the banking system as well as efficiency of financial institutions and financial markets.

[3] See Svirydzenka (2016) on the construction of the financial development indexes and subindexes methodology.

reduce the demand for social protection. On the other hand, a higher income level can increase tax revenues, which can increase the funding and supply of social services. Accordingly, the relationship between *INCOME* and *SP* is ambiguous *a priori*.

The increase in population dependency, *DEPENDENCY*, increases the demand for social protection. Higher dependency ratios suggest unemployment, sickness, accidents, and disability. Consequently, the influence of *DEPENDENCY* on *SP* is expected to be positive *a priori*.

An industrialized economy is more developed and modernized and characterized by higher income level per capita on average than a less industrialized economy. This implies that in a more industrialized economy, workers have high levels of education and training, high wages, and more stable jobs. Accordingly, we expect a negative association between *INDUSTRY* and *SP a priori*.

According to power resources theory, the increase in government size increases the ability of government bureaucracy to increase its supply of social services. We therefore expect a positive association between *GSIZE* and *SP a priori*.

As the economy grows and more jobs are created, unemployment falls and the unemployment rate drops. This in turn reduces the demand for social protection services. Conversely, when the unemployment rate increases, the demand for social protection increases. Accordingly, we expect a positive association between *UNEMPLOYMENT* and *SP a priori*.

In a more open economy, exports provide opportunities for employment and increase incomes, which reduce the demand for social protection. On the other hand, imports may result in displacement of low-skilled workers, which increase the demand for social protection. Therefore, the nature of the association between *GLOBALIZATION* and *SP* is ambiguous.

3. Empirical issues and methodology

In estimating the empirical model above, endogeneity is a potential empirical issue. Potential endogeneity arises from unobserved country effects, reverse causal relationship between the dependent variable *SP* on the one hand and *DEPENDENCY* and *UNEMPLOYMENT* on the other hand, and the omission of relevant variables from the empirical model. To address endogeneity, we employ the IV/FE, and system GMM estimation methodologies.

4. Empirical results

Table 1 presents the descriptive statistics of the empirical model variables. Table 2 presents the IV/FE estimation results. We treat *DEPENDENCY* and *UNEMPLOYMENT* as endogenous and instrument for them using the first lag and difference, the female youth labor force participation rate, and the labor force participation rate. We also account for the unobserved country-specific effects.

Table 1: Descriptive Statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
SP	1,511	1.547	2.802	0.000	20.282
FD	6,905	0.268	0.217	0.000	1.000
FI	6,905	0.351	0.230	0.000	1.000
FM	6,905	0.174	0.229	0.000	1.000
FID	6,905	0.218	0.241	0.000	1.000
FIA	6,905	0.279	0.271	0.000	1.000
FIE	6,905	0.505	0.204	0.000	1.000
FMD	6,905	0.159	0.235	0.000	1.000
FMA	6,905	0.181	0.247	0.000	1.000
FME	6,905	0.177	0.298	0.000	1.000
INCOME	6,442	8.392	1.460	5.100	11.680
DEPENDENCY	6,905	66.270	19.919	16.172	120.461
INDUSTRY	5,577	1,131.059	4,856.269	4.166	81,526.800
UNEMPLOYMENT	4,831	7.825	5.850	0.116	38.800
GLOBALIZATION	5,677	82.833	52.390	6.320	442.620
GSIZE	3,467	171.685	1,443.362	17.865	64,732.000

Table 2: Financial Development and Local Government Social Protection Expenditures
IV/FE Estimation Results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	FD	**FI**	**FM**	**FID**	**FIA**	**FIE**	**FMD**	**FMA**	**FMA**
FD	**0.987****	**0.923****	0.348	**1.418****	0.114	0.318	0.575*	0.468	-0.125
	(0.388)	(0.448)	(0.299)	(0.575)	(0.449)	(0.317)	(0.342)	(0.343)	(0.162)
INCOME	0.252	0.200	**0.386****	0.228	0.379	0.387*	0.289	0.371*	**0.410****
	(0.183)	(0.200)	(0.194)	(0.189)	(0.253)	(0.209)	(0.180)	(0.193)	(0.197)
DEPENDENCY	0.003	0.004	0.003	0.003	0.003	0.003	0.001	0.002	0.003
	(0.008)	(0.009)	(0.009)	(0.008)	(0.008)	(0.009)	(0.008)	(0.008)	(0.009)
INDUSTRY	**-0.0003****	**-0.0003****	**-0.0003****	**-0.0003****	**-0.0003****	**-0.0003****	**-0.0003****	**-0.0003****	**-0.0003****
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
UNEMPLOYMENT	0.014	0.014	0.014	0.013	0.014	0.015	0.011	0.014	0.013
	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
GLOBALIZATION	0.002	0.003	0.002	0.002	0.003	0.003	0.002	0.003	0.003
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
GSIZE	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.001	0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Constant	-1.465	-1.073	-2.376	-1.208	-2.279	-2.467	-1.408	-2.248	-2.411
	(2.024)	(2.180)	(2.108)	(1.897)	(2.611)	(2.203)	(1.926)	(2.076)	(2.128)
Observations	1,178	1,178	1,178	1,178	1,178	1,178	1,178	1,178	1,178
Number of Countries	64	64	64	64	64	64	64	64	64
Country effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wald test	224.7***	209.0***	214.5***	228.3***	199.1***	203.7***	228.4***	227.0***	198.3***

Notes: Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1. *DEPENDENCY* and *UNEMPLOYMENT* are treated endogenously.

Empirical evidence shows that financial development, financial institutions, and financial institutions depth increase local government social protection expenditures. Financial institutions depth has the strongest influence among the three variables. In contrast to financial development and its components/dimensions, industrialization reduces social protection expenditures.

The two-step system GMM estimation results are presented in table 3. System GMM results confirm the positive influence of financial institutions depth obtained in table 2. In contrast, access to financial institutions reduces social protection expenditures. *GLOBALIZATION* and *GSIZE* decrease and increase social protection expenditures, respectively.

Table 3: Financial Development and Local Government Social Protection Expenditures
System Dynamic Two-step Estimation Results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	FD	**FI**	**FM**	**FID**	**FIA**	**FIE**	**FMD**	**FMA**	**FME**
FD	0.375	-0.120	0.395	**1.123****	**-0.584*****	-0.080	0.249	-0.099	**0.282*****
	(0.325)	(0.293)	(0.240)	(0.532)	(0.189)	(0.144)	(0.278)	(0.187)	(0.086)
DEPENDENCY	-0.008	-0.006	-0.008	-0.012	-0.010**	-0.008	-0.006	-0.005	-0.005
	(0.008)	(0.008)	(0.006)	(0.007)	(0.005)	(0.010)	(0.008)	(0.006)	(0.006)
UNEMPLOYMENT	0.004	0.003	0.004	0.003	0.006	0.001	0.003	0.003	0.004
	(0.008)	(0.008)	(0.008)	(0.008)	(0.006)	(0.008)	(0.004)	(0.005)	(0.009)
INCOME	-0.030	0.057	-0.047	**-0.157****	**0.151*****	0.023	-0.021	0.048	-0.048
	(0.063)	(0.048)	(0.057)	(0.077)	(0.039)	(0.053)	(0.051)	(0.037)	(0.033)
INDUSTRY	0.000	0.000	0.000	0.000	0.000	0.000	0.000**	0.000**	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GLOBALIZATION	**-0.003****	**-0.004*****	**-0.003*****	-0.002	**-0.003*****	**-0.004*****	**-0.003*****	**-0.004*****	**-0.003****
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
GSIZE	**0.004*****	**0.004*****	**0.004*****	**0.005*****	**0.004*****	**0.004*****	**0.004*****	**0.004*****	**0.004*****
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
L.*SP*	**0.951*****	**0.960*****	**0.952*****	**0.956*****	**0.939*****	**0.960*****	**0.961*****	**0.963*****	**0.965*****
	(0.020)	(0.016)	(0.018)	(0.019)	(0.023)	(0.014)	(0.015)	(0.013)	(0.018)
Constant	0.392	-0.239	0.572	1.390***	-0.592	0.112	0.278	-0.269	0.466
	(0.490)	(0.683)	(0.541)	(0.350)	(0.430)	(1.000)	(0.492)	(0.399)	(0.498)
Observations	1,241	1,241	1,241	1,241	1,241	1,241	1,241	1,241	1,241
Number of Countries	63	63	63	63	63	63	63	63	63
Wald test	**15,004*****	**24,830*****	**3,409*****	**8,093*****	**4,681*****	**23,937*****	**16,117*****	**23,713*****	**7,339*****

Notes: Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1. *DEPENDENCY* and *UNEMPLOYMENT* are treated endogenously.

5. Conclusion

This research contributes to the literature on social protection in two respects. First, it examines the influence of financial development on social protection, which has not been examined in the literature before. Second, by focusing on local government social protection, this research accounts for the role of fiscal decentralization in extending social protection. Empirical evidence shows that financial institutions depth can be conducive to enhancing local government social protection and supplementing the government equity role. On the other hand, access to financial institutions can help reduce the burden of local government social protection.

Appendix A

Empirical Model Variables

Variable	Definition	Measurement	Data Source
Dependent Variable			
SP	Local government social protection	General government social protection expenditures (percent of GDP)	IMF's Government Finance Statistics (GFS)
Explanatory Variables			
FD	Degree of financial development	Index of financial development	IMF's Financial Development Index database
INCOME	Income level	Real per capita GDP in constant 2017 international US$ and based on purchasing power parity (log)	World Bank's World Development Indicators (WDI)
DEPENDENCY	Population dependency	Age-dependency of the elderly population (% working age population)	World Bank's WDI
INDUSTRY	Industrialization	Ratio of industry to agriculture value-added	Author's calculation based on World Bank's WDI
UNEMPLOYMENT	State of the economy	ILO-modelled unemployment rate	World Bank's WDI
GLOBALIZATION	Degree of trade globalization	Sum of exports and exports (% GDP)	World Bank's WDI
GSIZE	Government size	Ratio of general government final consumption expenditure to tax revenue	Author's calculation based on World Bank's WDI

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