

Master Thesis U.S.E.

Investigating Social Policy Competition in Latin America: An Evaluation of Health, Education and Social Protection Expenditure¹

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JEL-Codes: C23, C26, F68

Keywords: Globalisation, Social Policy, Race to the Bottom, FDI, Health, Education, Welfare

Abstract

A prevalent concern in development economics is that globalisation leads to a race to the bottom in public services. While research has been done to evaluate this in the areas of labour standards, taxation and environmental regulation, no studies have attempted to empirically evaluate this in the area of social expenditure. Rather than a “race to the bottom”, this research paper investigates the prospect of social expenditure competition in Latin America. Using a panel of 20 Latin American countries between 2000 and 2020, this study attempts to quantitatively evaluate the existence of a relationship between government expenditures on health, education and social protection between countries. Using dynamic panel estimation, this research finds no substantial quantitative evidence that social expenditure competition exists between Latin American countries. Additionally, it substantiates the work of previous scholars in finding that institutional and macroeconomic factors may predict social expenditure more consistently than social expenditure in other countries. The paper recommends that similar quantitative analyses be conducted in other regions to verify this, and that more quality data be collected and circulated to facilitate further research.

¹ I wish to express my sincerest gratitude to my supervisor, Dr. Kattia Moreno Cueva, and my second reader, Prof. Marcel Boumans, for their support, insight and encouragement throughout this writing process. The copyright of this thesis rests with the author. The author is responsible for its contents and opinions expressed in the thesis. U.S.E. is only responsible for the academic coaching and supervision and cannot be held liable for the content.

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I. Introduction

In development economics, a prevalent policy concern is that globalisation leads to a race to the bottom in public services. Increased flows of capital have motivated governments to alter public policy such that foreign investment inflows are maximised in the pursuit of economic growth, particularly in developing countries. Governments are thusly incentivised to engage in strategic policy interactions with one another in order to maximise their share of foreign investment. A wealth of academic literature on this topic covers ground relating to inter-state competition on labour standards, environmental regulation and taxation. However, almost no empirical studies have attempted to quantitatively analyse this relationship in the area of social expenditure. The question remains; does the prospect of foreign investment lead to a competitive interaction between developing countries in social expenditure? In other words; does social expenditure in neighbouring countries influence domestic social expenditure? This paper will seek to provide an empirical evaluation of this consideration, analysing a panel of 20 Latin American countries between 2000 and 2022 to provide a thorough quantitative analysis of social expenditure competition.

This discussion is particularly relevant for Latin America and the Caribbean.² The contemporary economic experience of the region is characterised by extraordinary economic growth throughout the 2000s. Regional GDP per-capita has risen by over 300% since 1990, due in large part to the so-called “commodities boom” of the early 2000s, and market integration programmes coordinated by supranational organisations. (e.g. the World Bank and the International Monetary Fund (IMF)) in the 1990s (Ocampo and Vallejo, 2012; Cameron, 2004).³ As a result of increased FDI, the region’s industrial composition has steadily diversified, slowly diverging from a predominantly primary sector economy toward a more services-oriented model, as reflected by the evolution of foreign investment industry in the region (UNCTAD, 2023; Kingstone, 2018).

Despite this outstanding economic growth, Latin America remains beset by a wide variety of economic and social challenges. Income inequality in the region remains worryingly high. Access to quality healthcare is low, resulting in poor health outcomes (PAHO, 2023). Educational attainment exhibits some of the highest instances of inequality in the world, and has been cited to continue as such without enhanced public intervention (UNESCO, 2022; Cruces *et al.* 2014). Sub-optimal government investment in social protection, education and healthcare have been linked to these empirical facts. A

² Herein, the terms ‘Latin America and the Caribbean’ and ‘Latin America’ will be used interchangeably.

³ It should be mentioned that some scholars refute this claim. Rosnick and Weisbrot (2014) propose that the commodities boom did not inherently have a significant impact on economic growth, rather that improvements in the terms of trade provided financial insulation for Latin American countries by improving current account balances and avoiding balance-of-payments crises.

wide variety of reports and academic studies cite institutional instability, public sector inefficiency and lacklustre social expenditure as a contributing factor to Latin America's comparable underperformance on social progress (CEPAL, 2017; Cimoli *et al.* 2017; ECLAC, 2022).

This highlights the role of social policy for the future of the Latin American economy, making the prospect of inter-state policy competition a particularly concerning prospect. But what exactly could this competition look like? How might it manifest, and what are its implications? In brief, social policy competition is characterised by the policy preferences of foreign investors⁴, and the extent to which governments conform to those preferences.⁵ Assuming that governments understand this, they may alter their social expenditure in response to foreign investor preferences in order to attract FDI and incur economic growth. The competitive dimension of this mechanism comes into play where multiple national governments are concerned. If governments understand that foreign investors prefer the prioritisation of certain social policies, they may attempt to provide the 'best fit' for foreign investment by altering their social policies in response to one another (i.e. competing). This inter-state expenditure dependence is precisely the mechanism that this research paper will attempt to provide quantitative evidence for. To state this explicitly, the research question of this paper is as follows; do Latin American governments alter their social expenditure patterns in response to one another?

What are the implications of this, should such a mechanism exist? If governments perceive that they can reap economic rewards by altering social policy to match investor preferences, and indeed do so, what are the consequences for beneficiaries? This is a particularly concerning prospect, given that there is potential for states to trade off excess social expenditure in exchange for FDI inflows. If this were the case, this may leave critical areas under-resourced and potentially erode quality of life in the region. Those who rely upon social programmes like public healthcare, education or social protection schemes in order to maintain a quality standard of living may unnecessarily suffer as a result of this policy competition, which could contribute to the persistent regional problem of economic inequality. This may prove harmful in the long run. For instance, Latin America faces an acute demographic challenge of an ageing population, thereby potentially requiring enhanced state pension schemes in the future. If the quality of social expenditure programmes is constrained as a result of the pursuit of economic growth, this may have worrying connotations for equality and quality of life within the region.

This research paper will investigate the possibility that Latin American states compete with one another strategically by changing their expenditure patterns in response to one another. Section II

⁴ These are expanded upon in the literature review.

⁵ For instance, foreign companies may prefer to invest in countries whose governments spend more on education, and less on unemployment benefits. This is expanded upon in the literature review.

provides an overview of the current literature on this topic, evaluating the empirical and theoretical progress made regarding the race to the bottom in developing countries. Section III outlines the data sources and measurement strategy used throughout this paper. Section IV contains the primary results found based on the estimation strategies provided, and details results of various robustness checks used to verify them. Section V contains the associated conclusions, policy implications and recommendations for future researchers, analysts and policymakers.

II. Literature Review

This literature review is divided into four sub-sections, with each section attempting to answer a distinct question. First, what are the primary determinants of FDI? Second, how can government policy change as a result of the prospect of FDI? Third, does social expenditure play a role in attracting FDI? Finally, if social policy does play a role, does this lead to strategic competition for FDI on social policy grounds? The discussion contained in the latter two sections will serve as a theoretical basis for this research paper.

I. Determinants of FDI – Macroeconomics, Institutional Factors

Before discussing the more specific interaction between social expenditure and FDI, it is critical to address the following question; which economic factors influence the decisions of foreign firms to invest in developing countries? While it may be tiresome to include such a rudimentary discussion, any review of the existing literature omitting such a fundamental component of discussion on FDI would be considered unthorough. This considered, we will dedicate a brief portion of the review to analysing the more general macroeconomic reasons that influence FDI, before narrowing the scope to the policy discussion subsequently.

Broadly speaking, it is assumed that foreign firms seek to maximise profits by optimising revenue and cost. The revenue component of the profit equation is influenced by features of the wider macroeconomic environment. Mottaleb and Kalirajan (2010) analyse a panel of 68 LMICs between 2006 and 2008 using random/fixed-effects estimation, finding that countries with higher GDP growth rates, higher international market integration, market size and pro-commercial business environments attract higher inflows of FDI. Saini and Singania (2018) find similar results across both developed and developing countries over a longer period of time (2004-2013) and using generalised method of moments (GMM) methodology. These findings are somewhat unsurprising – it makes intuitive sense that foreign companies are attracted to larger markets and faster growing economies. Indicators of a

large, growing economy act as a signal to foreign firms for the potential of greater revenue (and profit) within host countries, given that they imply greater institutional integrity, higher productivity, stronger international market integration among other factors.

Alongside the prospect of greater revenue inflows, firms are equally concerned with reducing operating costs in order to maximise profits. This is the primary point at which public policy enters the equation. To provide some examples, public policy has the potential to influence costs for firms through regulation of the labour market, commercial taxation and environmental standards. The ensuing discussion will primarily focus on labour market regulation, as this is the dimension of the economy that social expenditure is most concerned with. A brief discussion of current literature on commercial taxation and environmental regulation is included subsequently, though it should be stressed that these are not the main focus.

II. The Role of Government Policy & The Race to the Bottom

Since the 1990s, academic discussion surrounding the interaction between public policy and foreign direct investment in developing countries has largely been characterised by the so-called ‘race to the bottom’ (RTB) hypothesis (Wilson, 1996; Brown *et al.* 1993). In brief, the RTB hypothesis posits two key assumptions. First, foreign firms prefer to invest in countries with lower labour standards and regulation, given that these economies tend to offer cheaper labour, thereby reducing commercial operating costs and enhancing profits for foreign firms. Second, due to the inherent scarcity of foreign capital, developing countries compete with one another by employing various public policies to reduce labour standards in order to attract foreign investors, based on the policies implemented by one another.⁶ One of the central economic concerns associated with this hypothesis is that the intentional reduction of labour standards may lead to widening inequality, increases in poverty and the overall decline in quality of life in ‘host’ countries (i.e. those developing countries seeking to receive foreign investment). This competitive behaviour may reduce working standards to their absolute minimum (for a given level of foreign investment) among developing countries, and allow private investors to reap the benefits of widening profit margins. It should be emphasised from the outset that ‘racing to the bottom’ is not exclusive to labour standards, as will be discussed in further sections of this literature review.

A developing body of research appears to highlight the existence of a race to the bottom in labour standards. Olney (2013) finds evidence that 1) foreign firms tend to invest in countries with

⁶ Of course, these two assumptions are predicated upon the implicit notion that states value and prioritise economic growth as it is conventionally understood (i.e. increases in GDP, standards of living etc). In turn, FDI is considered to be a key driver of economic growth in the contemporary market economy.

lower regulatory intervention and 2) recipient nations compete for this investment, specifically by reducing the strictness of employment protection legislation. It should be stressed that this paper only included OECD nations, which may diverge from the experience of developing nations. In addition, Mehmet and Tavakoli (2010) find evidence of wage competition between China, the Philippines, Singapore and Thailand by means of rolling back labour market regulations. Perhaps the most convincing evidence for a race to the bottom among developing countries comes from Davies and Vadlamannati (2013). The authors analyse a panel of 135 countries between 1985 and 2002 to investigate the possibility of the influence of neighbouring countries' labour standards on host country labour standards. Using the Labour Rights Index (Mosley, 2010), they calculate the average labour standards of neighbouring developing countries relative to host country i , and assign weights to each neighbour based on factors such as GDP and proximity, among others. In doing so, they find evidence of a positive association between labour standards across neighbouring countries – if a neighbouring developing country with adequate proximity exhibits a reduction in labour standards, it is likely the host country will also exhibit a reduction in labour standards and *vice versa*. While the panel contained data pertaining to both developed and developing countries, the authors found that these associations were strongest among developing countries.

While previous studies have been conducted to investigate labour standard competition among developing states, the possibility of alternative sources of inter-state policy competition exists too. Two focal policies in the current academic literature are 1) commercial profit taxation and 2) environmental regulation. Taxation of commercial profits and environmental regulation have been found to influence the rate of foreign capital inflows for developing (and indeed, developed) countries (Devereux *et al.* 2008; Avi-Yonah, 2000; Margalioth, 2003; Madiès and Dethier, 2010). The empirical link between these two mechanisms is quite clear – lower commercial income taxation or pollution taxation will reduce the operating costs of foreign firms, meaning profits are enhanced. Evidence of competitive behaviour between developing countries has also been found across these two policy dimensions (Davies and Naughton, 2014; Rauscher, 1997).

III. Social Policy & FDI

It is clear that foreign companies appear to select investment destinations on the basis of potential profits. While there is evidence to suggest that these firms consider economic growth, taxation, costs of labour and environmental regulation when making these choices, it may also be possible that state expenditure could play a role too. Specifically, could it be the case that some *social policies* are more commercially attractive than others, *ceteris paribus*? While it may not seem readily apparent that states with differing social policy combinations may offer foreign firms varying profit potential, firm

investment preferences could still be influenced for two broad reasons. First, a discussion of the broader theoretical relationship between foreign capital and social policy is required before evaluating the empirical evidence on this matter.

It's important to recognise that social policy can act as a signal to firms that states wish to participate in international markets. Rudra (2007) outlines a descriptive framework reconciling social policy approaches and foreign investor preferences. The paper categorises a variety of social policies based on the degree to which their institution prioritises economic commodification (i.e. participation in international markets). Based on their policy combinations, states may be categorised as 'productive' (in which their policy combinations reflect a commodification-oriented growth strategy), 'protective' (in which social policy emphasises the protection of workers and domestic firms from international competition) or 'neutral' (a mix of the two).

How *exactly* can social policy signal state intention to participate in international markets? The framework assumes that certain social policies may represent the interests and priorities of the state, which in turn may align with the profit-seeking interests of foreign firms, thereby making them more attractive for investment. Generally, this can include non-expenditure policy such as labour market regulation or environmental regulation, but government spending is included too. For instance, the Rudra framework considers state investment in education as a 'productive' spending pattern, interpreting this policy as an implication that the state wishes to invest in the aggregate human capital of the labour force, thereby stimulating growth through increased labour productivity and competition with neighbouring states.⁷ On the other hand, social protection policies (such as spending on pensions, unemployment benefits, family allowances, sickness protections), are considered to be 'protective' policies, as their primary motive is to insulate domestic citizens from adverse labour market effects as a result of international competition. The economic growth returns of such policies are less apparent. If the state provides relatively generous unemployment benefits, the Rudra framework considers this as a signal that the state is prioritising the livelihood of its citizens over their participation in the labour market. In this sense, the state is playing an actively protective role for its citizens by insulating them from market fluctuations.

To illustrate this further, four examples of productive/protective social policy expenditure categories are outlined and motivated below;

⁷ Naturally, the real intentions of state investment in education may vary wildly. For example, states may attribute some inherent value to the institution of education, regardless of whether that institution results in economic growth. One can imagine that a state investing in an education system that promotes science, technology, engineering and mathematics (STEM) subjects values economic growth more than another state that invests in an education system that prioritises, fine art, humanities and other relatively low-earning sectors *ceteris paribus*.

- *Healthcare*: State expenditure in basic healthcare is considered to be a productive social policy. Economically, it is in the state's best interest to maintain the health of its workforce to maximise labour productivity, meaning that public investment in basic healthcare is required to correct any market failures that may arise under a *laissez-faire*, privatised health system.
- *Primary and Secondary Education*: Public investment in primary and secondary education is considered to be a productive social policy. Ensuring a higher quality of primary and secondary education will translate into an increase in the aggregate human capital stock of the labour force, meaning that labour productivity will increase, thereby making states more competitive.
- *State Pensions*: State investment in pensions is considered to be a protective social policy. State-supplied pensions does not necessarily translate into increased market competitiveness – elderly public pension recipients tend not to work, meaning that they cannot participate in the labour force and increase marginal labour productivity.⁸ Rather, state pensions provide a financial assurance to the elderly that they may be insulated from financial pressure, meaning they do not have to work and are protected by the state.
- *Unemployment Benefits*: State unemployment benefits are considered to be a protective social policy. The provision of increasingly generous unemployment benefits may act as a disincentive to actively seek out employment assuming they are above a give subsistence income level, thereby reducing domestic market participation.

How exactly does the pursuit of productive or protective social expenditure actively influence the profit potential for foreign firms? As previously discussed, foreign firms wish to increase revenues (i.e. by investing in growing economies) and reduce operating costs (i.e. by pursuing lower labour standards and reduced environmental regulation). The economic link between social expenditure and foreign profits is less apparent, yet still exists. These interactions may differ depending on whether social policies are classed as productive or protective. Productive policies, such as public investment in education, can increase aggregate human capital within the economy, thereby boosting labour productivity and optimising firm production efficiency, making a more educated workforce more attractive for foreign companies.⁹ Regarding protective policies, Rudra (2008) outlines that increases

⁸ One could make the argument that, in a globalised world with increasing international flows of workers, generous pension investments could be seen as an incentive for eligible, skilled workers to remain in their host country if they are to be adequately capitalised in their later years. In this sense, pensions *could* be viewed as a productive social policy.

⁹ This specific consideration is partially challenged by the notion of labour migration or “brain drain” – workers who perceive an asymmetry between their education (and productivity) and wage may decide to relocate overseas. For the purpose of this paper, we will omit discussion on this in the interest of concision.

social spending in areas like unemployment benefits can increase the cost of labour for firms because the subsistence cost of labour will increase with greater minimum earnings. If a state provides a sufficient level of financial support for low-skilled, low-wage workers (i.e. those workers that foreign firms wish to pursue), labour costs will increase thereby squeezing profits *ceteris paribus*.

Empirical support for the attractiveness of productive/protective social policies for foreign companies is generally lacking in the literature, with a few key exceptions. One such exception is Hecock and Jepsen (2013), who analyse the influence of social spending patterns on FDI inflows using a panel of 58 developing countries from 1972 to 2008. Using a combination of panel-corrected ordinary least squares (PCSE-OLS), Arellano-Bond generalised method of moments (GMM) and fixed effects panel estimation, they provide evidence that FDI is not repelled (and may indeed be attracted) by enhanced state expenditure on education and healthcare. While the paper does analyse the interaction between welfare and social protection expenditure (e.g. pensions, unemployment benefits), it fails to find substantive, robust evidence of an associative relationship between the two. These findings are consistent with the notion that foreign investors are attracted to countries that invest in productive social policies (in this case, healthcare and education). From this research, we gather that foreign firms are more attracted to states with higher instances of productive expenditure, but are not necessarily repelled by states that exhibit higher instances of protective expenditure. It is important to realise that this finding does not necessarily rule out the possibility of expenditure competition across protective policy dimensions. If states merely *perceive* that reductions in protective spending might increase foreign capital inflows, then they may be more likely to reduce financing for such policies. Again, existing literature on this is largely non-existent, thereby making this a theoretical consideration.

IV. Social Policy Competition?

Based on the literature discussed, we understand that foreign investment may be encouraged by government expenditure on productive social policy. This could facilitate a different source of policy competition between countries than that which is associated with labour standards, environmental regulation and taxation. If we assume that foreign investment is attracted to productive expenditure, it could be the case that countries attempt to out-spend one another on productive social policy, based on the notion that they may reap the rewards of enhanced FDI *ceteris paribus*. This would imply that state expenditure on health and education is *positively dependent* on state expenditure on health and education in neighbouring countries. Due to the fact that this consideration has not been empirically investigated in previous literature, this will inform the first hypothesis of this research paper, which reads as follows;

- **Hypothesis One:** State expenditure on productive social policy (i.e. education and health) is positively dependent on state expenditure on productive social policy in neighbouring countries *ceteris paribus*.

The interaction between FDI and protective social expenditure has been discussed theoretically, but not empirically supported by previous literature (see Rudra, 2008). While it may not be the case that foreign investment is attracted/repelled by greater protective expenditure in reality, it could be the case that governments *perceive* this as such. If governments understand prioritisation of protective social policy as an indication that the state is not market-oriented, they may alter protective expenditures subject to their pursuit of economic growth through foreign investment. In short, if they wish to encourage foreign investment, they may reduce their funding of social protection systems. This could lead to a similar source of policy competition as described when discussing labour standards, in which countries reduce their social protection in response to reductions from other countries to remain competitive for foreign investment. This will inform the secondary hypothesis, which is outlined below.

- **Hypothesis Two:** State expenditure on protective social policy (e.g. pensions, unemployment benefits) is positively dependent on state expenditure on protective social policy in neighbouring countries *ceteris paribus*. (Alberola, et al., 2006)

The data sources, summary statistics and estimation procedure to test these hypotheses are outlined in the following sections.

III. Data Sources & Summary Statistics

The primary data source for this research paper is the World Development Indicators from the World Bank (World Bank, 2023). This rich dataset contains comprehensive data covering government expenditure on health and education, as well as headline macroeconomic variables (GDP, per-capita GDP, GDP growth, unemployment), government expenditure data (expenditure on health and education), social outcomes (poverty ratio, youth literacy rate, tuberculosis prevalence, population aged over 65) and institutional indicators (control of corruption, regulatory quality) between 2000 and 2022.

One limitation of this dataset is that it does not include government expenditure on social protection programmes. To include this, we use the CEPALSTAT Databank from the Economic Commission for Latin America and the Caribbean (ECLAC), which contains detailed government expenditure data on social protection programmes (CEPALSTAT, 2023). While the dataset does offer a more granular decomposition of social protection programmes (e.g. expenditure on pensions, unemployment benefits etc), data at this level exhibits a significant level of missingness. For instance, data capturing government expenditure on unemployment benefits is only present for nine out of the twenty countries listed in the dataset, totalling to 97 observations from 2004-2019. If this data were used as a dependent variable, this would greatly diminish the statistical power of the estimates produced, and would also present worrying external validity concerns given that less than half of the sample is observed. Nevertheless, the dataset contains an aggregate measure of social protection expenditure with much lower instances of missingness. Hence, this is used as a dependent variable throughout the estimation procedure. Finally, we include the headline PolityIV index score from the Polity Project, which captures data pertaining to the regime type (i.e. autocratic, democratic etc) of the sample countries (Systemic Peace, 2023).

All data sources described above are open-access and easily downloadable by the public (all links in citations). These data sources were merged using the R programming language via RStudio. This was done using a simple left-join procedure, in which multiple datasets were matched to one another based on the country name and year in which the observations were recorded for. The final working dataset contained information pertaining to twenty Latin American countries between 2000 and 2022. All econometric analysis was carried out using Stata 17. Three user-written commands (`xtivreg2`, `outreg2` and `egenmore`) were used to produce some estimates, figures and tables (Schaffer, 2010; Cox, 2000).

A list of the included countries in the final dataset is included in the table below.

Table 1: List of Countries

Argentina	Cuba	Honduras	Trinidad & Tobago
Barbados	Dominican Republic	Jamaica	Uruguay
Brazil	Ecuador	Mexico	
Chile	El Salvador	Nicaragua	
Colombia	Guatemala	Panama	
Costa Rica	Guyana	Paraguay	

The original raw data contained observations from all countries in Latin America. However, much of the original expenditure data was missing. For example, Suriname was included in the original raw data, but only had education expenditure information for 2015, 2018 and 2020. To maintain a reasonable level of estimation consistency year-on-year, we decided to omit countries that did not have expenditure variables for at least 12 of the 20 years.

Summary statistics for all relevant variables are included in the table below.

Table 2: Summary Statistics

Social Expenditure (% GDP)					
	Obs.	Mean	Std. Dev.	Min	Max
Education	432	4.308	1.839	0	14.059
Health	401	3.711	1.766	.961	11.575
Social Protection	466	3.437	3.148	.146	17.473
Control Variables					
	Obs.	Mean	Std. Dev.	Min	Max
Per-Capita GDP	704	5176.8	4408.358	238.765	21920.839
GDP Growth	703	2.965	4.389	-17.945	43.48
Government Consumption (% GDP)	648	14.239	6.346	2.926	43.479
Unemployment	557	8.075	4.542	1.58	33.39
Poverty (\$6.85 Threshold)	335	39.28	17.333	4.8	87.5
FDI	658	3.497	3.41	-4.974	27.812
Control of Corruption	437	-.231	.688	-1.437	1.718
Literacy Rate (0-15)	172	97.318	3.157	75.988	100
Tuberculosis	418	34.916	24.197	0	128
Polity IV	611	6.27	4.51	-8	10

Number of Countries: 20

Time Period: 2000-2020

Examining the means, education accounts for the largest percentage of GDP across the same, while health and social protection expenditure tend to count for lower proportions. However, this comes with the caveat that social protection expenditure is much more varied than health and education expenditure ($\sigma_{social} = 3.148$), meaning there is more expenditure divergence within the sample on protective spending.

A correlation table for FDI and government expenditure variables is included below.

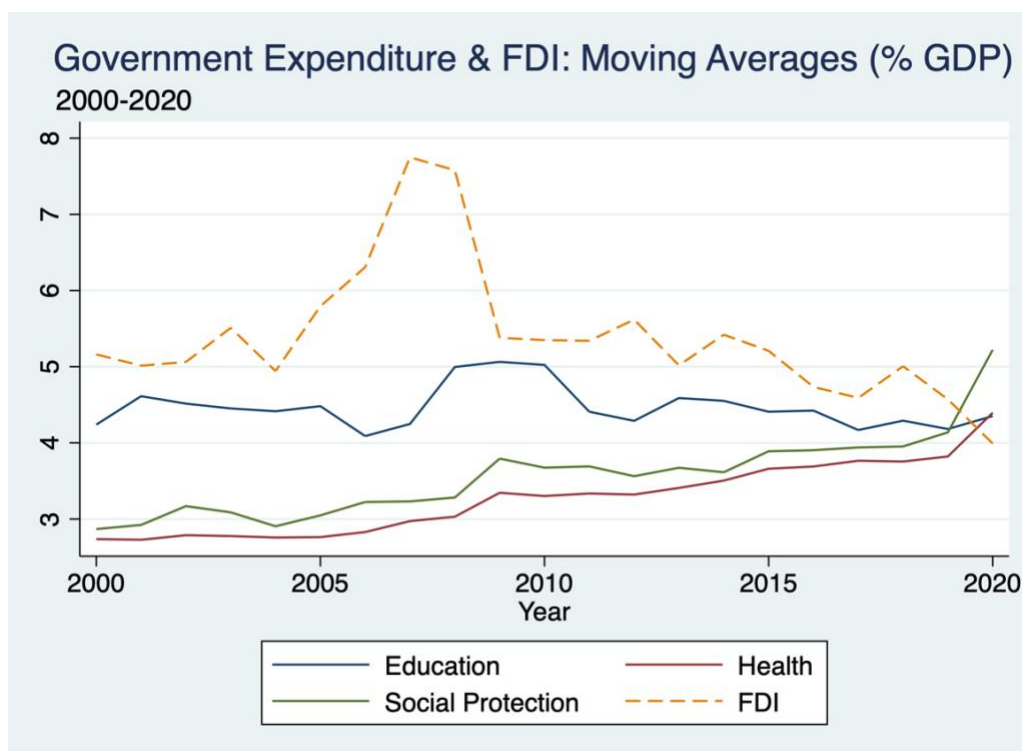
Table 3: Matrix of Correlations (in GDP per-capita quartiles)

<u>Full Sample</u>	FDI	Government Consumption	Health	Education	Social Protection
FDI	1.000				
Government Consumption	0.035	1.000			
Health	0.051	0.528	1.000		
Education	0.162	0.661	0.378	1.000	
Social Protection	-0.086	0.450	0.387	0.245	1.000
<u>Poorest 25%</u>					
FDI	1.000				
Government Consumption	0.343	1.000			
Health	0.250	0.489	1.000		
Education	0.541	0.667	0.248	1.000	
Social Protection	-0.508	-0.038	0.100	-0.301	1.000
<u>Richest 25%</u>					
FDI	1.000				
Government Consumption	-0.093	1.000			
Health	-0.062	0.620	1.000		
Education	-0.101	0.696	0.271	1.000	
Social Protection	-0.185	0.772	0.444	0.363	1.000

For the full sample, FDI is positively correlated with education expenditure, moderately positively correlated with government consumption and health expenditure and moderately negatively correlated with social protection expenditure. This provides tentative support for the productive/protective paradigm discussed previously. Foreign investors may be averse to increases in social protection expenditure, but could be attracted by increases in education and health expenditure. This appears to hold for poorer countries. Examining the bottom 25% (of the GDP per-capita distribution), we see that FDI is strongly positively correlated with productive social expenditure, and strongly negatively correlated with protective social expenditure. Comparing this to the top 25% of countries in the sample, we find that all social expenditure patterns are negatively correlated with FDI. Governments that spend more on education, health and social protection are generally found to exhibit less foreign investment as a percentage of GDP. However, it should be borne in mind that these figures may be misleading due to the nature of the measure used. Given that both measures are taken in percentages of GDP, it makes intuitive sense that an increase in government expenditure will increase GDP, and will therefore reduce the share of FDI *ceteris paribus*.

How have both FDI and expenditure patterns evolved over time? A line graph containing the moving averages (means) of FDI and health, education and social protection expenditure (all as a percentage of GDP) between 2000 and 2020 is included below.

Fig. 1: Social Expenditure and FDI – Moving Averages (Full Sample)



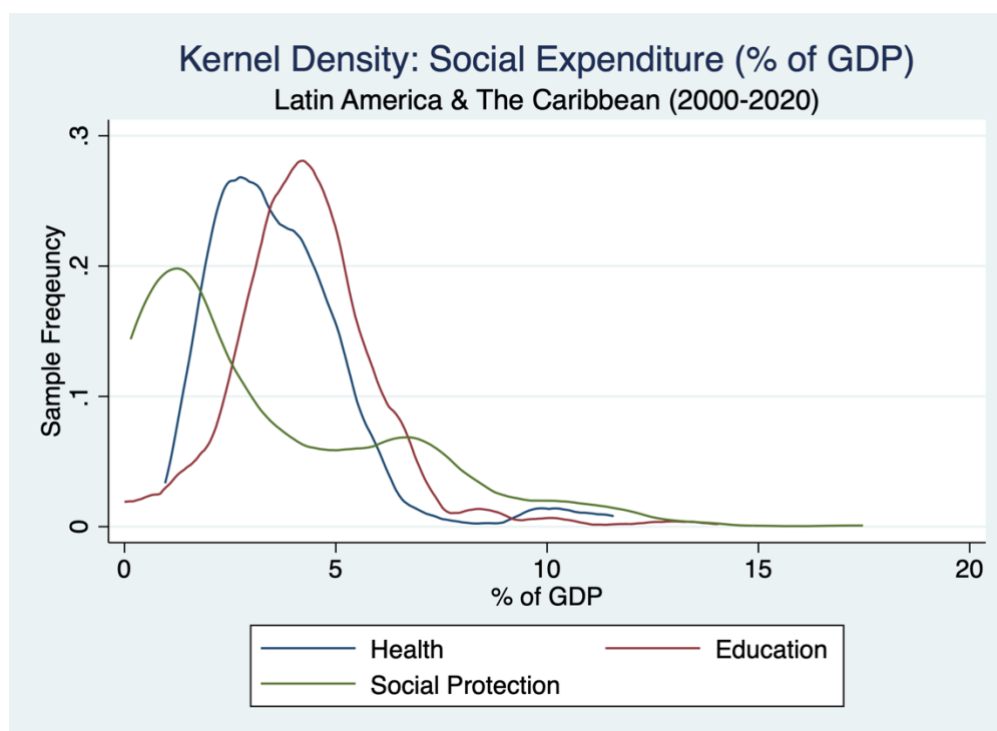
We first observe a strong pattern in FDI accounting for a greater proportion of GDP than government expenditure across time, though this appears to be declining. Simultaneously, we observe that expenditure on health and social protection appears to be trending steadily upward across time, while expenditure on education remains stagnant. This seems to reveal a steadily growing role of government expenditure in Latin American economies over time relative to the early 2000s. Because of this, there is little cause to believe that there has been a “race to the bottom” in social protection expenditure in Latin America. However, it could be the case that countries compete with one another on the grounds of productive (i.e. education or health) expenditure by out-spending one another. Given that health expenditure has trended upward, and education expenditure remains variable, this consideration remains possible.

The increases in government expenditure in 2009 and 2020 can be simply explained by the denominator effect and countercyclical fiscal policy. Due to the global financial crisis (2008) and the COVID-19 pandemic (2020), Latin American economies witnessed a significant economic recessionary period, while nominal government expenditure on health, education and social protection

moderately increased.¹⁰ This could also explain the reason for FDI dropping below government expenditure in 2020. However, a trend appears to have developed in expenditure patterns prior to the pandemic, which may also have contributed to this.

It could be the case that these trends are driven by unusual outliers. Therefore, it is important to examine the variation in expenditure patterns between countries. Kernel density plots for all three expenditure categories are included in the figure below.

Fig. 2: Kernel Density Plot – Health, Education and Social Protection

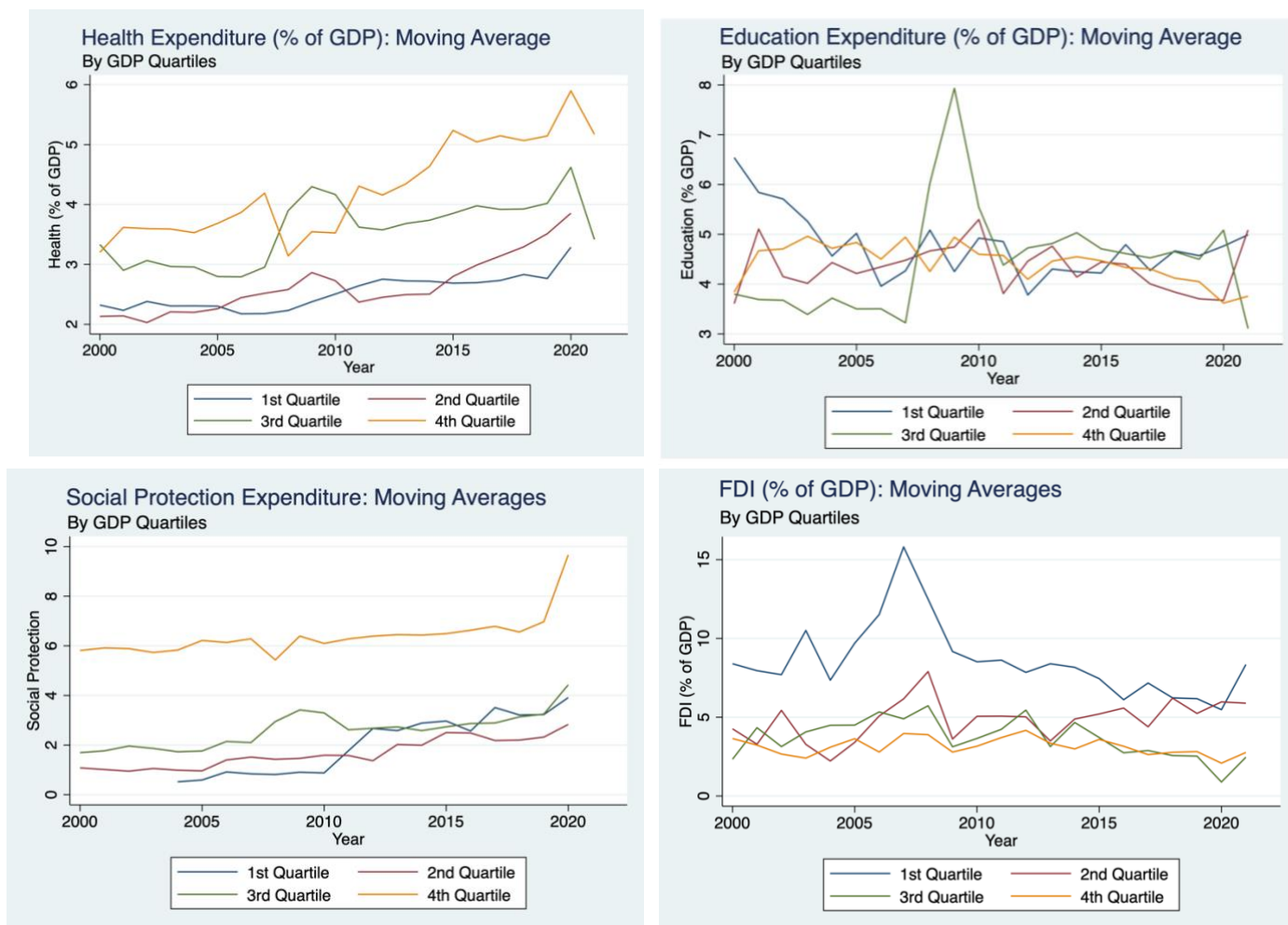


As expected, social protection appears to exhibit the highest level of variance of the three expenditure categories. This is because it captures a wide range of social assistance programmes (e.g. pensions, unemployment benefits, public housing), and is not as clearly defined as health and education. Stating this numerically, health expenditure appears to be the most consistent of the three categories, exhibiting the lowest variance ($\sigma_{health}^2 = 3.12$), compared to education ($\sigma_{educ}^2 = 3.38$) and the much more varying social protection ($\sigma_{social}^2 = 9.91$). Nevertheless, this highlights that social protection expenditure appears to vary much more than health and education expenditure, meaning that the rising average (as displayed in Fig.1) may be characterised by outliers.

¹⁰ Latin America has historically been characterised by pro-cyclical fiscal policy (see Alberola *et al.* 2006). However, scholars accept that Latin American responses to the global financial crisis and the COVID-19 pandemic have been largely counter-cyclical (Celasun *et al.* 2015; Garcia *et al.* 2020).

Decomposing this by wealth, we observe a stark contrast in social expenditure, particularly in the area of social protection.

Fig. 3: Social Expenditure and FDI moving averages (by GDP quartiles)



In health expenditure, the third and fourth GDP quartiles¹¹ (i.e. those countries with GDP above the median) appear to exhibit the highest levels of health expenditure growth, relative to GDP. Countries in the first and second quartiles have expanded their expenditure on health, but at a slower pace than richer countries on average. Education expenditure is strikingly consistent across all GDP levels, centring around the mean value of ~4.5% of GDP. Examining social protection expenditure provides a starkly contrasting picture altogether. Countries in the bottom three GDP quartiles all feature relatively stagnant social protection expenditure growth, while the richest 25% have consistently outspent their poorer counterparts across time. This shows that wealthier countries spend

¹¹ 1st Quartile: Least Wealthy 25%; 2nd Quartile: Second-Least Wealthy 25%, 3rd Quartile: Second-Wealthiest 25%; 4th Quartile: Wealthiest 25% (in terms of GDP).

disproportionately more on social protection than less wealthy countries, which could be due to their lack of dependence on FDI, as displayed by the fourth panel.

It could be the case that poorer countries are attempting to entice FDI by expanding their education expenditure and not expanding their social protection schemes too rapidly. They may also value FDI inflows more, given that they account for larger proportions of GDP on average, which may motivate them to engage in more intense social expenditure competition. This could substantiate the theoretical considerations proposed throughout the literature review, insofar as countries understanding that productive expenditure is more attractive than protective expenditure. In this sense, it would be misleading to use the term “race to the bottom” to describe protective social expenditure, seeing as overall social protection government expenditure is growing in all four quartiles. However, the competitive behaviour may manifest in “not expanding” rather than reducing protective expenditure. Seeing as social protection spending is relatively low already (particularly in the lowest three quartiles), it might be unreasonable to reduce it further. It would then make more sense to simply stagnate its growth in order to induce FDI inflows, rather than reduce it.

IV. Methodology

To test both Hypothesis One and Hypothesis Two, we will determine whether social expenditure in neighbouring countries – that is, all other countries in the Latin American sample – influences expenditure in country i . In its most general form, the formalised ordinary least squares (OLS) model is outlined as follows;

$$\begin{aligned}
 \text{Social Expenditure}_{i,t} &= \beta_0 + \rho \sum_{j \neq i} \omega_{1,j,i,t} \text{Social Expenditure}_{j,t-1} + \beta_1 \text{Social Expenditure}_{i,t-1} + \text{country}_i \\
 &+ \text{year}_t + \beta X_{i,t-1} + \epsilon_{i,t}
 \end{aligned}$$

The primary (generalised) dependent variable (*Social Expenditure*) denotes the natural log¹² of state expenditure on one of three social policy dimensions; 1) health (*health*), 2) education (*education*) and 3) social protection (*social*)¹³ as a percentage of GDP. These models are laid out explicitly in

¹² This is done to account for diminishing returns to expenditure.

¹³ In this case, social expenditure encompasses a variety of social policies including unemployment benefits, pensions, public housing among others.

equations 2-4 in the appendix. This will reflect the extent to which states are financially committed to productive or protective policies, relative to the size of the economy. These three categories were selected for three reasons. First, these categories all represent a sufficiently large portion of GDP in Latin American countries, meaning there is scope for economic significance when studying them. For example, 2017 estimates of health expenditure range from about 1% of GDP (Venezuela) to 10% (Chile), averaging at about 6.6% during this period (OECD, 2020). The regional average of education expenditure by central governments typically accounted for 3-5% of GDP between 1998 and 2022 (World Bank, 2023). Social protection expenditure is much more varied, ranging from accounting for less than 1% of GDP to over 10% in the time period selected for this sample (CEPALSTAT, 2023). Second, they stand in line with the theoretical framework outlined by Rudra (2008) regarding productive/protective expenditure categories. Health and education expenditure are two key productive social policies, while social protection is an aggregate measure representing a collection of protective social policies. This will allow us to connect our quantitative estimations to the theoretical considerations put forward by prior academic work.

Estimations will be run identically for all three expenditure categories. The primary independent variable of interest ($\sum_{j \neq i} \omega_{j,i,t} Social\ Expenditure_{j,t-1}$) denotes the average of social expenditure undertaken by all other countries in Latin America (as proportions of their respective GDP), weighted by their share of the region's GDP. This will reflect the extent to which neighbouring states dedicated their budget toward the social policy of interest one year prior, and how this might influence how state i dedicates its own budget. The interaction between social expenditure in country i and in neighbouring countries will provide insight into the extent neighbouring expenditure as a determinant of host country expenditure. This variable is weighted by the lagged share of GDP that neighbouring economies represent, as states will take the market size into account when attributing value toward neighbouring state expenditure.¹⁴ The formalised GDP weighting scheme is included below.

$$\omega_1 = \frac{GDP_{t-1}}{\sum GDP_{t-1}}$$

This model will also include a lagged dependent variable for all expenditure categories. As previously mentioned, precedent plays a role when states make expenditure decisions. Not controlling for this

¹⁴ Other research has used weighting scheme like this, as well as proximity/distance-based weights (most notably in Davies and Vadlamannati, 2013 and Devereux *et al.* 2008). Given that the scope of this research is limited to Latin America, a spatial lag is not used.

will result in systematic bias in the error across time, meaning that our estimates will be skewed. The lagged dependent variable is included to remedy this. The model will also include country and time-specific fixed effects ($country_i$) and ($year_t$) respectively. Inclusion of these is motivated by the potential threat of omitted variable bias, which might be attributed to inherent characteristics associated with the countries or time period captured. Despite the fact that this study will focus on Latin American countries, regional commonality does not necessarily imply strict characteristic homogeneity, meaning that country-specific effects must be included. There may indeed be differences between countries that are unobservable. Furthermore, given we are working with a panel of extensive length (2000-2020), time-specific effects must be accounted for. This will be done subsequent to a Hausman test, which will determine whether random effects or fixed effects estimation is appropriate.

As is always the case with macroeconomic studies, a variety of factors should be controlled for in order to estimate the impact of the independent variable of interest. Variables capturing the state of the broader macroeconomy are vital to include. Hence, we will include Per-Capita GDP ($gdpppc$) to account for the relative wealth of the country while accounting for population size. Furthermore, we will include a variable denoting the natural log of net inflows of Foreign Direct Investment (FDI) as a proportion of GDP. As discussed extensively throughout the literature review, social expenditure may be influenced by the prospect or presence of foreign investment, meaning its inclusion is necessary.

We also include a variable capturing the unemployment rate ($unemployment$). States with higher unemployment may wish to dedicate higher proportions of their budget to social security spending, meaning variations in unemployment may influence the dependent variable. Similarly, a variable capturing the proportion of the population living on less than \$6.85 per day will be included ($poverty$). This is motivated by the consideration that higher instances of poverty may require more generous social protection programmes (e.g. in the form of conditional cash transfers), meaning that governments may account for this when instituting social policy.

Institutional factors must also be taken into account when examining variation in state-level variables. One such control variable is the state's score on 'Control of Corruption' ($corruption$) as measured by the World Bank Worldwide Governance Indicators. States with higher concentrations of corrupt behaviour may engage in abnormal social spending patterns. For example, a state may engage in clientelist behaviour, in which they increase spending on social security in an attempt to 'buy' votes at an upcoming election.

For the model variant analysing health expenditure (i.e. equation (2) in the appendix), we include two control variables that are specific to government expenditure on health. First, we include the proportion of the population that are aged 65 years or older ($population65$). Countries with larger

elderly populations may face more pressure on health services due to health issues being more prevalent among older citizens. This may require additional funding from the state, meaning that the inclusion of this variable is necessary to avoid overestimation. We also include the prevalence of tuberculosis among the population, operationalised by the number of tuberculosis cases per 100,000 citizens reported annually (*tuberculosis*). Higher instances of infectious diseases among the population may require additional health expenditure in order to account for the increased illness burden. Given that incidence of tuberculosis was comparatively high among Latin American countries during the period captured in this sample (PAHO, 2020), and that World Bank data collected on it is generally comprehensive, it is included as a proxy measure for the incidence of infectious diseases throughout the period. For education expenditure, the literacy rate for children aged 0-15 is included. If states exhibit lower child literacy rates, they may wish to invest more public funds in their pre-primary/primary/secondary education systems in order to boost literacy rates among children. Literacy rates are a widely used (albeit crude) measure of educational quality among LMICs, meaning that states may use this figure as a litmus test for how effective their education systems are.

For the specification analysing social protection, we will include the population aged 65 years or over (i.e. the same variable as included in the health expenditure specification). This is motivated by the fact that pension expenditure accounts for a significant portion of social protection expenditure, meaning that states may increase their social protection spending if they exhibit larger old-aged populations. We will also consider the political dimensions of social protection expenditure by including a measure of democratisation, operationalised by the Polity IV score (*polity*) from the Polity Project. The degree of democratisation may influence social expenditure patterns – Snyder and Yackovlev (2000) find a positive association between democratisation and social protection expenditure. This may be explained by a relatively higher level of civil influence that citizens have over democratic government. In this sense, expenditure may be sensitive to civil lobbying and political voice.

To determine whether states are sensitive to neighbouring states' expenditure, we use dynamic panel estimation, employing a generalised method of moments instrumental variables estimator (GMM-IV) using the fixed effects specification. This specific estimator is selected due to the threat of endogeneity between social expenditure in country i and neighbouring countries' expenditure across time. It could be the case that expenditure in country i may influence expenditure in country j , and

vice versa.¹⁵ The presence of endogeneity would violate the strict exogeneity assumption, meaning estimates would be biased. The selected instruments will be the weighted average of a subset of the lagged control variables discussed above, as will be specified throughout the estimation procedure. It is assumed that neighbouring countries' exogenous control variables will influence the expenditure within neighbouring countries, but will not influence the expenditure within country i , thereby making them an appropriate instrument for this estimation.¹⁶ This is reflected in the data – the instrumental variables included in each estimation in Table 4 are found to be uncorrelated with the dependent expenditure variables used and moderately correlated with neighbouring countries' expenditure variables.

A subset of control variables is used to avoid overidentification when instrumenting for neighbouring expenditure. To determine which variables will be used as instruments, a fixed effects estimation will be run without the lagged dependent variable or the instrumented neighbouring country expenditure variable. The weighted average (excluding country i) of the control variables found to be statistically significant under this estimation will determine which variables will be used as instruments for neighbouring country expenditure.

V. Results

The results of the Hausman tests (all included in Appendix 1C) for the education and health model specifications indicate that either fixed or random effects are appropriate panel estimators. However, the results of the Hausman test for the social protection specification indicate a rejection of the null hypothesis, meaning that random effects is not an appropriate estimator in this case. Therefore, only the fixed effects estimates are reported throughout this section in the interest of concision.

For clarity, we will separate the estimated results for productive and protective expenditure patterns, and discuss each in turn. The baseline results for health and education expenditure are included in Table 4 overleaf.

¹⁵ To elaborate, it is possible that 1) countries are influenced by their neighbours' expenditure at time $t - 1$ and 2) countries may account for their neighbours' expenditure at time $t + 1$ (i.e. if they receive such information ahead of time). This would imply that *social expenditure* _{i,t} and *social expenditure* _{$j,t-1$} are endogenous.

¹⁶ This procedure is aptly demonstrated in Davies and Vadlamannati (2013).

Table 4: Baseline Estimates (Productive Expenditure)

Variables	Health			Education		
	(1) Fixed Effects	(2) FE + LDV	(3) GMM-IV	(4) Fixed Effects	(5) FE + LDV	(6) GMM-IV
Neighbours' Expenditure			-0.135 (0.100)			0.0709 (0.108)
Lagged Dependent Variable		0.798*** (0.0638)	0.810*** (0.0566)		0.687*** (0.155)	0.669*** (0.113)
Per-Capita GDP (log)	0.0776 (0.123)	0.0240 (0.0359)	0.0273 (0.0379)	0.237** (0.0850)	0.0695 (0.0552)	0.0709 (0.0650)
GDP Growth	0.000391 (0.00234)	0.00193 (0.00140)	0.00182 (0.00169)	0.00560 (0.00627)	-0.00222 (0.00381)	-0.00350 (0.00489)
Government Consumption (% of GDP, log)	1.039*** (0.166)	0.115 (0.0873)	0.121 (0.0905)	0.367 (0.216)	-0.330 (0.216)	-0.314 (0.214)
Unemployment (log)	-0.103 (0.0726)	-0.0387 (0.0332)	-0.0358 (0.0281)	0.0729 (0.149)	-0.0750* (0.0413)	-0.0689 (0.0545)
FDI	0.0111 (0.0158)	0.00361 (0.0114)	0.00281 (0.0112)	0.0219 (0.0273)	0.0146 (0.0246)	0.0167 (0.0245)
Poverty Rate (\$6.85 Threshold)	-0.0383 (0.125)	-0.00903 (0.0475)	-0.0128 (0.0476)	0.0651 (0.128)	0.0450 (0.0764)	0.0458 (0.0898)
Control of Corruption	-0.0227 (0.133)	-0.0213 (0.0477)	-0.0270 (0.0467)	-0.235* (0.111)	-0.182* (0.0937)	-0.152 (0.0953)
Population > 65 (log)	0.276 (0.243)	0.102* (0.0563)	0.208* (0.113)			
Tuberculosis (per 100,000)	-0.00430*** (0.000937)	-0.00117** (0.000500)	-0.00124 (0.000884)			
Literacy Rate (0-15)			-0.135 (0.100)			
Constant				-0.0228 (0.0404)	-0.0166 (0.0228)	-0.0183 (0.0191)
Observations	-2.114 (1.497)	-0.284 (0.459)		0.222 (4.839)	2.284 (2.067)	
R-Squared						
Number of Countries	204	204	204	102	99	98
Kleibergen-Paap Prob.			0.0000			0.0000
Hansen J. Prob.			--			--

Robust standard errors in parentheses. All estimates contain a full set of country fixed effects, with no time fixed effects. All exogenous variables are lagged by one year.

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

The initial fixed effects estimates (Column 1) show that health expenditure is positively associated with greater government consumption and lower instances of tuberculosis. While the former result is unsurprising, the latter presents a curious conundrum. One might intuitively expect that higher instances of tuberculosis would incur greater government expenditure on health to rectify this. However, it could be the case that health expenditure responses take longer to implement than one year. If this is the case, further lags may be required to capture this.¹⁷ The inclusion of lagged health expenditure (Column 2) shows that precedent plays a significant role in government expenditure on health. The coefficient estimate on the lagged dependent variable is positive and significant at the 1% level, meaning it is necessary to include.

The GMM-IV model (Column 3) uses government consumption as an instrumental variable for the GDP-weighted average of neighbours' expenditure on health.¹⁸ The coefficient on the instrumented variable is negative ($\beta_{Neighbour} = -0.135$) and not significant at the 10% level. By this estimation, there is no reason to believe that countries take their neighbours' expenditure on health into account when making their own expenditure decisions on health, when accounting for a one-year timeline.¹⁹

The fixed effects estimates in Column 4 find that education expenditure is positively associated with GDP per-capita, while negatively associated with less corrupt countries. The latter relationship could be explained by incidence of clientelist expenditure. Countries with lower control of corruption typically exhibit higher instances of clientelist public policy, in which more corrupt states attempt to “purchase” political support by expanding public expenditure in areas like health, education and social protection ahead of electoral periods (see Ansell and Mitchell, 2011). As in health expenditure, precedent plays a role in government expenditure on education, as evidenced by the coefficient estimated on lagged education expenditure in Column 5.

Column 6 contains the GMM-IV estimates, in which the GDP-weighted average of neighbours' health expenditure is instrumented by the GDP-weighted average of neighbours' GDP per-capita.²⁰ The coefficient on (instrumented) lagged neighbouring expenditure is very small and positive ($\beta_{Neighbour} = 0.0709$) and not found to be statistically different from zero. Therefore, there is insufficient evidence in support of a relationship between neighbours' and host country health expenditure when accounting for the included control variables.

¹⁷ This is addressed in the subsequent section.

¹⁸ Only government consumption was used because the inclusion of incidence of tuberculosis led to overidentification.

¹⁹ I.e. all exogenous variables are lagged by one year, and not by any more.

²⁰ Again, the use of all three significant variables in Column 4 (i.e. GDP per-capita, government consumption and control of corruption) resulted in neighbours' expenditure being overidentified. We therefore restricted the instruments to per-capita GDP only.

Per these estimation parameters, there is insufficient evidence to reject the null hypothesis that there is no relationship between productive social expenditure in country i and neighbouring countries' social expenditure. At this point, we can rule out the possibility that there is productive social expenditure competition between Latin American countries in this sample on an annualised basis.

Social Protection

As previously discussed, there is little empirical evidence to suggest that FDI inflows are influenced by government expenditure on social protection in the current academic literature. We verify this consideration using the data found in our sample. We run a fixed effects regression specification, using logged net FDI inflows (as a percentage of GDP) as the dependent variable, two one-year lags of logged social protection expenditure (as a percentage of GDP) as the primary independent variables and various lagged macroeconomic exogenous control variables. We find that there is no substantial evidence to suggest that FDI is influenced by social protection expenditure (results included in Appendix 1C).²¹

Nevertheless, this does not rule out the possibility that states engage in competitive behaviour on protective policy. It could be the case that governments merely *perceive* that lower expenditure on social protection may entice foreign investors, even when it is not necessarily an empirically supported consideration. This could be motivated by the theoretical consideration that expenditure on social protection signals to foreign firms that the state is de-prioritising participation in international markets, as discussed previously. This may induce competitive behaviour for FDI on the dimension of social protection expenditure where, seemingly, none is required.²² We will therefore investigate whether this competitive behaviour exists in the dimension of social protection expenditure, using the same estimation methodology as used for education and health expenditure. The results of these estimations are included in the table below.

²¹ These include FDI inflows from the previous year (lagged dependent variable), GDP, GDP per-capita, GDP growth, the unemployment rate and government consumption (as a percentage of GDP). All variables here (with the exception of GDP growth and the unemployment rate) are taken in natural logs. These variables are selected in line with prevalent literature on the determinants of FDI in LMICs. See Hecock and Jepsen (2013) for a similar model.

²² If there are no gains to be made through enhanced FDI, a reduction in protective expenditure is both inefficient and potentially harmful to beneficiaries *ceteris paribus*.

Table 5: Baseline Estimates (Social Protection)

Variables	(1) Fixed Effects	(2) FE + LDV	(3) GMM-IV
Neighbours' Expenditure (% of GDP)			0.612 (0.517)
Lagged Expenditure		0.585*** (0.102)	0.567*** (0.105)
Per-Capita GDP (log)	0.252 (0.201)	0.00907 (0.0803)	-0.105 (0.0784)
GDP Growth	-0.0112 (0.00862)	-0.00601 (0.00497)	-0.00494 (0.00494)
Unemployment (log)	-0.0792 (0.146)	-0.0727 (0.0883)	-0.0771 (0.0736)
FDI (log)	-0.0820 (0.0505)	0.0183 (0.0199)	0.0203 (0.0445)
Poverty Rate (\$6.85 Threshold)	0.169 (0.225)	-0.0872 (0.0781)	-0.0444 (0.106)
Control of Corruption	0.210 (0.167)	0.0748 (0.148)	0.135 (0.114)
Population > 65	0.917* (0.445)	0.111 (0.279)	-0.374 (0.573)
Polity IV Score	-0.0885 (0.0945)	-0.0385 (0.0483)	-0.0465 (0.0555)
Constant	-2.445 (1.840)	0.888 (0.635)	
Observations	201	200	200
R-squared	0.243	0.582	0.581
Number of Countries	15	15	15
Kleibergen-Paap Prob.			0.0000
Hansen J. Prob.			--

Robust standard errors in parentheses. All estimates contain a full set of country fixed effects. All exogenous variables lagged by one year.

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

Column 1 finds that the natural log of the older population is the only statistically significant coefficient estimate in the fixed effect specification. This corroborates the previously observed fact that the majority of social protection expenditure is driven by expenditure on pensions. A 1% increase in the proportion of the population being aged 65 years or over is shown to manifest in a 0.917% increase in social protection expenditure as a percentage of GDP *ceteris paribus*. This is statistically significant at the 5% threshold. All other coefficients are not found to be statistically significant. Again, Column 5 reports that the lagged dependent variable is strongly correlated with social protection expenditure, meaning its inclusion is necessary to control for serial correlation. Column 6 contains the GMM-IV estimates, using the lagged GDP-weighted average of the log of the population aged 65 or over as an instrument for the lagged GDP-weighted average of neighbours' social protection expenditure. The

coefficient estimate on the instrumented variable is positive ($\beta_{Neighbour} = 0.612$) but not statistically significant at the 10% level. This implies that there is insufficient evidence to suggest that social protection expenditure positively depends on neighbours' social protection expenditure in the previous year.

Year/Period Fixed-Effects

The baseline estimates did not contain year-specific fixed effects. However, this may result in omitted variable bias, in that there may be a year-specific characteristic that the initial estimates miss. To resolve this, we employ the use of one-year, three-year and five-year dummy variables in additional estimates reported in this section. While social expenditure decisions are typically dictated year-on-year, we use three and five-year dummy variables to account for the possibility of inherent changes in expenditure patterns over a longer period of time. For instance, expenditure may be dictated by recessionary/expansionary periods in the business cycle, meaning that they may not be structurally different annually, but could be over a three or five-year period. This motivates the use of three and five-year dummy variables in the subsequent estimation.

Further Lags

The initial estimates used one-year lags for all exogenous variables. This implies that governments only account for the previous year's information when adjusting their expenditure. This may be difficult to reconcile with reality. Not only is it doubtful that foreign investors react to expenditure alterations within the year that they are implemented, it is even more doubtful that neighbouring countries respond in turn by adjusting their own expenditure patterns. The receipt of FDI is not an instantaneous process – firms often take years to commit to transferring capital to foreign countries. This consideration means that it would be unlikely that neighbouring countries react within a one-year period. Therefore, it could be the case that states alter their expenditure patterns over a longer period of time, rather than simply accounting for information captured in the previous year. While it is typically the case that fiscal budgets are determined year-on-year across Latin America, structural changes to education, health and social protection may take longer to resolve, and therefore may influence expenditure over a longer period. This also means that expenditure competition could take place over a longer period of time. To account for this, we lag all exogenous variables by both three and five years, and follow the same estimation procedure as followed previously. We also include lagged dependent variables for the timeframe accounted for, to ensure that all information in the relevant timeframe is captured in the estimates, including expenditure precedent.

Time Fixed Effects & Further Lags

It is also possible that both of the above considerations should be taken into account simultaneously, given that they are not mutually exclusive. We therefore run estimations containing both one-year lags and dummies, three-year lags and dummies and five-year lags and dummies to account for this.

In the interest of concision, we include only the coefficient estimates on neighbours' expenditure containing both lags and dummies in the table below. All other estimates are included in the appendix.

Table 6: GMM-IV Coefficient Estimates (Neighbours' Expenditure) – One/Three/Five-Year Fixed Effects and Lags

	Health	Education	Social Protection
<u>One-Year Lags + Dummies</u>			
Neighbours' Expenditure	0.407 (0.331)	-0.478 (0.318)	1.901 (1.163)
N	252	117	212
R-Squared	0.892	0.706	0.601
No. of Countries	19	15	16
Kleibergen-Paap Prob.	0.0000	0.0083	0.0173
Hansen J. Prob.	--	0.1651	--
<u>Three-Year Lags + Dummies</u>			
Neighbours' Expenditure	0.0638 (0.175)	0.124 (0.329)	-- --
N	228	96	--
R-Squared	0.796	0.525	--
No. of Countries	19	13	--
Kleibergen-Paap Prob.	0.0000	0.0016	--
Hansen J. Prob.	--	--	--
<u>Five-Year Lags + Dummies</u>			
Neighbours' Expenditure	0.0937 (0.148)	0.0428 (0.101)	0.104 (0.371)
N	203	83	176
R-Squared	0.830	0.443	0.352
No. of Countries	19	13	16
Kleibergen-Paap Prob.	0.0000	0.0000	0.0000
Hansen J. Prob.	0.8804	0.6317	0.4780

Robust standard errors in parentheses. All estimates contain a full set of country fixed effects. Where no coefficient estimates are included (i.e. in the three-year lag specification for social protection), no exogenous variables in the initial fixed-effects estimation were found to be statistically significant, therefore making it impossible to use instrumental variables as previously employed. Where no Hansen J. statistic is reported, only one instrumental variable was used, therefore making overidentification impossible.

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

The use of year dummies, three-year dummies and lags and five-year dummies and lags do not result in any statistically significant coefficient estimates for neighbours' expenditure in any of the three social expenditure categories. By our estimates, this implies that there is no substantial evidence of social expenditure competition between Latin American countries.

Interpretation of Results

In all estimation permutations, we cannot provide quantitative sufficient evidence that countries take the expenditure of their peers into account when making their own expenditure decisions. While there is substantial theoretical support for the existence of social policy competition, along with some tentative empirical evidence (as discussed in the literature review), this relationship fails to manifest using our sample and methodology. Instead, it would appear to be the case that macroeconomic, institutional and social factors in the domestic (i.e. national) environment influence social expenditure more than that of their peers. This can be interpreted as a confirmation of the work of previous scholars in exploring determinants of social expenditure.

For what reasons might social expenditure competition (as conceptualised in this paper) not exist in Latin America? It could be the case that governments perceive that other policy options are more effective at attracting FDI than social expenditure. For instance, adjusting non-expenditure policy such as employment protection legislation may be more cost-effective at attracting FDI, seeing as there is no financial risk in doing so. If governments spend more on education and healthcare, it may be difficult to quantify exactly how much additional foreign investment they may receive. This imposes a certain level of financial risk, whereby the perceived rewards are nebulous at best. Similarly, the political consequences of reducing social protection expenditure may outweigh the prospective benefits of receiving additional FDI, but this is difficult to quantify, thereby making it less attractive for public officials. For these reasons, governments may fail to see the need for adjusting social expenditure at all.

It could also be the case that governments are simply unaware (or do not believe) that certain social expenditure patterns are more attractive to foreign investors than others, and therefore do not engage in competition. It is intuitively reasonable to make the argument that enhanced government spending on education and healthcare (*ceteris paribus*) is an attractive economic factor for foreign investors. However, there remains the possibility that Latin American governments simply don't see it this way. While it is unlikely that governments see social expenditure as a simple investment-return

vacuum²³, they may not believe that social expenditure has any influence over foreign investment, despite quantitative evidence illustrating as such. On the one hand, this is a reasonable argument to make. Being critical of scientific evidence is not necessarily bad in principle, since the nature of social science is that it is simply never certain. On the other, to completely disregard evidence may prove unfavourable, particularly if there are potential economic gains (through enhanced FDI) or social benefits (through enhanced social expenditure) to be made.

Finally, information about other countries' expenditure patterns may not be perfect across time, meaning countries cannot react to it. While this notion is increasingly unlikely in the modern age of communications technology, it cannot simply be assumed that information surrounding government expenditure travels perfectly between countries, even with the use of annual time-lags in the econometric modelling. The foundation of the argument that social expenditure competition exists rests upon the notion that governments react to one another's expenditure patterns with perfect knowledge, when in fact knowledge may not be perfect. While it would be reasonable to assume that government expenditure information in the post-internet era is widely circulated and generally truthful, the use of the internet in Latin American governments has not been constant across time (CEPAL, 2001), nor has the composition of the internet itself remained constant. This means that we may not be able to safely assume constant perfect knowledge between Latin American countries across time.

VI. Conclusions, Limitations & Policy Recommendations

This paper has attempted to quantitatively evaluate the existence of social policy competition in Latin American countries. This has been done based on hypothetical considerations posed by previous scholars of development economics and political science, and previous empirical findings. Specifically, this research has evaluated whether Latin American states compete with one another on the grounds of health, education or social protection expenditure. This paper broadly followed econometric precedent set out by scholars who evaluated the existence of competition in labour standards (Davies and Vadlamannati, 2013) and environmental regulation (Davies and Naughton, 2006). By this estimation strategy, this research found no evidence of social expenditure competition between Latin American countries through education, health or social protection expenditure between 2000 and 2020.

²³ In which governments spend X on education/healthcare/social protection, resulting in Y in educational attainment/health outcomes/poverty.

Given the existence of evidence relating to inter-state policy competition in labour standards, environmental regulation and taxation, this research attempted to uncover whether such interactions exist in the realm of social expenditure. Interpreting this, it would be reasonable to conclude that countries deem inter-state competition in the former three areas to be more advantageous than engaging in social expenditure competition. Rather than engineer their social expenditure in response to the preferences of foreign investors (as theorised throughout the paper), Latin American governments appear to prioritise the needs of their citizens over the potential for reaping economic growth rewards through FDI. In a sense, this is a reassuring prospect. The economic rewards of gearing expenditure toward maximising FDI are unclear, and that the needs of citizens are readily apparent. Latin American governments can be sure in the fact that appropriate funding of education, health and social protection are likely to result in a consequent improvement in the lives of their citizens (assuming a given level of public service quality), and less sure in the idea that funding in accordance to investor preferences may result in economic growth.

Limitations & Recommendations

The granularity and breadth of this research were limited by a lack of available data on Latin American government expenditure, decomposed by function. While it was possible to evaluate the extent to which states compete over health, education and general social protection expenditure, it was generally not possible to explore the possibility that social expenditure competition exists in other expenditure (sub) categories. For example, social protection could be composed of any combination of pensions, unemployment benefits, public housing expenditure, *et cetera*. It could very well be the case that social expenditure competition may exist within these sub-categories of social protection, but may be obscured by the nature of the measure. This applies to education and health, both of which feature their own important sub-categories. However, comprehensive data pertaining to expenditure on these sub-categories of social protection was unavailable to us at the time of writing, meaning that a more nuanced analysis at government expenditure on social policy was not possible. This could be remedied in the future with the collection and publication of more data on these expenditure categories, such that future researchers may provide a richer analytical view.

Furthermore, we accept that there are concerns associated with the interpretation of the results found in this data. Social expenditure has been assumed to proxy state *commitment* to certain social policy goals throughout this paper – states that spend more on education, health or social protection seek to further certain social goals to a greater degree than those that spend less *ceteris paribus*. This assumption is followed largely due to the precedent set by economic/political economy literature until

this point (see Chakrabarti and Joglekar, 2006 or Bacot and Dawes, 1997 for examples). However, valid criticism of this assumption remains. For example, it could be the case that a state may spend less on health (relative to GDP) than another, and may simply allocate their funds more efficiently. One could argue that this state is no less committed (and may in fact be more committed) to improving public health services than the state that simply spends more. Theoretically, this could be solved operationally by taking the ratio of education/healthcare/social protection expenditure and a further measure of public service quality for each social category as the primary dependent variable. Unfortunately, data of this nature is simply unavailable or non-existent for Latin American countries at the time of writing, making such analysis impossible to include in this paper. It is therefore our recommendation that data pertaining to service quality of social policy be collected in the future in order to facilitate a more nuanced analytical approach.

Finally, the results found within this paper could be region-specific, and are therefore not generalisable to all countries. It might not be the case that Latin American governments engage in strategic competition on the ground of social policy expenditure, but it could certainly be the case elsewhere. While the empirical reality of social policy competition is ambiguous (as per the results of this study), the negative implications of its potential existence remain possible. It is therefore recommended that further study into the prospect of social policy competition between LMICs is conducted. This could be achieved by conducting 1) region-specific studies (such as this one) or 2) broader spatial econometric studies, including (for example) all LMICs globally.²⁴ This may provide a more thorough, international perspective on the issue.

Policy Implications

Forming concrete policy recommendations on the back of this research is complex, and implicitly requires a certain measure of normative assertion. The primary finding of this paper is that Latin American countries do not account for the social expenditure of their regional peers when making social policy decisions. While the paper has framed this as economically unfavourable throughout, there could be an argument to be made for its legitimacy. On the one hand, one could make the argument that governments should only account for 1) the current state of social progress (i.e. health outcomes, educational attainment, social mobility, 2) the macroeconomic implications of fiscal expenditure on social policy, in line with countercyclical fiscal policy and 3) the institutional

²⁴ The latter approach could potentially use spatial econometric procedure to account for distance between countries. This research approach was considered at one point in the process of writing this thesis, though was ultimately shelved due to technical feasibility and a lack of comprehensive data.

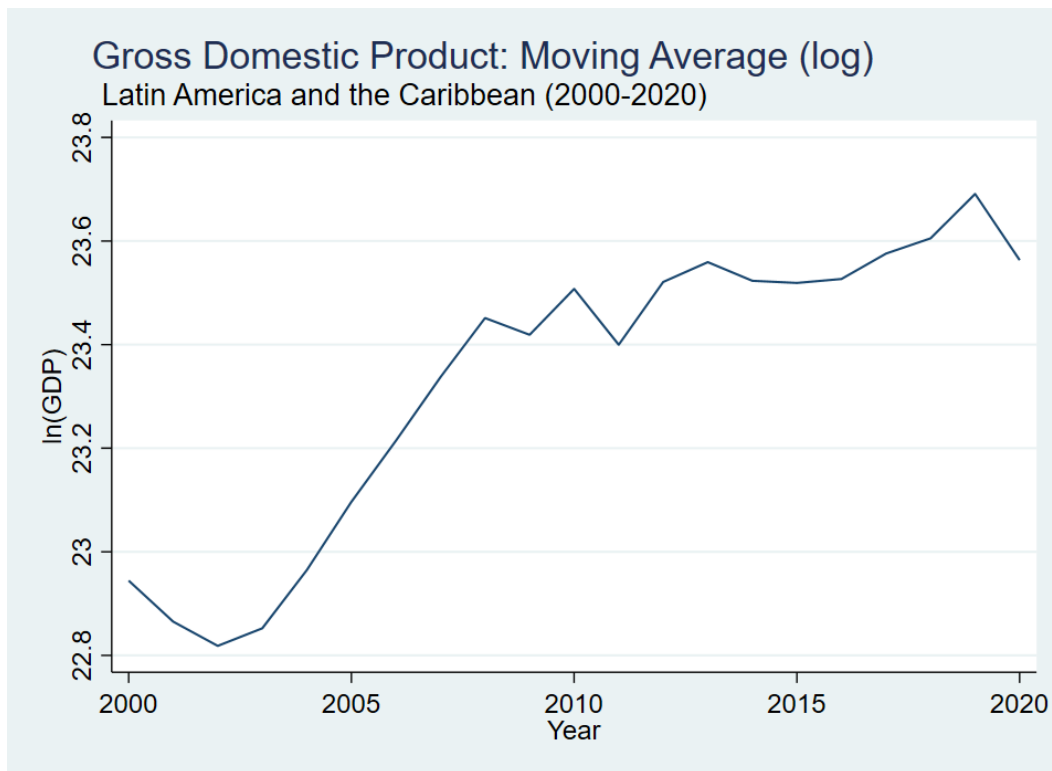
functionality of the administration (i.e. how effective governments are at targeting social expenditure). In this sense, government expenditure in other countries should not influence social expenditure in country *i*. On the other hand, the globalisation era has greatly accelerated the flow of people, capital and information. This means that countries are becoming ever more interconnected; socially, politically, culturally, economically and otherwise. Coordination of social expenditure may be required to account for increased flows of migration and employment. If ever-growing proportions of populations are migrating, then it makes intuitive sense for central governments to alter their social expenditure in line with their peers.

Instead of policy competition, this research has found that social expenditure is predicted more accurately by other institutional and economic factors (e.g. control of corruption, per-capita GDP, FDI inflows etc). Specifically, some estimates predict that higher instances of corruption may diminish social expenditure. While this is not a novel finding, and merely substantiates the work of previous scholars (see Huber *et al.* 2008; Delavallade, 2006) it is nonetheless important to emphasise. It would therefore be recommended that institutional factors such as corruption, financial transparency and transfer targeting be remedied in the future, aided by the work of intergovernmental organisations, relevant national stakeholders and civil society groups.

Throughout this paper, social expenditure has been framed by the prospect of social policy competition, which has implicitly been linked to the potential for hindering social progress in the name of economic growth. The research conducted has neither confirmed nor denied such a mechanism (causally speaking), given that this is not a (quasi) experimental study, and simply outlines the absence of any associative relationship between two expenditure patterns. While there is no empirical support for social policy competition in LMICs, its possible existence cannot be ruled out. It would therefore be inappropriate to conclude that Latin American countries do or do not compete with one another on the grounds of social expenditure, especially given that the assumptions posited throughout may be questioned by other scholars. Nevertheless, the empirical conclusions of this paper do not quantitatively support the existence of social expenditure competition, meaning that inter-governmental policy competition may be strictly limited to those areas explored by previous scholars (e.g. labour standards, environmental regulation, taxation).

Appendix

Appendix 1A: Gross Domestic Product (Moving Average, logged) – 2000-2020



Appendix 1B:

$$\begin{aligned}
 Health_{i,t} = & \beta_0 + \rho \sum_{j \neq i} \omega_{1j,i,t} Health_{j,t-1} + \beta_1 Health_{i,t-1} + country_i + year_t + \beta_2 gdppc_{i,t-1} \\
 & + \beta_3 gdp_{growth_{i,t-1}} + \beta_4 gov_{i,t-1} + \beta_5 unemployment_{i,t-1} + \beta_6 FDI_{i,t-1} + \beta_7 poverty_{i,t-1} \\
 & + \beta_8 corruption_{i,t-1} + \beta_9 population65_{i,t-1} + \beta_{10} tuberculosis_{i,t-1} + \epsilon_{i,t} \quad (2)
 \end{aligned}$$

$$\begin{aligned}
 Education_{i,t} = & \beta_0 + \rho \sum_{j \neq i} \omega_{1j,i,t} Education_{j,t-1} + \beta_1 Education_{i,t-1} + country_i + year_t + \beta_2 gdppc_{i,t-1} \\
 & + \beta_3 gdp_{growth_{i,t-1}} + \beta_4 gov_{i,t-1} + \beta_5 unemployment_{i,t-1} + \beta_6 FDI_{i,t-1} + \beta_6 poverty_{i,t-1} \\
 & + \beta_7 corruption_{i,t-1} + \beta_8 literacy_{i,t-1} + \epsilon_{i,t} \quad (3)
 \end{aligned}$$

$$\begin{aligned}
 Social_{i,t} = & \beta_0 + \rho \sum_{j \neq i} \omega_{1j,i,t} Social_{j,t-1} + \beta_1 Social_{i,t-1} + country_i + year_t + \beta_2 gdppc_{i,t-1} \\
 & + \beta_3 gdp_{growth_{i,t-1}} + \beta_4 gov_{i,t-1} + \beta_5 unemployment_{i,t-1} + \beta_6 FDI_{i,t-1} + \beta_6 poverty_{i,t-1} \\
 & + \beta_7 corruption_{i,t-1} + \beta_8 population65_{i,t-1} + \beta_9 polity_{i,t-1} + \epsilon_{i,t} \quad (4)
 \end{aligned}$$

Appendix 1C:

Table 1C: Hausman Test Statistics for Equations 2-4

	(2) Health	(3) Education	(4) Social Protection
Chi Sq.	4.88	16.55	78.96
P-Value	0.9777	0.1673	0.0000

Appendix 1D:

**Table 1A: Foreign Direct Investment (% of GDP)
Arellano-Bond Generalised Method of Moments**

Variables	(1) AB-GMM
Social Protection	0.0547 (0.0516)
Lagged FDI	0.337** (0.143)
GDP (log)	-1.545** (0.729)
Per-Capita GDP (log)	2.015** (0.851)
GDP Growth	0.0173*** (0.00400)
Unemployment Rate	0.0275** (0.0115)
Government Consumption	0.134 (0.134)
Constant	21.05** (10.58)
Observations	353
Number of Countries	18

Robust standard errors in parentheses.

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

Appendix 1E:

Table 2A: Three Year Lags, No Year Dummies

Variables	Health			Education		
	(1) Fixed Effects	(2) LDV	(3) GMM-IV	(4) Fixed Effects	(5) LDV	(6) GMM-IV
Neighbours' Expenditure			-0.179 (0.144)			-0.0720 (0.156)
Expenditure (t-1)		0.698*** (0.110)	0.700*** (0.0994)		0.527*** (0.129)	0.542*** (0.157)
Expenditure (t-2)		-0.0193 (0.122)	-0.0151 (0.137)		-0.0736 (0.135)	-0.0900 (0.185)
Expenditure (t-3)		0.129 (0.150)	0.148 (0.125)		0.0280 (0.153)	0.0213 (0.137)
Per-Capita GDP (log)	0.0869 (0.119)	-0.0227 (0.0411)	-0.0186 (0.0402)	0.148* (0.0821)	0.0307 (0.0489)	0.0379 (0.0456)
GDP Growth	0.00280 (0.00481)	-0.000299 (0.00321)	-0.000518 (0.00315)	0.00144 (0.00286)	0.00192 (0.00302)	0.00191 (0.00278)
Government Consumption	0.722*** (0.151)	0.0211 (0.111)	0.0114 (0.0923)	-0.0184 (0.180)	-0.455** (0.214)	-0.438** (0.192)
Unemployment	-0.0939 (0.0689)	-0.0315 (0.0324)	-0.0231 (0.0302)	0.00442 (0.139)	-0.0664 (0.0990)	-0.0476 (0.0951)
FDI (log)	0.0254 (0.0272)	0.0143 (0.0151)	0.0123 (0.0177)	-0.00734 (0.0177)	-0.0277 (0.0169)	-0.0287 (0.0196)
Poverty (\$6.85 Threshold)	-0.0916 (0.140)	-0.0455 (0.0547)	-0.0582 (0.0557)	-0.0174 (0.101)	-0.0582 (0.0768)	-0.0687 (0.0837)
Control of Corruption	-0.0218 (0.127)	-0.00442 (0.0628)	-0.00673 (0.0429)	-0.0130 (0.117)	-0.0319 (0.0568)	-0.0461 (0.0729)
Population >65	0.160 (0.231)	0.194** (0.0859)	0.304*** (0.114)			
Tuberculosis Incidence	-0.00294* (0.00168)	-0.000448 (0.00108)	-0.000594 (0.000999)			
Literacy Rate (0-15)				-0.00144 (0.0379)	0.0126 (0.0223)	0.0167 (0.0223)
Constant	-1.000 (1.526)	0.284 (0.658)		0.482 (4.110)	0.818 (2.537)	
Observations	229	229	228	115	99	96
R-Squared	0.603	0.782	0.779	0.135	0.471	0.466
Number of Countries	20	20	19	17	16	13

Robust standard errors in parentheses.

Social protection omitted due to insignificance of variables in fixed effects estimation.

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

Appendix 1F:

Table 3A: Five Year Lags, No Year Dummies

Variables	Health			Education			Social Protection		
	(1) Fixed Effects	(2) LDV	(3) GMM-IV	(4) Fixed Effects	(5) LDV	(6) GMM-IV	(7) Fixed Effects	(8) LDV	(9) GMM- IV
Neighbours' Expenditure			-0.0605			-0.0686			3.540
			(0.143)			(0.0950)			(3.236)
Expenditure (t-1)		0.739*** (0.109)	0.737*** (0.0800)		0.362* (0.192)	0.365** (0.165)		0.475*** (0.0845)	0.241 (0.263)
Expenditure (t-2)		-0.0729 (0.174)	-0.0715 (0.134)		-0.0203 (0.0935)	-0.0235 (0.223)		- (0.0430)	-0.217 (0.237)
Expenditure (t-3)		0.187** (0.0694)	0.189* (0.101)		0.109 (0.111)	0.129 (0.160)		0.166*** (0.0456)	0.170 (0.164)
Expenditure (t-4)		-0.118 (0.121)	-0.115 (0.0875)		0.0271 (0.105)	0.00813 (0.141)		-0.113* (0.0551)	-0.174 (0.159)
Expenditure (t-4)		0.0244 (0.114)	0.0301 (0.0753)		0.0828 (0.0966)	0.0757 (0.127)		-0.0929 (0.0631)	-0.0902 (0.107)
Per-Capita GDP (log)	-0.000572 (0.108)	-0.0648* (0.0336)	-0.0647* (0.0359)	0.0974 (0.127)	-0.0493 (0.0643)	-0.0425 (0.0526)	-0.0812 (0.130)	-0.155* (0.0834)	-0.802 (0.615)
GDP Growth	0.00286 (0.00374)	0.00205 (0.00209)	0.00194 (0.00208)	0.000775 (0.00569)	0.00362* (0.00172)	0.00363 (0.00321)	-0.000572 (0.00475)	0.00230 (0.00336)	0.00844 (0.0119)
Government Consumption	0.357** (0.138)	-0.0456 (0.0849)	-0.0510 (0.0962)	-0.383* (0.208)	0.0404 (0.168)	0.0534 (0.218)	-0.0514 (0.151)	-0.0679 (0.141)	-0.0120 (0.153)
Unemployment	-0.0686 (0.0745)	0.0182 (0.0352)	0.0213 (0.0345)	0.0378 (0.100)	0.0195 (0.0701)	0.0396 (0.0785)	0.133** (0.0618)	0.0436 (0.0439)	0.0912 (0.0780)
FDI (log)	-0.00763 (0.0199)	-0.0249 (0.0146)	-0.0257 (0.0161)	-0.0239 (0.0248)	-0.0107 (0.0244)	-0.0123 (0.0153)	-0.375* (0.198)	-0.247 (0.141)	-0.153 (0.206)
Poverty (\$6.85 Threshold)	-0.166 (0.124)	-0.123** (0.0491)	-0.128*** (0.0442)	-0.0113 (0.103)	-0.0702 (0.120)	-0.0827 (0.0963)	0.00427 (0.172)	-0.0120 (0.140)	0.310 (0.357)
Control of Corruption	-0.0258 (0.107)	-0.0327 (0.0460)	-0.0322 (0.0409)	-0.123 (0.141)	0.0666 (0.115)	0.0578 (0.111)	0.121 (0.484)	0.752** (0.349)	-2.360 (2.866)
Population >65	0.324 (0.257)	0.323*** (0.0941)	0.360*** (0.139)				0.121 (0.484)	0.752** (0.349)	-2.360 (2.866)
Tuberculosis Incidence	-0.00331 (0.00231)	3.54e-05 (0.000861)	-3.45e-05 (0.000923)						
Literacy Rate (0-15)				0.0544 (0.0457)	0.0235 (0.0179)	0.0280 (0.0180)			
Polity IV Score							0.135 (0.0847)	-0.00344 (0.0700)	-0.0386 (0.0805)
Constant	0.694 (1.217)	0.827* (0.430)		-3.682 (4.373)	-1.076 (2.109)		1.681 (1.378)	1.641 (1.165)	
Observations	204	204	203	105	85	83	181	176	176
R-Squared	0.502	0.815	0.813	0.255	0.341	0.343	0.239	0.346	-0.563
Number of Countries	20	20	19	18	15	13	16	16	16

Robust standard errors in parentheses.

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

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