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The Multiplier Effects of Government Expenditures on Social Protection: A Multi-country Study

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ABSTRACT

This article uses a novel dataset comprising 42 countries for the years 1985–2020 to explore the relationship between public spending on social protection and GDP. The article contributes to the empirical literature on social protection spending by conducting a large multi-country study using the structural vector autoregression approach. The results of the study highlight the positive effects of social protection expenditures on GDP that surpass those of total government expenditures. These results vary considerably across countries, with impact multipliers ranging from 5 in Mexico to -0.71 in Paraguay. The authors find that the cumulative multiplier exceeds 1 for most of the 42 sample countries, suggesting that the positive impact of social protection spending on GDP accumulates over time. The article finds statistically significant and strong correlations between the cumulative and impact multipliers and inequality measures such as the Gini coefficient and the income shares of the poorest and the richest. Indeed, the positive impact of public spending on social protection on GDP is especially pronounced in countries characterized by higher inequality. Taken together, the results have significant policy implications and suggest that the growth-enhancing potential of social protection policies is complementary to the ability of such policies to reduce inequality.

INTRODUCTION

A well-designed and inclusive social protection system has a positive impact on several aspects of the economy and society of the adopting country, and is essential to the achievement and maintenance of inclusive economic growth, social progress and human development.[1] There is considerable empirical evidence to suggest that public spending on social

1. See Addison et al. (2015); Alderman and Yemtsov (2012, 2014); Atkinson (1999); Barrientos (2012); Barrientos and Hulme (2016); Gebregziabher and Niño-Zarazúa (2014); Gough et al. (2004); ILO (2021a, 2021b); Ortiz et al. (2019); UNESCAP and ILO (2021).

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protection reduces poverty and inequality, thus contributing to greater political stability by reducing social tensions and conflicts, and promoting human development and productivity.[2]

However, according to the *World Social Protection Report 2024–26: Universal Social Protection for Climate Action and a Just Transition* by the International Labour Organization (ILO, 2024) only 52.4 per cent of the world's population was covered by at least one social protection benefit as of 2023 (ibid.: xix). There were large inequalities both across and within regions, with coverage rates in Europe and Central Asia (85.2 per cent), the Americas (68.2 per cent), and Asia and the Pacific (53.6) placed above the world average, whereas the Arab States (30.0 per cent) and Africa (19.1 per cent) had lower or much lower coverage rates. Countries spent on average 12.9 per cent of their GDP, excluding health. However, high-income countries spent an average of 16.2 per cent, almost twice as much as upper-middle-income countries (which spend 8.5 per cent), around four times as much as lower-middle-income countries (4.2 per cent), and 20 times as much as low-income countries (0.8 per cent) (ibid.: xxii). Meanwhile, only 33.8 per cent of the working-age population in the world was covered legally by comprehensive social security systems including a full set of benefits, from child and family benefits to old-age pensions, with the coverage for women lagging behind that for men by 11.1 percentage points. Moreover, less than 20 per cent of unemployed workers around the world receive some kind of unemployment benefit. Thus, most of the working-age population worldwide (66.2 per cent) were, as of 2023, only partially protected or had no such protection whatsoever (ibid.: 66–67).

The COVID-19 pandemic highlighted the importance of inclusive social protection systems. Some recent studies have shown that, in addition to attenuating the increase in poverty and inequality during the COVID-19 crisis, social protection expenditures also played a significant counter-cyclical role. Almeida et al. (2020), for instance, note that without discretionary policy measures the disposable income of households in the European Union (EU) would have fallen by 5.9 per cent due to the pandemic. With such measures in place, the actual decrease was 3.6 per cent. Similarly, a study by Casado et al. (2020) suggests that the federal supplements to unemployment insurance (UI) in the United States have substantially reduced the fall in consumer spending. The study — based on data from the State of Illinois — points towards a 5 per cent decrease in consumer spending due to a reduction of US$ 300 in UI benefits.[3] Even if context specific, this microeconometric evidence adds to the existing (albeit

2. See, for example, Barrientos (2013); Barrientos and Malerba (2020); Haile and Niño-Zarazúa (2018); ILO (2021a).
3. At the start of the pandemic, there had been a federal supplement to UI benefits of US$ 600 a week; this was subsequently replaced by a supplement of US$ 300.

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scarce) macroeconomic literature that indicates that social protection has substantial fiscal multipliers.

Fiscal Multipliers

There has been a recent surge in the empirical literature on the size of fiscal multipliers. However, as Gechert et al. (2021) point out, the main focus of this literature has not been on social protection expenditures. While several articles have estimated the effects of federal and local public procurement, consumption and investment spending and tax shocks on different measures of the level of economic activity,[4] the impact of changes in spending on social protection has been explored empirically by only a few authors (e.g. Bova and Klyviene, 2019; Sanches and Carvalho, 2022).

From a theoretical point of view, the positive impacts of social protection expenditures on the level of GDP can be intuitively explained within a demand-led framework based on Keynes (1936, 1937) and his closest followers in Cambridge, UK. In macroeconomic models that incorporate the principle of effective demand, changes in a given component of aggregate demand impact output not only directly, but also indirectly, through a multiplier effect. A positive change in consumption demand, for example, results in an increase in production which leads to an increase in the value added distributed as income which generates further consumption demand for output production. Since not all income generated in this way is spent in consumption, this effect is higher than 1 but it has an upper bound, that is, it does not unleash an unlimited cumulative process. The proportion of income that is consumed and not saved (called marginal propensity to consume) is therefore a key variable that explains the size of the considered multiplier effect. According to Keynes (1936, 1937), there is considerable variation in the marginal propensity to consume across income levels. Those with lower incomes have a higher marginal propensity to consume than those with higher incomes. Several authors provide evidence of such a variation in the marginal propensity to consume.[5] Meanwhile, some empirical studies have shown that differences in terms of propensity to consume are more pronounced across those on the top of the distribution (e.g. Palomo et al., 2022), with a lower propensity to consume characterizing wealthy households (e.g. Fisher et al., 2020).

Moreover, an initial boost in consumption demand and hence GDP is likely to raise the expectations of demand and profits held by producers and induce them to increase their investment expenditures in response to

4. See, for example, Beetsma and Giuliodori (2011) and Borg (2014). A larger sample of the available literature is described in Appendix Tables A1.1a and A1.1b.
5. See Carroll et al. (2014); Carroll et al. (2017); Carvalho and Rezai (2016); Jappelli and Pistaferri (2014).

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such a perceived increase in what Keynes (1936, 1937) terms the marginal efficiency of capital, which contributes to increasing the magnitude of the multiplier effect. Admittedly, some of the social protection expenditures benefiting the poorest share of the population are likely to leak abroad as imports, which in turn would contribute to reducing the size of the multiplier effect. In fact, Latin American structuralist authors affiliated with the United Nations' Economic Commission for Latin America and the Caribbean argue that lower-wage earners in developing countries very often have their consumption demand restricted to basic needs (or even subsistence consumption). This consumption demand is usually met by local production, with such workers typically not consuming many imported goods. Meanwhile, higher-income classes spend a non-negligible fraction of their consumption expenditure on foreign goods and often import luxury goods to imitate the consumption pattern of the higher-income classes in developed countries (Furtado, 1965; Loureiro et al., 2020).[6] This heterogeneous consumption pattern across income classes has important implications in a balance-of-payments-constrained output growth framework à la Kaldor–Thirlwall (Blecker and Setterfield, 2019; Thirlwall, 1979). As the exports of developing countries are typically concentrated in low value-added goods (from primary commodities to low-technology products) featuring low-income elasticities, a consumption pattern concentrated largely on imports of luxury and highly technological goods with high-income elasticities implies a more severe balance-of-payments constraint to output growth and hence a weaker growth performance overall.

Like Keynes, Kalecki (1942) proposes a model in which the marginal propensity to consume out-of-wage income is higher than the marginal propensity to consume out-of-profit income, for which there is robust contemporary empirical evidence for both developing and developed countries (see, for example, Onaran and Galanis, 2012). In this context, an income redistribution from profit recipients to wage earners becomes a fundamental variable directly influencing consumption and investment. Since the size of the multiplier depends directly on the marginal propensity to consume, and since social protection spending tends to be received by households with a higher propensity to consume, these expenditures boost consumption and raise sales expectations by companies and business investments (Sanches and Carvalho, 2023). In other words, social protection multiplier dynamics can be enhanced since people who receive these benefits typically have a relatively high propensity to consume.

6. The possibility of redistribution increasing the average propensity to import, because it allows the poorer households to diversify their consumption demand, has been discussed in the literature. For a summary of recent studies on this topic, see Cícero and Lima (2023: 395–96). Such an effect would then attenuate the positive impact of redistribution on the multiplier.

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Diversity of Social Protection Systems

It is undoubtedly true that there is substantial diversity in the design of social protection systems across countries, resulting in varied degrees of progressivity of social protection expenditures. Such diversity stems in part from the broad nature of the concept of social protection itself. A 2021 report by the ILO defines social protection as:

> [t]he set of policies and programmes designed to reduce and prevent poverty and vulnerability across the life cycle. Social protection includes nine main areas: child and family benefits, maternity protection, unemployment support, employment injury benefits, sickness benefits, health protection, old-age benefits, disability benefits and survivors' benefits. Social protection systems address all these policy areas by a mix of contributory schemes (mainly social insurance) and non-contributory tax-financed schemes (universal/categorical schemes and social assistance). (ILO, 2021a: 29)

In some middle-income countries, for instance, where there is a large gap between formal and informal workers, some components of social protection have been traditionally targeted to the former, having potentially regressive impacts on income distribution as formal workers are relatively better paid. However, the improvements observed in the last few decades on the coverage of social protection systems across the world and the inclusion of poorer households have made these systems more progressive in their impact.[7] Diversity remains, to be sure, but the literature has documented that social transfers play a significant role in reducing income inequality and that their effect is greater than that of taxes in both developed and developing countries (Bastagli et al., 2012; Goñi et al., 2011; Hanni et al., 2015; Lustig et al., 2012; Quiñonez, 2022; Wang et al., 2012, 2014). This is due in part to first-round effects that can be measured using fiscal incidence analysis, which shows that social protection expenditures and cash transfers have a high level of progressivity, especially when compared to tax incidence (Bucheli et al., 2014; Joumard et al., 2012; Lustig et al., 2012; Zacharias et al., 2018). These results confirm that such expenditures directly benefit the lower end of the income distribution, despite varied coverage rates. For example, for a group of Latin American countries, Hanni et al. (2015) document that, on average, 61 per cent of the reduction in the Gini index (comparing market income to disposable income) is accounted for by public cash transfers, such as pensions, with the remainder due to direct taxes. Wang et al. (2012) analysed 28 member countries from the Organisation for Economic Co-operation and Development (OECD) and concluded that, on average, social transfers account for 85 per cent of the total decrease in the Gini index caused by the redistributive effect of fiscal policy, while taxes

7. Ocampo and Gómez-Arteaga (2017: 8) have called the 2000s the 'golden social decade' for Latin America, a region where social protection systems were traditionally plagued by the exclusion of poorer households.

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account for 15 per cent. Lustig et al. (2012) also highlight the prominent role of transfers for a group of developing countries.

In addition, Goñi et al. (2011) show that in countries where fiscal policy has a significant redistribution effect, this is primarily achieved through transfers. In Western European countries, for example, fiscal policy sharply reduces inequality, with public transfers accounting for over two-thirds of the overall effect. In Latin America, Bastagli et al. (2012) and Goñi et al. (2011) argue that the effect of public transfers is relatively weaker. This is possibly related to the fact that, in this region, some components of the social protection system, like some types of pensions, may have regressive effects on income distribution. However, the expansion of highly progressive conditional cash transfers in some Latin American countries since the 2000s has been making the overall impact of social protection expenditures more progressive and more in line with those of other economies around the world (Goñi et al., 2011; Stampini and Tornarolli, 2012). In summary, although there are differences across countries in the targeting and coverage of social benefits (ILO, 2021a), the literature consistently indicates that social protection expenditures generally have significant redistributive effects.

Some recent studies have also tried to measure second-round effects of fiscal policy which unfold over time and may either reinforce or offset the direct impacts. The final impact on inequality will depend not only on direct but also on indirect factors, such as employment generation and the multiplier effect, and can be measured through varied econometric strategies. Anderson et al. (2017) provide a meta-regression analysis of the effects of government spending on inequality, using multiple measures of inequality. Their results show that the social welfare spending component is significant and relevant in reducing inequality, with stronger negative effects on the share of the top income earners.

Progressivity of government social spending also means that such expenditures would have a higher impact on GDP than those aimed at the top. Furthermore, policies that promote the redistribution of income, even if they have no direct impact on total output, could still impact GDP by increasing the aggregate propensity to consume of the economy. From this theoretical perspective, social protection expenditure, to a greater extent than total government expenditures, can positively impact GDP. This impact could be even higher for extremely unequal countries.

Our Contribution

In this theoretical and empirical context, this article develops a new dataset that covers 42 countries from 1985 to 2020 to examine how public spending on social protection relates to macroeconomic activity, as reflected in GDP levels. The dataset combines information from different datasets made available by international organizations with official information provided

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by several of the sample countries themselves. The main contribution of this study to the empirical literature on social protection spending is the implementation of the largest multi-country analysis to date, using the structural vector autoregression (SVAR) approach. Drawing upon the sizable existing literature on fiscal multipliers, we estimate the multiplier effects of public expenditure on social protection on GDP of a relatively heterogeneous sample, including developing and developed countries.

Based on the methodology used in this study, it is important to clarify that in our discussion of the macroeconomic 'impacts' or 'effects' of social protection expenditures, we are not implying a causal relationship between these variables. Instead, the results provide empirical evidence on the nature of the association between social spending and economic activity, supporting the theoretical arguments set out in this section. Future research examining exogenous changes in social protection expenditure (for example, using narrative datasets) could strengthen the robustness of these findings and help advance causal inference analysis.

We detect positive effects of social protection expenditures on GDP that surpass those of total government expenditures, although these results vary considerably across countries. We also find that the cumulative multiplier exceeds 1 for most of the 42 sample countries, suggesting that the positive impact of social protection spending on GDP accumulates over time. In addition to calculating country-specific multipliers for the entire dataset, we engage in interpreting and analysing the results and exploring whether the magnitude of the multipliers is in some way connected to other characteristics of the countries (such as inequality measures, share of social protection expenditure in GDP and income per capita). As our results show, the impact and cumulative multipliers are typically higher in more unequal countries and in those where the income share of the poorest half of the population is smaller. Overall, our findings carry important policy implications, indicating that the growth-stimulating potential of social protection policies complements their capacity to reduce inequality. In this way, our empirical exercise contributes to the general shift in the literature on growth and inequality that has been taking place in the last few decades, which tends to play down the alleged dilemma between efficiency and equity, replacing it with a positive association between growth and income redistribution.[8]

The article is structured as follows. In the next section, to suitably contextualize our contribution, we outline the related empirical literature on fiscal multipliers. Subsequent sections describe the assembled dataset and the methodology used to obtain empirical estimates, and present the results with a discussion of their implications. Finally, the last section summarizes the main conclusions and suggests possibilities for future research.

8. For a summary, see Ostry et al. (2014).

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LITERATURE REVIEW

Since the global financial crisis in 2007–08, the empirical literature on fiscal multipliers has developed in several ways and dimensions. In many country-specific studies, following Blanchard and Perotti (2002), the use of linear vector autoregressive (VAR) models to estimate the impact of an exogenous shock in public expenditures or government revenues on the level of economic activity has been the most common empirical approach. When disaggregating different government expenditures, this literature usually finds a higher and more persistent multiplier effect on aggregate output in response to a change in public investment rather than in public consumption. In this context, only a few studies have focused on estimating the impacts of different social protection expenditures on economic growth. Blanchard and Perotti (2002) and Perotti (2004) treat transfers as a component that should be subtracted from total government revenues, a strategy followed by several authors.[9] In fact, Perotti (2004) claims that since transfers financed through taxation have the reverse effects of taxes, they should be subtracted from overall tax revenues. Yet this strategy has been criticized consistently in the subsequent literature (Baum and Koester, 2011; Gechert et al., 2021; Pereira and Wemans, 2013). Baum and Koester (2011), for instance, argue that social protection policies can serve as a policy instrument for economic stimulation and, for this reason, their specific effects on aggregate output are relevant. In effect, our empirical results described below confirm such relevance.

More generally, Pereira and Wemans (2013) correctly underline that the initial empirical studies applying the structural VAR (SVAR) methodology to fiscal policy used a very aggregate definition of budgetary variables, considering only taxes net of transfers, on the revenue side, and public expenditures (basically, consumption and public investment), on the spending side. For these authors, however, it is plausible that changes in the various headings that comprise these aggregates exert different impacts on the level of economic activity and information about these differences is certainly invaluable to inform policy decisions.

The literature that adopted the conventional VAR approach of Blanchard and Perotti (2002) found conflicting results. As shown in Appendix Tables A1.1a and A1.1b, various studies have attempted to estimate the value of multipliers for different types of public spending. Some of these (e.g. Bova and Klyviene, 2019; Pereira and Wemans, 2013; Şen and Kaya, 2020) estimated higher multipliers associated with government consumption, cuts in direct taxes and (especially) public investments, compared to

9. See, for example, Alves (2017); Borg (2014); Burriel et al. (2010); Castro and Fernandez (2011); Giordano et al. (2007); Grudtner and Aragon (2017); Jemec et al. (2013); Lozano and Rodriguez (2011); Mendonça et al. (2016); Peres (2006); Peres and Ellery (2009); Restrepo (2020); Skrbic and Simovic (2015); Tenhofen et al. (2010).

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those linked to social protection expenditures. In other studies, the multiplier for spending on social protection was found to be large in absolute terms, but other types of expenditure showed a similar or even higher multiplier effect on aggregate output (Fatás and Mihov, 2001; Pereira and Sagalés, 2009).

However, additional research has provided contrasting evidence showing that the multipliers for social protection expenditures are higher than those for different forms of spending. Hamer-Adams and Wong (2018), in a study for the Reserve Bank of New Zealand, obtained impact multipliers of 1.53 and 0.43 for social protection expenditures and total government spending, respectively. In a panel for OECD economies between 1980 and 2005, the multiplier for unemployment insurance expenditures was found to be 2.1, while for total government spending it was 0.48 (Furceri and Zdzienicka, 2012). In a meta-regression analysis including 98 studies, Gechert and Rannenberg (2014) estimated a cumulative multiplier for social protection of between 2 and 3 (during recessions), while the same multiplier ranges between 1 and 2 for total expenditure. In a panel for EU countries from 1995 to 2010, Reeves et al. (2013) estimated a total government expenditure multiplier of 1.28; the estimation for social protection spending, in turn, reached 3. Orair et al. (2016), analysing the Brazilian case in a sample from 2002 to 2016, obtained a cumulative multiplier (in four years) of expenditures on social protection that reached 8 in periods of recession. For total government spending, it was 2.2. Regarding the Brazilian case, from 1997 to 2018, Sanches and Carvalho (2022) estimate a cumulative multiplier (in two years) of 0.6 for total government expenditure, while the accumulated multiplier for social benefits reached 2.9.[10]

Studies resorting to different empirical strategies similarly found mixed results. For example, Romer and Romer (2016) use a narrative method based on episodes of fiscal expansion in different countries and find that permanent increases in social protection expenditures exert significant and substantial impacts on aggregate consumption. However, tax reductions seem to have the highest and most persistent multiplier effect, which, according to Romer and Romer (ibid.) can be explained by a larger positive response of interest rates to an expansion in social protection. Meanwhile, Gechert et al. (2021) employ a similar methodology for social protection spending in Germany and find a higher and more persistent multiplier effect for increases in these expenditures than for decreases in the social contributions that finance expenditures.

Some empirical studies have used panel techniques to estimate multipliers for a group of countries or states and regions within the same country via VAR or one-equation methods.[11] For social expenditures, Furceri and Zdzienicka (2012) find a positive accumulated multiplier (but smaller than

10. A summary of these studies is presented in Appendix Tables A1.1a and A1.1b.
11. See, for example, Beetsma and Giuliodori (2011); Carrière-Swallow et al. (2018); Deleidi et al. (2019); Furceri and Zdzienicka (2012); Ilzetski et al. (2013); Izquierdo et al. (2019);

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1) for a group of OECD countries, emphasizing the central role of health expenditures and unemployment insurance as the components with greater impacts on output. Moreover, Reeves et al. (2013) estimate a positive social protection multiplier for a group of European countries, which reached 3 (baseline scenario). In the estimations of Reeves et al. (ibid.), health expenditures presented an even higher multiplier (near 4.9).

Sanches and Carvalho (2023) used a SVAR approach to estimate fiscal multipliers for social protection in Brazil for the period 1997–2018. They consistently found large multiplier effects, even when compared to the multiplier impacts of public investment. More precisely, they found that one unit of public expenditure on social protection generated a final change in aggregate output (as measured by GDP) almost three times higher after two years. The highest estimated multipliers in the full sample (which covers the whole period) were obtained in the response of household consumption and private investment to shocks in public expenditures on social protection as a whole and for different types of benefits (for example, cash transfers, unemployment insurance, pensions).[12]

Finally, as mentioned above, policies that impact income distribution and reduce inequality can impact the size of the fiscal multiplier. A sizeable number of studies have examined the distributional impact of fiscal policy. Wolff and Zacharias (2007), for instance, argue that expenditures have a higher potential than taxes to reduce income inequality. Many studies have also explored the impact that fiscal consolidation has on income distribution and found that a cut in government expenditures increases inequality (e.g. Agnello and Sousa, 2014; Bertola, 2010; Cardoso and Carvalho, 2023; Heimberger, 2020; Jalles, 2017; Smeeding and Grodner, 2000).

DATA AND METHODOLOGY

Data

The first step of the current research consisted of building a novel dataset on social protection expenditures, GDP, tax revenues and related variables for 42 countries for the years 1985 to 2020 to estimate the fiscal multipliers of interest (see Appendix Tables A1.2 and A1.3). Given the substantial institutional diversity in social protection systems across countries, one of the main challenges in building the dataset was to ensure an adequate degree of

Konstantinou and Partheniou (2021); Reeves et al. (2013); Silva et al. (2013); Valencia (2015).

12. A summary of the empirical literature on the multiplier effects of different types of expenditures (from aggregate government spending to several components of aggregate government) in different countries (or panels of countries), distinct periods and using varied empirical approaches or econometric techniques is presented in Appendix Tables A1.1a and A1.1b.

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compatibility for the data for different countries, so that the results could be meaningfully interpreted. This challenge was addressed in two main ways: first, by excluding expenditures on healthcare and education, areas in which institutional diversity tends to be particularly large and which commonly consist of in-kind transfers (as opposed to cash), which plausibly impact economic activity through different channels. Second, Eurostat data[13] for 28 European countries was included, guaranteeing a greater degree of compatibility for the information for a substantial share of the countries in the sample, as this database adopts specific definitions for social protection expenditures. Moreover, recognizing the institutional diversity at the origin of our dataset, we chose to implement estimations using individual VAR models instead of a panel analysis.

We acknowledge that categorizing social protection expenditures based on country-specific definitions introduces some variability. As shown in Appendix 2, our social protection data primarily cover welfare and social security and use definitions specific to each country. While this approach may not achieve the precision of a universal analytical classification, it allows us to construct a more comprehensive dataset within the constraints of data availability. Moreover, research consistently finds that, even with differences in definitions, targeting, or coverage, social protection expenditures tend to have strong redistributive impacts in different sets of countries (e.g. Bastagli et al., 2012; Goñi et al., 2011; Hanni et al., 2015; Lustig et al., 2012; Quiñonez, 2022; Wang et al., 2012, 2014).

The dataset includes a broad group of economies, from different continents and different income levels.[14] The diversity is also revealed in other dimensions. The level of social protection expenditure as a share of GDP in the dataset ranges from more than 18 per cent (in Austria) to less than 1 per cent (in Mexico and Pakistan). In terms of income inequality, our dataset includes extremely unequal countries in Latin America, such as Brazil and Mexico, as well as low-inequality countries from Eastern Europe and Scandinavia.[15] Regarding sources, the data for the European countries were obtained from Eurostat, whereas the data for the US were obtained from the Federal Reserve Economic Data.[16] The data for Brazil came from earlier research by Sanches and Carvalho (2023) and the data for the remaining 12 countries were mainly provided by their governments in the context of two

13. See https://ec.europa.eu/eurostat/web/main/data
14. It includes two African, five American, seven Asian and 28 European countries. The dataset also comprises countries from all income levels identified by the World Bank's standard classification: 30 are high income, six are upper-middle income, five are lower-middle income and one is a low-income country.
15. Inequality measures used below were obtained from the World Inequality Database, https://wid.world/data/. A detailed description of the data is available at Chancel et al. (2022).
16. For Eurostat, see https://ec.europa.eu/eurostat/web/main/data; for the Federal Reserve Economic Data (FRED), see https://fred.stlouisfed.org/tags/series

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research projects funded by the ILO.[17] For most countries, quarterly data were available and could be used in the estimations. For those that had only yearly data (for example, Ecuador, Japan, Malawi, Mexico, Nepal, South Korea, Thailand and Vietnam), the data were brought to a quarterly frequency by the Denton-Chollete temporal disaggregation method, using the quarterly series for total government expenditures as an indicator. More specific details about data sources, model specifications and data definitions are available in Appendix Tables A1.2 and A1.3 in as well as in Appendix 2.

Methodology

As described above, most attempts by studies to estimate the multiplier effects of different types of government expenditures use a VAR approach. The popularity of VAR models in macroeconomics stems from their ability to analyse the interrelationships between multiple variables by imposing a set of restrictions. This allows the model to identify each variable's 'exogenous' component. Thus, VAR models can estimate the effect of a sudden and significant change, or 'shock', in one variable on the others. This feature of VAR models is particularly useful in macroeconomic analysis, as it helps us to understand how changes in one economic variable can have aggregate repercussions.

One of the most popular identification methods used by macroeconomists continues to be the orthogonalization procedure for VAR residuals based on the Cholesky decomposition, which imposes a recursive structure on the matrix of contemporary relationships between the model variables. In this way the first variable is not affected simultaneously by any of the others, the second is affected only by the first, the third is affected by the first two, and so forth. The researcher is only responsible for selecting the appropriate 'causal ordering' of the variables under analysis. Once this is done, the model is accurately identified, and it is possible to investigate the interrelationships between the variables using impulse response functions (IRFs) (Cavalcanti, 2010).

While the VAR model can capture the dynamic characteristics of multivariate time series, it requires the variance-covariance matrix to be transformed to have orthogonal shocks, that is, uncorrelated, for the correct analysis of the IRFs. This transformation is a technical step that ensures the shocks are independent, thus providing an accurate analysis. However, even with orthogonal errors, one should avoid interpreting the IRFs without

17. For Cabo Verde, Ecuador, Malawi, Mexico, Nepal, Pakistan, Paraguay and Vietnam, see https://socialprotection-pfm.org/knowledge/research/; for Japan, Mongolia, the Republic of Korea and Thailand, see www.ilo.org/sites/default/files/wcmsp5/groups/public/@asia/@robangkok/documents/publication/wcms_758165.pdf. In addition, we received data from officials from each of the 12 countries.

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reference to economic theory. For SVAR models, although the appropriate causal ordering of variables is essential to determine a greater degree of exogeneity among them, directly affecting the results presented by IRFs, the possibility of having contemporary relationships between variables is incorporated, thus strengthening the investigation. In this case, it is crucial for the model's ordering to be based on theory. Further to the discussion presented in the theoretical and empirical literature on this topic, this article establishes the following order for the variables: social expenditure, government revenue and real GDP.

Therefore, we employ a SVAR approach based on Perotti (2007) and Blanchard and Perotti (2002) to model contemporary relationships.[18] The SVAR methodology gained prominence in the literature on fiscal multipliers through Blanchard and Perotti (2002), who argue that it is suitable for fiscal policy due to the decision and implementation lags of budgetary policies. With high-frequency data (monthly or quarterly), there is minimal or no immediate fiscal policy response to unexpected output shocks, given that policy makers typically take more than three months (or one quarter) to carry out a process that includes perceiving the output shock, deciding on the next steps in fiscal policy, and presenting them to the legislature. In line with this literature, our identification approach aims to isolate exogenous shocks and recover the structural form of the shocks by obtaining a non-recursive orthogonalization of the error terms. In this sense, the SVAR methodology is equivalent to a VAR methodology in which the expenditures are ordered first. Nevertheless, it allows the possibility of considering contemporary responses of the model variables.

To resolve the identification problem and estimate all the parameters of the structural model, it is essential to impose identifying restrictions that have economic significance. These restrictions can be drawn from various sources. Kilian and Lütkepohl (2017) suggest using economic theory, such as a specific model, which makes the empirical results dependent on the validity of the underlying theoretical framework. Additionally, these identifying restrictions may be based on information from other studies or insights derived from economic theory, including factors like information delays, physical constraints, institutional knowledge, assumptions about market structure, homogeneity of demand functions, extraneous parameter estimates, and high-frequency data (ibid.: 222–23).

We estimate the effect of a specific public expenditure component — social protection — in accordance with our main purpose in this article. Our methodological choice to focus on expenditure components in SVAR models follows the standard approach proposed by Blanchard and Perotti (2002). Many studies in this literature use VAR models (and their variations, such as non-linear models) to estimate the impacts of different components of

18. For a detailed explanation, see Appendix 2.

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aggregate public expenditure. For instance, Blanchard and Perotti (2002), as well as Perotti (2007) and Auerbach and Gorodnichenko (2012), differentiate between the impacts of defence and non-defence public spending. Other studies decompose government consumption and public investment.[19] Some authors go further in disaggregating public expenditures, considering the differentiated impacts of public investment, social benefits, personnel costs, subsidies and other expenditures on GDP (e.g. Orair et al., 2016; Resende, 2019; Resende and Pires, 2021; Sanches and Carvalho, 2022).

As mentioned above, the related literature builds on the seminal work by Blanchard and Perotti (2002), in which public expenditures (and their components) are treated as exogenous with respect to other variables because they are defined in budget cycles that operate over longer periods (Resende and Pires, 2021). Thus, disaggregating expenditures and estimating multipliers for different components of spending is a well-established practice in the literature and follows the same rationale as aggregate expenditure.

Admittedly, although it seems reasonable to assume there is no automatic (and simultaneous) response of government consumption to changes in economic activity, as is the case in the study by Blanchard and Perotti (2002), the same assumption would be questionable if applied to social protection expenditures. The reason is that some components of a social protection system (such as unemployment insurance) are designed in a way that tends to make them negatively correlated with output, a feature of some fiscal policy instruments referred to as automatic stabilizers. Disregarding such a potential negative correlation between social protection expenditures and economic activity biases the estimated multipliers downwards. More precisely, true multipliers could potentially be larger in value than the reported ones. Regarding the contemporary response of government revenues to GDP, our procedure was based on the International Monetary Fund (IMF) method to estimate the elasticity of tax revenue to output. The methodological approach described in Appendix 2 provides a detailed overview of the identifying restrictions and other elements of the empirical approach employed in this study.

Thus, in our analysis, we employ a three-dimensional SVAR with the variables in first difference, as the series are non-stationary. We based our model specifications on an extensive empirical literature review[20] to take account of relevant interrelations and avoid omitted-variable bias. Based on the results presented by the models and considering the purposes of this work, we focused our analysis on the impact, peak and cumulative multipliers of social protection spending, as well as on the IRFs. These IRFs represent the cumulative multipliers over time as shown in Figures 1 and 2.

19. See, for example, Auerbach and Gorodnichenko (2012); Burriel et al. (2010); Garcia et al. (2013); Heppke-Falk et al. (2006); Ilzetzki et al. (2013); Izquierdo et al. (2019).
20. See Appendix Tables A1.1a and A1.1b.

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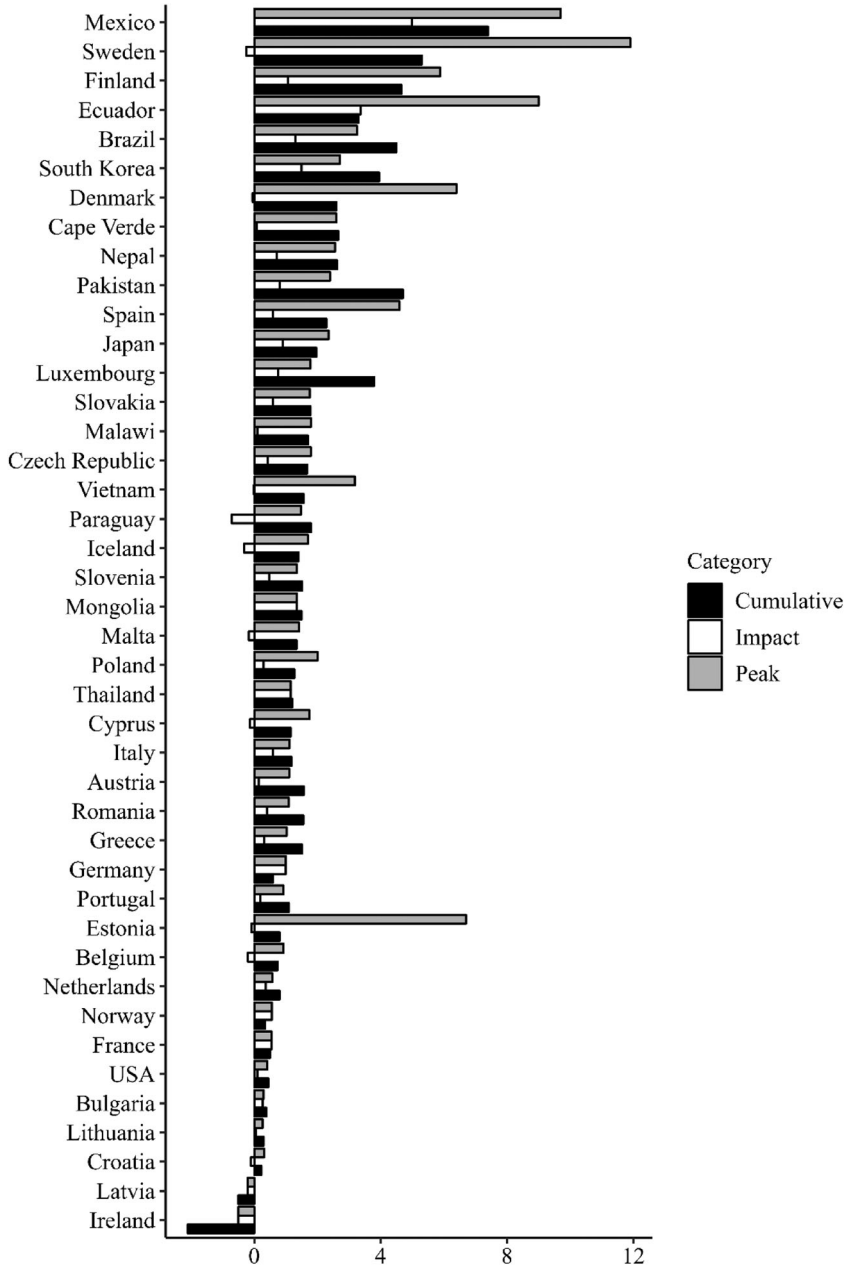
Figure 1. Multipliers of Social Expenditures for each Country



Note: The figure displays the estimated impact, peak and cumulative multipliers of social expenditures for each country. The multipliers represent the change in GDP, measured in units, resulting from a one-unit increase in the respective fiscal variable.
Source: Authors' estimates.

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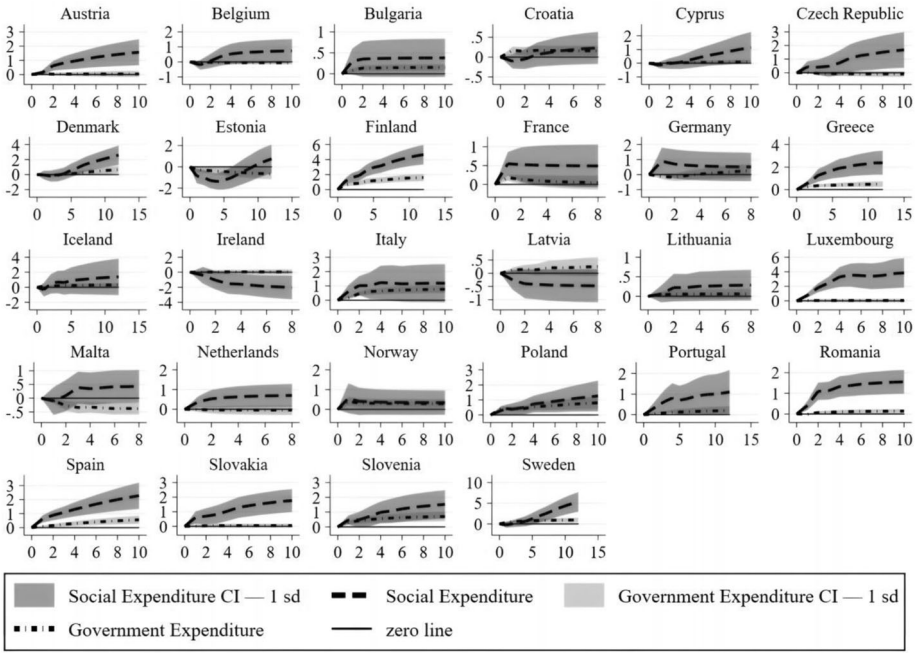
Figure 2. Impulse Response Functions Displaying the Cumulative Multipliers for 28 European Countries



Notes: The IRFs display the cumulative multipliers of total government and social expenditures for each country over quarters, along with one standard error band around them. The multiplier represents the change in output, measured in units, resulting from a one-unit increase in the respective fiscal variable. The multiplier for one expenditure category is higher (or lower) than for the other, with statistical significance, when the confidence intervals do not overlap. The scale of the vertical axis is determined by the magnitude of the multiplier. For the horizontal axis, the scale is dependent on the time horizon of the IRF. CI — 1sd: confidence intervals — one standard deviation.
Source: Authors' estimates.

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Essentially, the multiplier reflects the variation in output, in units, generated from the increase of one unit in the fiscal variable. Calculating the impact multiplier is important because it allows, for example, for a practical assessment of fiscal policy in terms of the GDP's immediate response to a shock in the fiscal variable to deal with a crisis. The cumulative multiplier, in turn, is critical to verify the impact of a shock over time, given that the economy takes time to absorb it entirely (Ilzetzki et al., 2013). Finally, the peak multiplier reflects the most intense response of output to expenditure over the analysed horizon. As detailed in the methodological approach described in Appendix 2, multipliers are obtained by dividing the elasticity of output to the fiscal variable by the average share of this type of expenditure in GDP (equation 8). Thus, since the multiplier is calculated as the ratio between the proportional rate of change in GDP and the proportional rate of change in social (or total government) spending, the magnitude of the expenditure component does not affect it.

In summary, for this empirical research, the multiplier effects of social protection expenditures were estimated for the 42 countries in the dataset through a three-dimensional structural linear VAR. Based on the estimations, cumulative impulse response functions were generated to obtain the dynamic impact of social protection expenditures on the level of real GDP. These functions were then used to obtain the elasticities of GDP in response to a shock in social protection spending and, finally, the multipliers. Considering the sample of 28 European countries extracted from the Eurostat database, we also estimated the multiplier effects of total government expenditures, using the same model specification (except for the number of lags of the endogenous variable, which is based on the lag length criteria; see Appendix Table A1.4).

As a final methodological caveat, we note that the lack of data available has precluded us from adjusting our empirical results to the evidence that automatic stabilizers are much less prevalent in developing countries than in developed ones (Brollo et al., 2024; ILO, 2021a).[21] In fact, there is evidence to suggest that the size of automatic stabilizers varies (sometimes considerably) across countries and over time. Mabbett and Schelkle (2007) and Dolls et al. (2012) find that automatic stabilizers are weaker in the US than in Europe, with large heterogeneity in size across the latter. Using data for a sample of OECD countries, Darby and Melitz (2008) find that age- and health-related social expenditure as well as incapacity and sick benefits all respond to the cycle in a stabilizing (but heterogeneous in strength) manner. Crespo-Cuaresma et al. (2011) employ data for 14 EU countries and find that the business cycle volatility smoothing effect of automatic stabilizers may revert at high levels of the government expenditure ratio. Afonso and Jalles (2012) use a panel of developed and developing countries to explore

21. We are grateful to a member of the editorial board of this journal for bringing this issue to our attention.

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Table 1. Social Protection Multipliers

	Average	Median	Max	Min
Impact	0.53	0.35	5.00 (Mexico)	−0.71 (Paraguay)
Peak	2.43	1.59	11.90 (Sweden)	−0.50 (Ireland)
Cumulative	1.84	1.52	7.40 (Mexico)	−2.10 (Ireland)

Note: This table presents the descriptive statistics for the social protection multipliers estimated in this article.
Source: Authors' compilation.

the cyclicality of education, health and social security government spending. The authors mostly find acyclical behaviour, but they also find evidence of anti-cyclicality for social security spending, particularly in OECD countries. Espino and Gonzalez-Rozada (2012) find that automatic stabilizers are considerably weaker (and heterogeneous in size) in some Latin American countries (for example, Argentina, Brazil, Mexico, Nicaragua and Peru) than in the US and Europe. In a study of European countries, Karras and Yang (2022) find that the size of automatic stabilizers varied considerably across countries and over time (and can be negative, as in the case of Greece and possibly Hungary). In another revealing recent study, Galeano et al. (2021) find that while automatic stabilizers such as unemployment insurance and other shock absorber programmes are countercyclical in developed countries, they are procyclical in the developing world. Interestingly, the authors track the source of this procyclical dynamics to the actual lack of automatic stabilizers such as unemployment insurance and to the existence of perverse automatic de-stabilizing mechanisms in social security spending (especially the absence of indexation).

RESULTS AND DISCUSSION

The estimates for social protection multipliers are presented in Table 1, Figure 1 and in more detail in Appendix Table A1.2. In line with part of the literature examined in the 'Literature Review' section of this article, social protection expenditures have a positive impact on GDP, both immediately and through time. Cumulative multipliers are statistically different from zero in most cases, confirming that the multiplier is positive and persistent. The averages, however, obscure a large diversity. The peak multiplier, which ranges from 5 in Mexico to -0.71 in Paraguay, is larger than 1 for only seven of the 42 economies. The cumulative multiplier, meanwhile, is generally larger, indicating that the positive impact of social protection expenditures on GDP builds up after some period. This multiplier reaches 7.4 in Mexico, but it is larger than 1 for 30 of the 42 countries in our dataset. It is noteworthy that the results presented appear to be robust, as estimates made with

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different data (available for some countries) or for specific components of social protection expenditures (for a few countries) led to similar results.[22]

Again aligning with part of the literature reviewed above, our estimates indicate that the cumulative multipliers of social protection expenditures are higher than those of total government expenditures. Figure 2 presents this comparison but only for the 28 European countries due to the availability of data. In all but two cases (Ireland and Latvia), the estimated cumulative multiplier for social protection expenditure is larger than that for total government expenditures. In addition, in more than a third of the European countries (that is, in 10 of the 28 countries in the sample), the estimated cumulative multiplier of social protection expenditure is significantly larger than that for total government expenditures considering one standard deviation. As mentioned above, this result is probably a consequence of the fact that social protection spending tends to be more targeted towards the poorer groups than the remainder of government spending. Thus, these social expenditures channel income to groups with above-average propensities to consume, having a higher direct and indirect impact on GDP.

As stated in the introduction, the positive impact of social protection expenditures on GDP operating through multiplier effects can be intuitively explained within a framework in which changes in aggregate demand play a key role. Keeping everything else constant, such multiplier effects increase as the marginal propensity to consume rises. As lower- and middle-income households, which tend to have higher propensities to consume, typically benefit more from social protection expenditures carried out by the government than higher-income households, the multiplier effects triggered by these expenditures can be significant in size, and larger than those of total government expenditures.

It is true, however, that there are significant differences in social protection coverage between countries, which could explain some of the heterogeneities in the results. For instance, while social protection coverage reaches 83.9 per cent of the population in Europe and Central Asia, this average rate drops to 56.3 per cent in Latin American and Caribbean countries (ILO, 2021b: 16). In advanced economies of the G20, 75 per cent of the population is covered by at least one social protection benefit, whereas in G20 developing economies, this number is only 60 per cent (Sarkar and Bhowmich, 2023). Differences in coverage may impact the degree of progressivity of social protection expenditures, but, according to the available studies, these expenditures are generally progressive in their impact on income distribution, even in the cases of countries with relatively lower coverage and a profound gap between formal and informal workers.

Given our large dataset of countries, it is interesting to investigate how certain economic characteristics correlate with the size of the

22. Those additional estimates are available to interested readers upon request.

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Table 2. Correlation between each Multiplier and Countries' Selected Economic Statistics

	Coefficient and t test p-value		
	Impact	**Peak**	**Cumulative**
Ratio social benefits - GDP	−5.772	−8.519	−9.991
	0.041	0.282	0.041
Gini_0	3.305	5.295	5.233
	0.027	0.207	0.045
Bottom50_0	−6.986	−9.348	−9.589
	0.019	0.268	0.068
Top10_0	2.946	5.552	5.289
	0.038	0.162	0.032
Top1_0	1.323	4.226	3.828
	0.444	0.374	0.199
Gini_1	5.167	4.551	7.140
	0.005	0.389	0.028
Bottom50_1	−9.458	−7.566	−11.646
	0.008	0.460	0.066
Top10_1	5.180	5.024	7.922
	0.004	0.328	0.011
Top1_1	8.370	11.361	13.269
	0.005	0.184	0.011
Gini_average	4.375	5.434	6.487
	0.01	0.262	0.03
Bottom50_average	−8.576	−9.254	−11.188
	0.01	0.332	0.059
Top10_average	4.172	5.897	6.918
	0.011	0.206	0.016
Top1_average	3.697	7.337	7.512
	0.117	0.263	0.065
GDPpercapita_2019	−0.00001	−0.00002	−0.00002
	0.126	0.381	0.162

Notes: (a) **0**: Variable of interest in the first year available for each country's sample; (b) **1**: Variable of interest in the last year available for each country's sample; (c) **Average**: Variable of interest in the first year and last year available for each country's sample; (d) **GDP per Capita** is measured at the purchasing power parity in 2017. The coefficients were estimated from Ordinary Least Square regressions, which analysed the relationship between multipliers and the mentioned variables across all countries in the sample.
Source: Authors' compilation.

multipliers estimated in our models. This sheds some light on the channels and mechanisms through which social protection spending can impact GDP. Table 2 presents the correlation between the impact, peak and cumulative multipliers and (1) GDP per capita, (2) the share of social expenditure in GDP, and (3) a number of inequality measures. We used inequality measures for the first ($t = 0$) and last ($t = 1$) years of observation and calculated the mean between those two. We used the Gini index, as it provides a measure that accounts for the whole distribution, but since this inequality measure is more sensitive to the middle of the distribution than to the bottom and the top (Atkinson, 1970), we also investigated the shares of income of the top decile, the top percentile and the bottom half of the distribution. We observed that in more unequal countries, social protection expenditure

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exerts a larger impact on GDP. This result is statistically significant for both the cumulative and impact multiplier but not for the peak multiplier. It is interesting to note that the coefficient is larger and more significant when inequality is measured in the last year of the sample. Indeed, in the case of the income share of the richest 1 per cent of the population, the correlation is only significant for the last year.

The negative, strong and significant correlation between the cumulative and impact multipliers and the income share of the poorest half of the population indicates a large macroeconomic benefit of increasing social expenditure in countries with relatively higher poverty levels. This reinforces the notion that social policies aimed at vulnerable groups not only enhance the well-being of such groups but can also be used as a tool to promote inclusive growth, corroborating evidence presented by the OECD (2019). A symmetrical result is that in countries where the share of income appropriated by the richest percentile of the population is larger, the estimated multipliers tend to be larger. The very high and significant correlation between the shares of the top decile and percentile and the size of multiplier corroborates that universal policies benefiting individuals along the whole distribution are also effective tools, especially in the case of countries marked by inequality at the top of the distribution. Furthermore, we find negative coefficients between all estimated multipliers and the ratio of social benefits to GDP. In other words, countries with smaller social protection systems tend to experience higher multipliers when facing a marginal increase in social spending. This reinforces the conjecture that in countries with high inequality and less developed welfare states, a marginal increase in social spending has stronger macroeconomic effects in terms of GDP.

Finally, our estimates show that the correlation between the multipliers and GDP per capita are not statistically different from zero. This result reinforces the conjecture that the difference in social protection multipliers does not arise from differences in the average income level, but instead from how income is distributed. Both developing and developed economies can have high social protection multipliers, if they are relatively unequal and with a low share of income at the bottom 50 per cent. This empirical finding suggests that, regardless of the level of economic development, a lower coverage of the social safety net and a higher initial level of income inequality lead to a greater macroeconomic impact (measured by a change in GDP) from an increase in government social spending. Taken together, these findings suggest that by redistributing income in countries with high inequality and relatively small existing social protection systems, social expenditure can have a high impact on GDP; in other words, the decrease in inequality promoted by social protection policies is also growth enhancing.

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CONCLUDING REMARKS

In Kalecki's well-known and perceptive article 'Political Aspects of Full Employment' (1943), there is an explicit defence of two types of public expenditure in order to increase employment and income levels: public investment and subsidizing mass consumption (which can be one of the results of social protection). Note that Kalecki highlights the indirect effects generated by these two types of government expenditures, referring to their income multiplier effects:

> If the Government undertakes public investment (e.g. builds schools, hospitals, and highways) or subsidises mass consumption (by family allowances, reduction of indirect taxation, or subsidies to keep down the prices of necessities), if, moreover, this expenditure is financed by borrowing and not by taxation (which could affect adversely private investment and consumption), the effective demand for goods and services may be increased up to a point where full employment is achieved. Such Government expenditure increases employment, be it noted, not only directly but indirectly as well, since the higher incomes caused by it result in a secondary increase in demand for consumption and investment goods. (ibid.: 322)

Social protection in this theoretical framework is thus a highly effective tool in achieving multiple economic targets at once. This article provides evidence that social protection expenditure has a strong positive macroeconomic effect in terms of the level of economic activity as measured by GDP. By producing a comprehensive dataset of 42 countries, we investigated the multiplier effect of government social expenditure on GDP. We find (1) that social protection expenditures have positive and persistent multiplier effects; (2) that the magnitude of the multiplier tends to be larger than that for other categories of government expenditure, given that it tends to be more targeted; and (3) that the magnitude of the social protection multiplier tends to be especially large in more unequal economies, irrespective of the level of GDP per capita. Therefore, our results suggest that government social protection expenditure can be used as a tool to advance towards several of the sustainable development goals advocated by the United Nations simultaneously.

Public spending on social protection is not only an important policy mechanism to redistribute income in unequal societies, to fight against multidimensional inequality (Kabeer, 2010), and to provide protection to vulnerable populations (Roelen et al., 2016); it is also a macroeconomic tool that positively impacts aggregate income and therefore can be used to promote inclusive growth — especially in unequal economies. In this way, our findings contradict a long-standing claim that goes back to the founding days of the field of development economics, according to which, if social protection systems 'are prematurely introduced …, they may in the end turn out a retarding factor in economic development' (Singer, 1950: 484–85). Ocampo and Gómez-Arteaga (2017: 23) refer to it as the 'affordability myth'. The positive and persistent multipliers show that social protection expenditures can, in fact, contribute to development, rather than slow it down. This is of course not meant to suggest that expanding social protection systems is a

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silver bullet that can contribute to overcoming all obstacles to development — it does not necessarily attenuate balance-of-payments constraints to economic growth, for instance, as discussed earlier. However, a comprehensive development strategy may use the expansion of universal social protection systems as a tool that can not only promote inclusive growth but also help forge a political coalition that can sustain in the long term the implementation of the strategy itself. The case of the 'golden social decade' in the 2000s in Latin America illustrates this point (Ocampo and Gómez-Arteaga, 2017). Although the redistributive efforts of left-of-centre governments in the region were mostly defeated in the following decade, political parties that led those efforts tend to retain the loyalty of a substantial part of the poorer sections of society. Divorced from a development strategy that could move the region beyond its specialization in primary exports, the redistributive push did not manage to survive the fall in commodity prices of the early 2010s. But its political legacy shows its potential as a component of a more ambitious and promising development strategy.

Finally, future research can fruitfully build on the results presented here in several ways. First, building a dataset suitable to estimate the multipliers of social protection expenditures using the narrative approach described in the literature review would be useful to reinforce the robustness and analytical interpretation of our results. Another possibility would be to expand our dataset in a way that allows for estimating multipliers of specific components of social protection systems (for example, cash transfers, unemployment benefits, pensions and so forth), which could both attenuate the difficulties that institutional diversity create for interpreting the results and contribute to informing the design of social protection systems themselves. Second, case studies on social protection in specific countries or regions could support the interpretation of the results of this article, by addressing institutional and socio-economic details that certainly bear on the macroeconomic implications of government spending on social protection. Comparative exercises may also prove analytically useful in this regard. Hopefully, this article will stimulate and analytically support further empirical investigations along some of these and other related lines.

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APPENDIX 1: SUMMARY OF RESULTS

Table A1.1a. Summary of Results from the Existing Empirical Literature on Multiplier Effects of Social Protection and Other Expenditures by the Government

Study	Country	Period	Method	Social Protection – Multiplier Results	Government Expenditure — Multiplier Results		
					Total	Consumption	Investment
Bova and Klyviene (2019)	Portugal	1995 – 2017	SVAR	Impact: -0.27* Cumulative: 0.10	–	Impact: 0.84* Cumulative: 1.52*	Impact: 0.08* Cumulative: 0.14
Bruckner and Tuladhar (2010)	Japan	1990 – 2000	One-equation methods	Impact: -0.25	Impact: 0.26*	Government personnel Impact: -0.28	Impact: Construction: 0.76* Transfers to firms: 3.46*
Dufrénot et al. (2016)	US	1960 – 2012	Non-linear methods (MS/TVTP)	Recession Consumption:1.68 Investment: 0.02	–	–	–
Fatás and Mihov (2001)	US	1960 – 1996	VAR (Cholesky decomposition)	Positive and significant impact of transfers on GDP	Positive and significant impact on GDP	Wages Positive and significant impact on GDP	Positive and significant effect on GDP
Furceri and Zdzienicka (2012)	OECD countries	1980 – 2005	One-equation method	Total social expenditure: 0.60* Unemployment benefits: 2.10*	0.48*	–	–
	US	1948 – 2012	Non-linear methods (TVPSV-VAR)	Impact: >1.00 End of the 2008/09 crisis: [∼1.50; 2.00] End of 1950's and beginning of 1960's: ∼3*	Impact: [0.50; 1.50] 2008/09 crisis: -3.00* 2000's: 2.00* 1980's: 2.00*	–	–

(*Continued*)

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Table A1.1a. (Continued)

Study	Country	Period	Method	Social Protection – Multiplier Results	Government Expenditure — Multiplier Results		
					Total	Consumption	Investment
Gechert and Rannenberg (2014)	Meta-analysis: 98 studies	Sample: > 1800	Meta-regression analysis	Recession Cumulative: [2.00; 3.00]	Recession Cumulative: [1.00; 2.00]	Recession Cumulative: [1.50; 2.00]	Recession Cumulative: ∼2.00
Gechert et al. (2021)	Germany	1974–2013	SVAR with 'narrative shocks'	Impact: [0.50; 1.50*]	–	–	–
Hamer-Adams and Wong (2018)	New Zealand	1990 – 2017	SVAR	Impact: 1.53* Cumulative: 0.76	Impact: 0.43* Cumulative: 0.24	Impact: 0.59* Cumulative: 0.82	Impact: 0.33* Cumulative: -0.59
Hollmayr and Kuckuck (2018)	Germany	1993 – 2017	SVAR	Impact: 2.00* Cumulative: [0.30*; 3.80]	–	Impact: 0.80 Cumulative: [1.10*; 2.30]	Impact: 3.50* Cumulative: [4.50*; 6.40*]
Konstantinou and Partheniou (2021)	Panel of OECD and non-OECD countries	1991 – 2015	Non-linear one equation	Recession Cumulative OECD: 0.80* Non-OECD: 0.08	–	Compensation on employees Cumulative OECD: 1.47* Non-OECD:0.03 Goods and services Cumulative OECD: 1.00 Non-OECD: 0.17	Recession Cumulative OECD: 1.30* Non-OECD: −0.001
Orair et al. (2016)	Brazil	2002 – 2016	Non-linear VAR (STVAR)	Recession Peak: 1.51* Cumulative: 8.00*	Recession Peak: 0.54* Cumulative: 2.20*	Recession Compensation on wages Peak: 1.32* Cumulative: 5.10* Other expenditures Peak: 0.26 Cumulative: 1.80 Subsidies: Peak: 0.59 Cumulative: -9.00	Recession Peak: 1.68* Cumulative: 6.80*

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Table A1.1a. (Continued)

Study	Country	Period	Method	Social Protection – Multiplier Results	Government Expenditure — Multiplier Results		
					Total	Consumption	Investment
Pereira and Sagalés (2009)	Portugal	1980 – 2005	VAR	Impact: 1.88* Cumulative: 1.81	Impact: 1.68* Cumulative: 1.21	Impact: 0.27* Cumulative: 0.62	Impact: 2.40* Cumulative: 4.70*
Pereira and Wemans (2013)	Portugal	1995 – 2011	SVAR	Peak: ∼1.00 Cumulative: 0.60	–	Consumption Peak: 0.50* Cumulative: 0.20 Compensation on employees Peak: 2.50* Cumulative: 1.70* Goods and services Peak: -0.30* Cumulative: -0.30	–
Reeves et al. (2013)	Panel of EU countries	1995 – 2010	One-equation method	3.00*	Consumption: 1.28* Defense: -5.60 Community: -2.30 Eco. affairs: 0.45 General public services: 1.57 Culture: 14.10* Environment: 9.00	–	–
Resende (2019)	Brazil	1997 – 2018	VAR	Impact: 0.72* Cumulative: 4.30*	–	Wages / Compensation Impact: 0.81 Cumulative: 2.40	Impact: 2.37* Cumulative: 3.30

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Table A1.1a. (Continued)

Study	Country	Period	Method	Social Protection – Multiplier Results	Government Expenditure — Multiplier Results		
					Total	Consumption	Investment
Sanches and Carvalho (2022)	Brazil	1997 – 2018	SVAR	Impact: 0.75* Cumulative: 2.90*	Impact: 0.37* Cumulative: 0.60	Wages / Compensation Impact: 0.10 Cumulative: -1.00 Subsidies Impact: 0.14 Cumulative: 0.05	Impact: 1.40* Cumulative: 3.60*
Sarangi and von Bonin (2017)	Egypt	1990 – 2015	SVAR	Impact: 0.04 Peak: 0.17	Impact: 0.02 Peak: 0.02	Impact: 0.01 Peak: 0.01	Impact: 0.16 Peak: 0.34
Şen and Kaya (2020)	Turkey	2002 – 2016	SVAR	Impact: [0.02; 0.23]	[0.98; 1.05]	–	–
Silva et al. (2013)	Panel of Eurozone countries	1998 – 2008	VAR	Impact: -0.35 Cumulative: 0.05	Impact: -0.07 Cumulative: 0.05	Intermediate consumption Impact: 0.25 Cumulative: 0.74 Wages Impact: -0.6 Cumulative: -0.07	Impact: 1.60* Peak: 2.30

Notes: This table summarizes the findings from the existing empirical literature on the multiplier effects of social protection and other government expenditures. It also provides details on the methodology used in each study, the countries/region and period covered, as well as the estimated multipliers.
*Statistically significant at 10 per cent.
Source: Authors' compilation.

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Table A1.1b. Summary of Results from the Existing Empirical Literature on Multiplier Effects of Social Protection and Taxes

Study	Country	Period	Method	Social Protection – Multiplier Results	Government Taxes - Multiplier Results		
					Total	Direct Taxes	Indirect Taxes
Bova and Klyviene (2019)	Portugal	1995 – 2017	SVAR	Impact: -0.27* Cumulative: 0.10	–	Impact: -0.08* Cumulative: -0.12	Impact: 0.12* Cumulative: -0.05
Fatás and Mihov (2001)	US	1960 – 1996	VAR (Cholesky decomposition)	Positive and significant impact of transfers on GDP	Negative and significant effect on GDP	–	–
Gechert and Rannenberg (2014)	Meta-analysis: 98 studies	Sample: > 1800	Meta-regression analysis	Recession Cumulative: [2.00; 3.00]	Recession Cumulative: ∼0.50	–	–
Hamer-Adams and Wong (2018)	New Zealand	1990 – 2017	SVAR	Impact: 1.53* Cumulative: 0.76	Net taxes Impact: 0.24 Cumulative: -0.10 Revenue taxes Impact: 1.27* Cumulative: 1.29*	–	–
Hollmayr and Kuckuck (2018)	Germany	1993 – 2017	SVAR	Impact: 2.00* Cumulative: [0.30*; 3.80]	Impact: 0.50* Cumulative: [-0.10*; 0.60]	Social contributions Impact: 4.60* Cumulative: [1.20; 4.60*]	–
Pereira and Sagalés (2009)	Portugal	1980 – 2005	VAR	Impact: 1.88* Cumulative: 1.81	Impact: 0.00 Cumulative: −1.83*	Impact: -0.10 Cumulative: -2.70*	Impact: -0.06 Cumulative: -0.18

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Table A1.1b. (Continued)

Study	Country	Period	Method	Social Protection – Multiplier Results	Government Taxes - Multiplier Results		
					Total	Direct Taxes	Indirect Taxes
Pereira and Wemans (2013)	Portugal	1995 – 2011	SVAR	Peak: ∼1.00 Cumulative: 0.60	–	Peak: -0.70* Cumulative: -1.20*	Peak: -0.30 Cumulative: -0.20
Sanches and Carvalho (2022)	Brazil	1997 – 2018	SVAR	Impact: 0.75* Cumulative: 2.90*	Impact: -0.37* Cumulative: -0.18	–	–
Şen and Kaya (2020)	Turkey	2002 – 2016	SVAR	Impact: [0.02; 0.23]	–	Personal income tax: [-0.27; -0.19]	Tax on consumption: [-0.54; -0.35] VAT: [-0.83; -0.57]
Silva et al. (2013)	Panel of Eurozone countries	1998 – 2008	VAR	Impact: -0.35 Cumulative: 0.05	Impact: 0.00 Cumulative: -0.29	Impact: 0.00 Cumulative: -1.06	Impact: 0.00 Peak: -0.70

Notes: This table summarizes the findings from the existing empirical literature on the multiplier effects of taxes and social protection expenditures. It also provides details on the methodology used in each study, the countries/region and period covered, as well as the estimated multipliers.
*Statistically significant at 10 per cent.
Source: Authors' compilation.

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Table A1.2. Social Protection Multipliers

	Type	Social Benefits Data Source	Period	Impact Multiplier	Peak Multiplier ("t" indicates the period)	Cumulative Multiplier	Ratio Social Benefits — GDP
Austria	general	Eurostat	2001 — 2019	0.14	1.11 (t = 10)	1.57 (over ten quarters)	0.18
	central	Eurostat	2001 — 2019	0.18	6.86 (t = 10)	6.67 (over ten quarters)	0.05
Belgium	general	Eurostat	1995 — 2019	−0.20	0.93 (t = 4)	0.74 (over ten quarters)	0.16
Brazil	central	Gobetti and Orair (2017)	1997 — 2018	1.30	3.25 (t = 7)	4.50 (over ten quarters)	0.07
Bulgaria	general	Eurostat	1999 — 2019	0.27	0.30 (t = 2)	0.38 (over ten quarters)	0.11
Cape Verde		Ministério das Finanças	2007 — 2020	0.08	2.60 (t = 2)	2.66 (over ten quarters)	0.03
Croatia	general	Eurostat	1999 — 2019	−0.10	0.31 (t = 7)	0.23 (over ten quarters)	0.13
Cyprus	general	Eurostat	1995 — 2019	−0.13	1.75 (t = 10)	1.15 (over ten quarters)	0.11
Czech Republic	general	Eurostat	1999 — 2019	0.43	1.79 (t = 8)	1.68 (over ten quarters)	0.13
	central	Eurostat	2003 — 2019	0.66	7.20 (t = 12)	3.60 (over twelve quarters)	0.12
Denmark	general	Eurostat	1999 — 2019	−0.05	6.40 (t = 12)	2.60 (over twelve quarters)	0.16
Ecuador		Ministerio de Finanzas	2000 — 2020	3.37	9.00 (t = 9)	3.30 (over ten quarters)	0.04
Estonia	general	Eurostat	2002 — 2019	−0.09	6.70 (t = 12)	0.80 (over twelve quarters)	0.11
Finland	general	Eurostat	1999 — 2019	1.06	5.88 (t = 12)	4.66 (over twelve quarters)	0.17
France	general	Eurostat	1985 — 2019	0.55	0.55 (t = 1)	0.50 (over eight quarters)	0.18
Germany	general	Eurostat	2002 — 2019	1.00	1.00 (t = 1)	0.60 (over eight quarters)	0.17
	central	Eurostat	2002 — 2019	−3.50	6.30 (t = 8)	1.50 (over ten quarters)	0.02

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Table A1.2. (Continued)

	Type	Social Benefits Data Source	Period	Impact Multiplier	Peak Multiplier ("t" indicates the period)	Cumulative Multiplier	Ratio Social Benefits — GDP
Greece	general	Eurostat	1999 — 2019	0.32	1.03 (t = 10)	1.52 (over twelve quarters)	0.16
	central	Eurostat	2009 — 2019	−0.35	−0.27 (t = 2)	−0.30 (over twelve quarters)	0.03
Iceland	general	Eurostat	2002 — 2019	−0.32	1.70 (t = 11)	1.40 (over twelve quarters)	0.07
	central	Eurostat	2002 — 2019	−3.00	2.30 (t = 2)	−2.99 (over twelve quarters)	0.01
Italy	general	Eurostat	1999 — 2019	0.60	1.12 (t = 2)	1.18 (over ten quarters)	0.18
Ireland	general	Eurostat	2002 — 2019	−0.50	−0.50 (t = 1)	−2.10 (over ten quarters)	0.10
Japan		Japanese National Institute	1994 — 2017	0.90	2.35 (t = 4)	1.97 (over ten quarters)	0.18
Latvia	general	Eurostat	1999 — 2019	−0.20	−0.20 (t = 1)	−0.50 (over eight quarters)	0.10
Lithuania	general	Eurostat	1999 — 2019	0.05	0.26 (t = 2)	0.30 (over eight quarters)	0.11
	central	Eurostat	2005 — 2019	0.45	0.53 (t = 4)	0.70 (over eight quarters)	0.03
Luxembourg	general	Eurostat	2002 — 2019	0.76	1.78 (t = 3)	3.80 (over ten quarters)	0.15
	central	Eurostat	2002 — 2019	−0.60	4.10 (t = 4)	3.70 (over ten quarters)	0.03
Malawi		Reserve Bank of Malawi	1990 — 2020	0.10	1.76 (t = 4)	1.60 (over ten quarters)	0.02
Malta	general	Eurostat	2000 — 2019	−0.17	1.42 (t = 3)	1.34 (over twelve quarters)	0.10

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Table A1.2. (Continued)

	Type	Social Benefits Data Source	Period	Impact Multiplier	Peak Multiplier ("t" indicates the period)	Cumulative Multiplier	Ratio Social Benefits — GDP
Mexico		OECD Data	1985 — 2019	5.00	9.70 (t = 3)	7.40 (over eight quarters)	0.01
	central	ECLAC	1999 — 2018	3.40	6.00 (t = 2)	7.20 (over eight quarters)	0.01
Mongolia		IMF	2001 — 2019	1.47	1.47 (t = 1)	1.60 (over eight quarters)	0.09
Nepal		Ministry of Finance	2005 — 2018	0.72	2.56 (t = 6)	2.62 (over ten quarters)	0.02
Netherlands	general	Eurostat	1991 — 2019	0.37	0.57 (t = 3)	0.80 (over eight quarters)	0.11
	central	Eurostat	1991 — 2019	1.45	3.00 (t = 7)	2.40 (over eight quarters)	0.02
Norway	general	Eurostat	2002 — 2019	0.56	0.56 (t = 1)	0.34 (over ten quarters)	0.14
Paraguay		Ministerio de Hacienda	2000 — 2020	−0.71	1.48 (t = 8)	1.80 (over twelve quarters)	0.04
	central	ECLAC	2000 — 2020	−1.30	4.70 (t = 5)	3.10 (over ten quarters)	0.03
Pakistan		CT Data	2002 — 2019	0.99	2.90 (t = 7)	5.10 (over twelve quarters)	0.01
		Ministry of Finance	2002 — 2019	0.20	4.20 (t = 3)	1.50 (over eight quarters)	0.01
Poland	general	Eurostat	1999 — 2019	0.30	2.00 (t = 10)	1.27 (over ten quarters)	0.15
Portugal	general	Eurostat	1999 — 2019	0.20	0.93 (t = 11)	1.10 (over twelve quarters)	0.15
	central	Eurostat	2008 — 2019	0.60	1.35 (t = 12)	2.14 (over twelve quarters)	0.06

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Table A1.2. (Continued)

	Type	Social Benefits Data Source	Period	Impact Multiplier	Peak Multiplier ("t" indicates the period)	Cumulative Multiplier	Ratio Social Benefits — GDP
Romania	general	Eurostat	1995 — 2019	0.40	1.10 (t = 4)	1.55 (over ten quarters)	0.10
	central	Eurostat	1995 — 2019	−0.19	0.35 (t = 2)	0.41 (over ten quarters)	0.02
Slovakia	general	Eurostat	1999 — 2019	0.60	1.76 (t = 9)	1.78 (over ten quarters)	0.13
Slovenia	general	Eurostat	1999 — 2019	0.47	1.35 (t = 10)	1.52 (over ten quarters)	0.17
South Korea		OECD Data	2000 — 2019	1.50	2.71 (t = 3)	3.95 (over ten quarters)	0.04
Spain	general	Eurostat	1995 — 2019	0.60	4.60 (t = 12)	2.28 (over twelve quarters)	0.14
Sweden	general	Eurostat	1995 — 2019	−0.25	11.90 (t = 12)	5.30 (over twelve quarters)	0.14
	central	Eurostat	1995 — 2019	−0.52	4.80 (t = 10)	2.39 (over twelve quarters)	0.08
Thailand		Bank of Thailand / ADB	2002 — 2019	1.15	1.15 (t = 1)	1.12 (over eight quarters)	0.02
United States	general	FRED	1985 — 2019	0.10	0.41 (t = 2)	0.45 (over eight quarters)	0.12
	central	FRED	1985 — 2019	0.12	0.57 (t = 2)	0.50 (over eight quarters)	0.09
Vietnam		Ministry of Finance	2005 — 2020	−0.02	3.19 (t = 5)	1.56 (over ten quarters)	0.04

Note: This table displays the estimated impact, peak, and cumulative multipliers of social expenditures for each country. These multipliers represent the change in GDP (measured in units) resulting from a one-unit increase in the respective fiscal variable. It also provides the source of the social protection expenditure series, the period covered by the estimations, and the ratio of social protection expenditure to GDP for each unit.
Source: Authors' compilation

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Table A1.3. Country Case Studies that Investigate the Multipliers Effects of Total Social Expenditures on GDP

Country	Frequency of Social Expenditure Data	Control Variables — in Parentheses, the Quarters in which the Dummy Assumes a Value Equal to 1
Cape Verde	Quarterly data available	dummy1 (2015Q4): sharp break in social benefits series. dummy2 (2020Q2): COVID-19 crisis. Constant.
Ecuador	Government consumption as an indicator in Denton-Chollete temporal disaggregation method	dummy1 (2003Q1, 2005Q1): internal political crisis that culminated in the removal of Lucio Gutiérrez from the presidency in 2005. dummy2 (2008Q3–2009Q1): Global Financial Crisis. ITCER variable: *Indice de Tipo de Cambio Real* (*) Constant.
Korea	Quarterly Transfers to household series as an indicator in Denton-Chollete temporal disaggregation method	Constant.
Japan	Total government expenditure as an indicator in Denton-Chollete temporal disaggregation method	dummy1 (1995Q1, 2009Q3, 2009Q4): sharp break in GDP series. Real Effective Exchange Rate (CEIC). Real interest rate (OECDStat).
Malawi	Total government expenditure as an indicator in Denton-Chollete temporal disaggregation method	dummy1 (1994Q1–Q4): a drop in real GDP series. dummy2 (2013Q1–Q4) and dummy 3 (2014Q1–Q4): sharp fall in the social protection series. Index of effective exchange rate (IMF). Real interest rate (Malawi's Central Bank) Constant.
Mexico	Total government expenditure as an indicator in Denton-Chollete temporal disaggregation method	dummy1 (2009Q1–Q4): sharp fall in GDP due to global financial crisis; dummy2 (2010Q1–Q4): economic recovery after the crisis. Constant.
Mongolia	Quarterly data available	dummy 1 (2008Q3–2009Q4): Global Financial Crisis. dummy2 (2014Q4–2016Q1): to control for a drop in revenues. dummy3 (2011Q1–2013Q1): peak and a drop that we observe in the expenditure series. Constant.

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Table A1.3. (Continued)

Country	Frequency of Social Expenditure Data	Control Variables — in Parentheses, the Quarters in which the Dummy Assumes a Value Equal to 1
Nepal	Current government expenditures as an indicator in Denton-Chollete temporal disaggregation method	dummy1 (2010Q3): sharp break in real GDP series. dummy2 (2008Q3–2009Q2): Global Financial Crisis.
Pakistan	Quarterly data available	dummy1 (2014Q1–2015Q4): different pattern of seasonality in social expenditure series. Constant.
Paraguay	Quarterly data available	dummy1 (2020Q2–Q3): COVID pandemic. Constant.
Thailand	Quarterly total government expenditure as an indicator in Denton-Chollete temporal disaggregation method	Constant.
Vietnam	Current government expenditures as an indicator in Denton-Chollete temporal disaggregation method	dummy1 (2008Q2–2009Q1): Global Financial Crisis. Constant.

Notes: This table provides information on the econometric model specifications used to estimate the effect of social protection expenditures on GDP for countries in which the data were not obtained from Eurostat. It also includes the frequency of the social expenditure data and the method used for quarterly adjustments, if applicable.
(*)Ratio between the price of foreign goods in local currency and the local price level.
Source: Authors' compilation.

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Table A1.4. VAR Models for Eurostat Countries

Country	Lags utilized in VAR[b]		Control Variables – in Parentheses, the Quarters in which the Dummy Assumes a Value Equal to 1
	Social Expenditure	Government Expenditure	
Austria	3	2	dum0809 (2008Q3–2009Q2): Global Financial Crisis. REER: Real Effective Exchange Rate.
Belgium	2	2	dum0809 (2008Q3–2009Q2): Global Financial Crisis. Constant.
Bulgaria	1	1	dum0809 (2009Q2, 2009Q3): Global Financial Crisis. Constant.
Croatia	2	2	dum0809 (2008Q4–2009Q1): Global Financial Crisis. Constant.
Cyprus	6	2	dum0809 (2008Q4, 2009Q1): Global Financial Crisis. dum13 (2012Q2, 2012Q3): Cypriot Financial Crisis. REER: Real Effective Exchange Rate.
Czech Republic	4	4	dum0809 (2008Q3–2009Q3): Global Financial Crisis. dumeurocrisis (2013Q1–2013Q3): eurozone crisis. REER: Real Effective Exchange Rate. Constant.
Denmark[a]	7	7	dum0809 (2008Q3–2009Q2): Global Financial Crisis.
Estonia	6	5	dum0809 (2008Q4–2009Q3): Global Financial Crisis. Constant.
Finland	6	6	dum0809 (2008Q3–2009Q3): Global Financial Crisis. dumeurocrisis (2012Q2–2013Q1): eurozone crisis.
France	1	1	dum0809 (2008Q4–2009Q3): Global Financial Crisis. Constant.
Germany	1	6	dum0809 (2008Q3–2009Q3): Global Financial Crisis. Constant.
Greece	5	5	dum0809 (2008Q2–2009Q1): Global Financial Crisis. dumeurocrisis (2010Q1–2013Q1): eurozone crisis.
Iceland	3	3	dum0809 (2008Q2–2009Q2): Global Financial Crisis.
Ireland	3	2	dum0809 (2008Q4–2009Q3): Global Financial Crisis. Constant.
Italy	3	2	dum0809 (2008Q3–2009Q2): Global Financial Crisis. dumeurocrisis (2012Q2): eurozone crisis. REER: Real Effective Exchange Rate. Constant.

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Table A1.4. (Continued)

Country	Lags utilized in VAR[b]		Control Variables – in Parentheses, the Quarters in which the Dummy Assumes a Value Equal to 1
	Social Expenditure	Government Expenditure	
Latvia	1	3	dum0809 (2008Q4–2009Q3): Global Financial Crisis. Constant.
Lithuania	1	1	dum0809 (2008Q4–2009Q4): Global Financial Crisis. REER: Real Effective Exchange Rate. Constant.
Luxembourg	6	1	Constant.
Malta	2	1	Constant.
Netherlands	1	1	dum0809 (2008Q2–2009Q4): Global Financial Crisis. Constant.
Norway	1	1	dum0809 (2008Q3–2009Q2): Global Financial Crisis.
Poland	4	4	dum0809 (2007Q4, 2008Q1, 2009Q1): Global Financial Crisis. REER: Real Effective Exchange Rate.
Portugal	7	4	dum0809 (2008Q4, 2009Q1): Global Financial Crisis. dumeurocrisis (2010Q4–2011Q4): eurozone crisis. dumport (2012Q2–2012Q3): Portuguese recession.
Romania	1	1	dum0809 (2008Q4, 2009Q1): Global Financial Crisis.
Spain	2	2	dum0809 (2008Q3–2009Q1): Global Financial Crisis. REER: Real Effective Exchange Rate. dum12 (2012Q4): break in government expenditure series (this control variable was utilized only in 'government expenditure VAR').
Slovakia	4	1	dum0809 (2008Q4–2009Q3): Global Financial Crisis. Constant.
Slovenia	3	3	dum0809 (2008Q4–2009Q2): Global Financial Crisis. Constant.
Sweden	8	2	dum0809 (2008Q3–2009Q3): Global Financial Crisis. dumeurocrisis (2013Q1–2013Q3): eurozone crisis. REER: Real Effective Exchange Rate.

Notes: This table provides information on the econometric model specifications used to estimate the effect of social protection expenditures on GDP for countries in which the data were obtained from Eurostat (see https://ec.europa.eu/eurostat/data). (a) Interest receivable data were unavailable, therefore we utilized total revenue in VAR (not primary revenue); (b) In some cases, lag length criteria indicated different lags for government expenditure and social expenditure VAR models.
Source: Authors' compilation.

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APPENDIX 2: DATA AND METHODOLOGICAL APPROACH

DATA DESCRIPTION

The social protection data we based our analysis on primarily focus on welfare and social security, using definitions specific to each country. Although this approach may not provide the accuracy of a universal analytical framework, it enables us to build a more extensive dataset within the limits of available data. Additionally, studies consistently show that, despite variations in definitions, targeting, or coverage, of social protection spending generally has significant redistributive effects across different countries.

Brazil

Social protection series: Gobetti and Orair (2017).
Government tax revenues: Gobetti and Orair (2017).
Real GDP and its implicit deflator: Instituto Brasileiro de Geografia e Estatística (IBGE) — Brazilian Institute of Geography and Statistics.
Consumer Price Index (CPI) — IPCA: Instituto Brasileiro de Geografia e Estatística (IBGE) — Brazilian Institute of Geography and Statistics.

Cape Verde

Social protection series: Ministério das Finanças — Ministry of Finance.
Government tax revenues and total expenditure series: Ministério das Finanças — Ministry of Finance.
Real GDP and its implicit deflator: Instituto Nacional de Pesquisas — National Research Institute.
CPI: Instituto Nacional de Pesquisas — National Research Institute.

Ecuador

Social protection series: Ministerio de Finanzas — Ministry of Finance (annual transformed into quarterly using total government consumption as an indicator). The series for social protection expenditures were provided in two categories: welfare and social security benefits.
Government tax revenues and total expenditure series: Banco Central del Ecuador — Central Bank of Ecuador.
Real GDP and its implicit deflator: Quarterly National Accounts of Ecuador.
CPI: IMF.

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European countries

Social protection series: Quarterly non-financial accounts for general government — Eurostat — Social benefits other than social transfers in kind, payable. Includes pensions and social security funds (e.g. cash benefits to persons unable to work due to sickness or injury, retirement and survival pensions, unemployment benefits and family allowances).
Government tax revenues: Quarterly non-financial accounts for general government — Eurostat — Total general government revenue.
Real GDP and its implicit deflator: Eurostat.

Japan

Social protection series: Japanese National Institute of Population and Social Security Research. The data include eight functional categories (old age; survivors; invalidity benefits; employment injury; sickness and health; family benefits; unemployment; housing) and other social policy areas. We transformed the aggregate annual series into quarterly data using quarterly government expenditures as an indicator.
Total government expenditures: National Accounts of Japan (Department of National Accounts, Economic and Social Research Institute).
Government tax revenues: CEIC (in dollars). We converted to yens using a nominal monthly exchange rate from the Federal Reserve Economic Data.
Real GDP and its implicit deflator: National Accounts of Japan (Department of National Accounts, Economic and Social Research Institute).
CPI: IMF.

Malawi

Social protection series: Reserve Bank of Malawi (annual, transformed into quarterly using the total government expenditure as an indicator). Includes pensions and gratuities, government contribution to pension schemes, social cash transfers, farm input subsidy, maize purchases (market intervention subsidy) and university students' loans.
Government tax revenues and total expenditure series: Reserve Bank of Malawi.
Real GDP and its implicit deflator: Reserve Bank of Malawi (annual). In order to transform the annual GDP series into quarterly data, we used quarterly GDP for Uganda as an indicator, another African country with a similar trend, available in Tahir et al. (2018) from 1990 to 2016. For the years 2017–20 we obtained a quarterly GDP series from Uganda Bureau of Statistics.

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Exchange rates/ real effective exchange rate (index): Reserve Bank of Malawi/ IMF.
CPI: IMF.

Mexico

Social protection series: 1) OECD Data (public social expenditure, annual, transformed into quarterly using the total government expenditure as an indicator). Includes old age, survivors, incapacity-related benefits, family, active labour market programmes, unemployment, housing, and other social policy areas. Refers to both types of social benefits, in kind and in cash; 2) ECLAC (social protection annual, transformed into quarterly using the total government expenditure as an indicator).
Government tax revenues and total expenditure series: Banco de México — Bank of Mexico.
Real GDP and its implicit deflator: Sistema de Cuentas Nacionales de México — National Accounts System of Mexico.
CPI: IMF.

Mongolia

Social protection series: IMF (social benefits in cash series at quarterly frequency from 2001 to 2015); and the Mongolian Statistical Information Service ('current transfers' series at quarterly frequency for the years 2016–19). To increase the sample, we combined both series, which are very similar. The series comprises social security payments and social assistance.
Government tax revenues: Mongolian Statistical Information Service.
Real GDP and its implicit deflator: Mongolian Statistical Information Service (quarterly data on GDP for the period 2005–19); and CEIC (GDP data before 2005, in US dollars and converted to national currency using the nominal exchange rate from the Bank of Mongolia).
CPI: IMF.

Nepal

Social protection series: National Account Statistics (Central Bureau of Statistics) and Handbook of Government Finance Statistics & Quarterly Economic Bulletin (Nepal Rastra Bank).
Government tax revenues and total expenditure series: Nepal Rastra Bank.
Real GDP and its implicit deflator: Central Bureau of Statistics.
CPI: IMF.

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Pakistan

Social protection series: Ministry of Finance (social security and welfare/social protection — both annual; social public investment — quarterly), CT Data (pensions and allowance —quarterly). We transformed the annual series into quarterly frequency using a consolidated quarterly expenditure series from the government as an indicator.
Government tax revenues and total expenditure series: CT Data.
Real GDP and its implicit deflator: Tahir et al. (2018).
CPI: IMF.

Paraguay

Social protection series: 1) Ministerio de Hacienda — Ministry of Finance (quarterly). Includes 'social promotion and action' and social security. The first category comprises expenditure on assistance to persons with special needs, social action services, state and municipal-level social services, and social services for agrarian reform, among other items. The social security component includes varied benefits (old age, survivors, sickness, etc.). 2) ECLAC (annual, transformed into quarterly using the total government expenditure as an indicator). Includes social protection (central government).
Government tax revenues and total expenditure series: Ministerio de Hacienda — Ministry of Finance.
Real GDP and its implicit deflator: Banco Central del Paraguay — Central Bank of Paraguay.
CPI: IMF.

South Korea

Social protection series: OECD 'social benefits in cash' at an annual frequency. In order to transform the annual series into quarterly frequency, we used the series "transfers to households" (from Bank of Korea) at a quarterly frequency, as an indicator. Social benefits in cash include two key components: pension benefits and non-pension benefits. The latter consists of cash transfers made by the government or by non-profit institutions to households to meet their financial needs in case of unexpected events (such as unemployment).
Government tax revenues: Bank of Korea.
Real GDP and its implicit deflator: Bank of Korea.
CPI: IMF.

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Thailand

Social protection series: Bank of Thailand (social protection expenditure quarterly, from 2009 to 2019); and Asian Development Bank (ADB) (from 2002 to 2008, we interpolated the annual data for social protection from ADB with the quarterly total government expenditure obtained from Bank of Thailand as an indicator). We combined the series since they are very similar. The series comprises social security benefits, social assistance benefits and employer social expenditures.
Total government expenditure: Bank of Thailand.
Government tax revenues: CEIC database. As the series was given in US dollars, we had to convert it to bahts (the national currency) using the nominal exchange rate available at the Bank of Thailand's statistics.
Real GDP and its implicit deflator: Bank of Thailand.
CPI: IMF.

United States

Social protection series: Federal Reserve Economic Data. Federal government current transfer payments: Government social benefits (central government). Government current transfer payments: Government social benefits (general government).
Government tax revenues: Federal Reserve Economic Data.
Real GDP and its implicit deflator: Federal Reserve Economic Data.
CPI: Federal Reserve Economic Data.

Vietnam

Social protection series: General Statistics Office of Vietnam/ The Ministry of Finance of the Socialist Republic of Vietnam. Annual series were transformed into quarterly data, using the total government expenditure as an indicator. Includes social security: pensions and social insurance benefits, premiums to the voluntary social insurance and support for the unemployment insurance fund (social insurance); and funding for implementing the policy on preferential treatment and housing supports for the national devotees who participated in the National Defence War.
Government tax revenues and total expenditure series: The Ministry of Finance of the Socialist Republic of Vietnam.
Real GDP and its implicit deflator: General Statistics Office of Vietnam.
CPI: IMF.

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METHODOLOGICAL APPROACH

First, the VAR is estimated in reduced form. The vector of endogenous variables is three-dimensional, including time series of social protection expenditures, tax revenues and output. It is a VAR model, as proposed by Sims (1980), where each variable is explained by lags of itself and the other variables of the model, capturing dynamic relationships. However, the shocks of the reduced form do not have economic significance (Castro and Hernandez de Cos, 2008).

According to Perotti (2007), shocks of the reduced form (or 'surprise' movements) can be seen as linear combinations of three components: a) the automatic response of government spending and revenue to changes in output; b) the discretionary response due to changes in endogenous variables (Perotti gives the example of tax changes in response to a recession); and c) random discretionary shocks, that is, structural shocks, which are uncorrelated and unobservable — the ones that need to be recovered. Formally:

$$u_t^g = \alpha_{gy} u_t^y + \beta_{gt} e_t^t + e_t^g \tag{1}$$

$$u_t^t = \alpha_{ty} u_t^y + \beta_{tg} e_t^g + e_t^t \tag{2}$$

$$u_t^y = \gamma_{yt} u_t^t + \gamma_{yg} u_t^g + e_t^y \tag{3}$$

The unexpected movements in the expenditure, revenue and output variables are, respectively, denoted by u_t^g, u_t^t, and u_t^y. These 'surprise' movements are the residuals in the reduced form, as they represent the part of the data that the VAR does not explain. Also, e_t^g, e_t^t, and e_t^y are the structural shocks that are not correlated with each other by assumption and reflect the part of the surprise movements that is exogenous: it does not depend on policies and 'normal' economic evolution (Coudret, 2013). The coefficient α_{ij} reflects the response of variable i to variable j — the components (a) and (b) listed above are captured by the coefficient α (Jemec et al., 2013), while β_{ij} measures the contemporaneous response of variable i to a structural shock in variable j – that is, component (c) (Perotti, 2007).

As discussed by Vdovychenko (2018), coefficients α_{gy}, α_{ty}, γ_{yt} and γ_{yg} cannot be estimated without bias due to the instantaneous mutual relationship between output, expenditures and revenues. Two steps are necessary to solve this. First, as it is plausible to assume that discretionary fiscal responses to an output shock take longer than one quarter to be decided upon and implemented (Perotti, 2007: 176), component (b) is removed, and coefficient α is made to reflect only the first component — the response of the automatic stabilizer. Following Perotti (2007), the second step is to use external information to the model to estimate the coefficients α_{gy} and α_{ty}.

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Coefficient α_{gy} reflects the contemporary elasticity of expenditure to output, and α_{ty} is the contemporary elasticity of revenues to output. The latter was estimated based on the IMF method, as shown in Andreis (2014), which is a regression using dummy variables for periods, outliers and a trend control. The case of the former is a bit more complex. In most of the literature that follows Blanchard and Perotti (2002), such an elasticity is assumed away, that is, α_{gy} is considered to be equal to zero. Focusing on government consumption instead of on social protection, there was no reason for these studies to assume automatic stabilizers. As Blanchard and Perotti (2002: 1334) note: '[w]e could not identify any automatic feedback from economic activity to government purchase of goods and services'. The same does not apply to the case of social protection expenditure. However, given the countercyclical nature of the automatic stabilizers, assuming them away (i.e. ignoring their effects in the analysis) in this context tends to bias estimates downwards, meaning that the 'true' multipliers could be even larger than the estimates presented below.

Since u_t^t and u_t^g are correlated, from these separate estimations of the exogenous elasticities, the cyclically adjusted residuals, $u_t^{g,\ ca}$ and $u_t^{t,ca}$, are obtained, which are the shocks without the effects of the cycle:

$$u_t^{g,ca} = u_t^g - \alpha_{gy} u_t^y = \beta_{gt} e_t^t + e_t^g \tag{5}$$

$$u_t^{t,ca} = u_t^t - \alpha_{ty} u_t^y = \beta_{tg} e_t^g + e_t^t \tag{6}$$

The structural shocks, e_t^g and e_t^t, can be obtained from the assumption of the ordering of the variables. Blanchard and Perotti (2002) claim that there is no reason to choose $\beta_{gt} = 0$ or $\beta_{tg} = 0$ *a priori*. Regarding shocks in spending and revenue, there is no theoretical or empirical basis to decide which variable will react first. As the correlation between adjusted residuals is small, Perotti (2007) points out that the order does not change the result. $\beta_{gt} = 0$ was then assumed, and the regression of the adjusted revenue residuals on the residuals of the structural form of expenditures was estimated by ordinary least squares to obtain β_{tg} in equation 6 (Burriel et al., 2010).[23] We then obtain instrumental variables, the structural shocks e_t^t and e_t^g in equation 3, since the regressors (residuals of the reduced form) are correlated with the error term (structural shock). Those structural shocks of expenditure and revenue are used as instruments since the correlation between them and the structural shock of output, e_t^y, is low. The last step is estimating the impulse response functions using the estimated coefficients. The basic model is estimated using the vector of endogenous variables, in

23. Models were also estimated assuming tg = 0, that is, that decisions relating to revenue occur before those relating to expenditure. This procedure indicated the robustness of the results to different specifications, with minor variation in impulse response functions, as is usual in the literature.

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real terms: the logarithms of social expenditures, total primary revenue and output.[24]

The key goal of this research is to estimate the multipliers of social protection expenditures. As framed by Spilimbergo et al. (2009), there are four types of multipliers: a) the impact multiplier, for the analysis of a short-run period, $\frac{\Delta Y(t)}{\Delta G(t)}$; b) the horizon multiplier, for calculating the multiplier for a specific period, $\frac{\Delta Y(t+n)}{\Delta G(t)}$; c) the peak multiplier, which represents the highest value in the period under analysis, $max\frac{\Delta Y(t+n)}{\Delta G(t)}$; d) the accumulated (or cumulative) multiplier, which adds the total effect over a more extended period, $\frac{\sum_{i=1}^{n}\Delta Y(t+i)}{\sum_{i=1}^{n}\Delta G(t+i)}$.

The importance of calculating the impact multiplier is that it provides an assessment of fiscal policy in terms of the immediate output response to a shock in the fiscal variable, for example when the government aims to deal with a crisis. Accumulated (or cumulative) multipliers, in turn, are important to verify the impact of a random discretionary shock since the economy requires a certain amount of time to absorb the initial shock (Ilzetzki et al., 2013). The accumulated multiplier is equal to the ratio between the accumulated response of output and the accumulated response of the fiscal variable subject to the shock. It measures the cumulative change in economic activity after a cumulative change in government spending over a given time horizon (Borg, 2014; Burriel et al., 2010; Lozano and Rodriguez, 2011; Restrepo, 2020; Tenhofen et al., 2010). Cumulative multipliers are also called integral multipliers, and they may offer a better depiction of the dynamic interaction when the effects of fiscal policy build over time (Restrepo, 2020; Spilimbergo et al., 2009).

To calculate multipliers, we divide the elasticity of the response by the average share of social expenditures in output (or its components). As the variables are in logarithmic form, IRFs provide the elasticity of output (Y) to the fiscal variable (X):

$$\xi_{Y,X} = \frac{\frac{\Delta Y}{Y}}{\frac{\Delta X}{X}} = \frac{\Delta Y}{Y}\frac{X}{\Delta X} = \frac{\Delta Y}{\Delta X}\frac{X}{Y} \tag{7}$$

24. The variables used in this work are not stationary. Therefore, their first difference was used (they are integrated of order 1), including the control variables, as suggested by different tests (for example, Dickey-Fuller, Phillips and Perron, Kwiatkowski–Phillips–Schmidt–Shin). Thus, the exercises are performed in terms of growth rate. We used the cumulative IRF to obtain the responses in terms of levels. The number of lags is chosen based on the information criteria and the autocorrelation LM test (Deleidi et al., 2018). When several information methods are used together, the literature recommends choosing that lag most methods point to as more appropriate (Lopes et al., 2012). Tests for autocorrelation (LM) and heteroscedasticity (White) pointed to the absence of these problems in most models. All models showed stability. The results of the tests are available upon request.

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According to Pires (2014), since $\frac{\Delta Y}{\Delta X}$ is the definition of the multiplier, which reflects a change in output given an increase of one unit in the fiscal variable, then:

$$\frac{\Delta Y}{\Delta X} = \frac{\xi_{Y,X}}{\frac{X}{Y}} \tag{8}$$

To estimate the cumulative multiplier, we justify the number of periods based on Garcia et al. (2013). The long-run multiplier is defined as the cumulative multiplier when $t \to \infty$, but in practice the number of periods needed for the multiplier to stabilize at its long-run value is used. When the impact of social expenditures on GDP is more persistent, the cumulative multiplier is calculated for a more extended period.

REFERENCES

Addison, T., M. Niño-Zarazúa and F. Tarp (2015) 'Aid, Social Policy and Development', *Journal of International Development* 27(8): 1351–65.

Afonso, A. and J.T. Jalles (2012) 'The Cyclicality of Education, Health, and Social Security Government Spending', *Applied Economics Letters* 20(7): 669–72.

Agnello, L. and R. Sousa (2014) 'How Does Fiscal Consolidation Impact on Income Inequality?', *Review of Income and Wealth* 60(4): 702–26.

Alderman, H. and R. Yemtsov (2012) 'Productive Role of Safety Nets'. Social Protection and Labor Discussion Paper No. 1203. Washington, DC: World Bank.

Alderman, H. and R. Yemtsov (2014) 'How Can Safety Nets Contribute to Economic Growth?', *The World Bank Economic Review* 28(1): 1–20.

Almeida, V., S. Barros, M. Christl, S. De Poli, A. Tumino and W. Wielen (2020) 'Households' Income and the Cushioning Effect of Fiscal Policy Measures during the Great Lockdown'. JRC Working Paper No. 06. Seville: Joint Research Centre.

Alves, R. (2017) 'O Impacto da Política Fiscal sobre a Atividade Econômica ao Longo do Ciclo Econômico: Evidências para o Brasil' ['The Impact of Fiscal Policy on Economic Activity across the Business Cycle: Evidence for Brazil']. Master's thesis, University of São Paulo.

Anderson, E., M.A. Jalles D'Orey, M. Duvendack and L. Esposito (2017) 'Does Government Spending Affect Income Inequality? A Meta-regression Analysis', *Journal of Economic Surveys* 31(4): 961–87.

Andreis, A. (2014) 'Balanço Orçamentário Estrutural no Brasil: a Política Fiscal no Brasil é Pró ou Anticíclica no Período Pós Plano Real?', ['Structural Budget Balance in Brazil: Is Fiscal Policy in Brazil Pro-cyclical or Counter-cyclical in the Post-real Plan Period?']. Working Paper. Brasília: XIX Prêmio Tesouro Nacional.

Atkinson, A. (1970) 'On the Measurement of Inequality', *Journal of Economic Theory* 2(3): 244–63.

Atkinson, A. (1999) *The Economic Consequences of Rolling Back the Welfare State*. Cambridge, MA: MIT Press.

Auerbach, A. and Y. Gorodnichenko (2012) 'Measuring the Output Responses to Fiscal Policy', *American Economic Journal: Economic Policy* 4(2): 1–27.

Barrientos, A. (2012) 'Social Transfers and Growth: What Do We Know? What Do We Need to Find Out?', *World Development* 40(1): 11–20.

Barrientos, A. (2013) *Social Assistance in Developing Countries*. Cambridge: Cambridge University Press.

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Barrientos, A. and D. Hulme (eds) (2016) *Social Protection for the Poor and Poorest: Concepts, Policies and Politics*. New York: Springer.
Barrientos, A. and D. Malerba (2020) 'Social Assistance and Inclusive Growth', *International Social Security Review* 73(3): 33–53.
Bastagli, F., D. Coady and S. Gupta (2012) 'Income Inequality and Fiscal Policy'. IMF Staff Discussion Note SDN/12/08. Washington, DC: International Monetary Fund.
Baum, A. and G. Koester (2011) 'The Impact of Fiscal Policy on Economic Activity over the Business Cycle — Evidence from a Threshold VAR Analysis'. Discussion Paper Series Economic Studies No. 3. Frankfurt am Main: Deutsche Bundesbank.
Beetsma, R. and M. Giuliodori (2011) 'The Effects of Government Purchases Shocks: Review and Estimates for the EU', *The Economic Journal* 121: 4–32.
Bertola, G. (2010) 'Inequality, Integration, and Policy: Issues and Evidence from EMU', *The Journal of Economic Inequality* 8(3): 345–65.
Blanchard, O. and R. Perotti (2002) 'An Empirical Characterization of the Dynamic Effects of Changes in Government Spending and Taxes on Output', *Quarterly Journal of Economics* 117(4): 1329–68.
Blecker, R. and M. Setterfield (2019) *Heterodox Macroeconomics: Models of Demand, Distribution and Growth*. Cheltenham: Edgar Elgar.
Borg, I. (2014) 'Fiscal Multipliers in Malta'. Central Bank of Malta Working Paper No. 06. Valetta: Central Bank of Malta.
Bova, E. and V. Klyviene (2019) 'Macroeconomic Effects of Fiscal Shocks in Portugal'. European Economy Discussion Paper No. 096. Luxembourg: Publications Office of the European Union.
Brollo F., G.L. Ibarra and R.C. Vale (2024) 'Strengthening Income Stabilization through Social Protection in Emerging and Developing Economies: The Brazilian Experience'. IMF Working Paper No. 24/52. Washington, DC: International Monetary Fund.
Bruckner, M. and A. Tuladhar (2010) 'Public Investment as a Fiscal Stimulus: Evidence from Japan's Regional Spending during the 1990s'. IMF Working Paper No. 110. Washington, DC: International Monetary Fund.
Bucheli, M., N. Lustig, M. Rossi and F. Amábile (2014) 'Social Spending, Taxes, and Income Redistribution in Uruguay', *Public Finance Review* 42(3): 413–33.
Burriel, P., F. Castro, D. Garrote, E. Gordo, J. Paredes and J. Perez (2010) 'Fiscal Policy Shocks in the Euro Area and the US: An Empirical Assessment', *Fiscal Studies* 31(2): 251–85.
Cardoso, D. and L. Carvalho (2023) 'Effects of Fiscal Consolidation on Income Inequality: Narrative Evidence from South America', *Empirical Economics* 64: 1177–218.
Carrière-Swallow, Y., A. David and D. Leigh (2018) 'The Macroeconomic Effects of Fiscal Consolidation in Emerging Economies: Evidence from Latin America'. IMF Working Paper No. 142. Washington, DC: International Monetary Fund.
Carroll, C.D., J. Slacalek and K. Tokuoka (2014) 'The Distribution of Wealth and the MPC: Implications of New European Data', *The American Economic Review* 104: 107–11.
Carroll, C.D., J. Slacalek, M.N. White and K. Tokuoka (2017) 'The Distribution of Wealth and the Marginal Propensity to Consume', *Quantitative Economics* 8: 977–1020.
Carvalho, L. and A. Rezai (2016) 'Personal Income Inequality and Aggregate Demand', *Cambridge Journal of Economics* 40(2): 491–505.
Casado, M., B. Glennon, J. Lane, D. McQuown, D. Rich and B. Weinberg (2020) 'The Aggregate Effects of Fiscal Stimulus: Evidence from the COVID-19 Unemployment Supplement'. NBER Working Paper No. 27576. Cambridge, MA: National Bureau of Economic Research.
Castro, F. and L. Fernandez (2011) 'The Effects of Fiscal Shocks on the Exchange Rate in Spain'. Documentos de Trabajo No. 1121. Madrid: Bank of Spain.
Castro, F. and P. Hernandez de Cos (2008) 'The Economic Effects of Fiscal Policy: The Case of Spain', *Journal of Macroeconomics* 30: 1005–28.

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Cavalcanti, M. (2010) 'Identificação de Modelos VAR e Causalidade de Granger: uma Nota de Advertência' ['Identification of VAR Models and Granger Causality: A Word of Caution'], *Economia Aplicada* 14(2): 251–60.

Chancel, L., T. Piketty, E. Saez and G. Zucman (eds) (2022) *World Inequality Report 2022*. Cambridge, MA: Harvard University Press.

Cícero, V.C. and G.T. Lima (2023) 'Functional Distribution of Income as a Determinant of Importing Behavior: An Empirical Analysis', *Structural Change and Economic Dynamics* 65: 393–405.

Coudret, N. (2013) 'Fiscal Multipliers in the Netherlands: A Structural VAR Approach'. Master's thesis, Erasmus School of Economics, Rotterdam.

Crespo-Cuaresma, J., G. Reitschuler and M. Silgoner (2011) 'On the Effectiveness and Limits of Fiscal Stabilizers', *Applied Economics* 43(9): 1079–86.

Darby, J. and J. Melitz (2008) 'Social Spending and Automatic Stabilizers in the OECD', *Economic Policy* 23(56): 716–56.

Deleidi, M., F. Iafrate and E. Levrebro (2019) 'Public Investment Fiscal Multipliers: An Empirical Assessment for European Countries', *Structural Change and Economic Dynamics* 52: 354–65.

Deleidi, M., V. De Lipsis, M. Mazzucato and P. Agnolucci (2018) 'Fiscal Multipliers: A SVAR Approach for the US'. Paper presented at the Associazione Italiana per la Storia dell'Economia Politica (STOREP) Annual Conference, Università di Genova, Genoa (28–30 June).

Dolls, M., C. Fuest and A. Peichl (2012) 'Automatic Stabilizers and Economic Crisis: US vs. Europe', *Journal of Public Economics* 96(3-4): 279–94.

Dufrénot, G., A. Jambois, L. Jambois and G. Khayat (2016) 'Regime-dependent Fiscal Multipliers in the United States', *Open Economies Review* 27(5): 923–44.

Espino, E. and M. Gonzalez-Rozada (2012) 'Automatic Stabilization and Fiscal Policy: Some Quantitative Implications for Latin America and the Caribbean'. IDB Working Paper Series No. 367. Washington, DC: Inter-American Development Bank.

Fatás, A. and I. Mihov (2001) 'The Effects of Fiscal Policy on Consumption and Employment: Theory and Evidence'. CEPR Discussion Paper No. 2760. London: Centre for Economic Policy Research.

Fisher, J.D., D.S. Johnson, T.M. Smeeding and J.P. Thompson (2020) 'Estimating the Marginal Propensity to Consume Using the Distributions of Income, Consumption, and Wealth', *Journal of Macroeconomics* 65: 103218.

Furceri, D. and A. Zdzienicka (2012) 'The Effects of Social Spending on Economic Activity: Empirical Evidence from a Panel of OECD Countries', *Fiscal Studies* 33(1): 129–52.

Furtado, C. (1965) 'Development and Stagnation in Latin America: A Structuralist Approach', *Studies in Comparative International Development* 1(11): 159–75.

Galeano, L., A. Izquierdo, J.P. Puig, C.A. Vegh and G. Vuletin (2021) 'Can Automatic Government Spending Be Procyclical?'. NBER Working Paper Series No. 28521. Cambridge, MA: National Bureau of Economic Research.

Garcia, J., A. Lemus and M. Mrkaic (2013) 'Fiscal Multipliers in the ECCU'. IMF Working Paper No. 13/117. Washington, DC: International Monetary Fund.

Gebregziabher, F. and M. Niño-Zarazúa (2014) 'Social Spending and Aggregate Welfare in Developing and Transition Economies'. WIDER Working Paper No. 2014/082. Helsinki: World Institute for Development Economics Research.

Gechert, S. and A. Rannenberg (2014) 'Are Fiscal Multipliers Regime-dependent? A Meta Regression Analysis'. IMK Working Paper No. 139. Berlin: Hans Boeckler Foundation, Institut für Makroökonomie und Konjunkturforschung

Gechert, S., C. Paetz and P. Villanueva (2021) 'The Macroeconomic Effects of Social Security Contributions and Benefits', *Journal of Monetary Economics* 117(C): 571–84.

Giordano, R., S. Momigliano, S. Neri and R. Perotti (2007) 'The Effects of Fiscal Policy in Italy: Evidence from a VAR Model', *European Journal of Political Economy* 23: 707–33.

14677660, 2025, 1, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/dech.12869 by Test, Wiley Online Library on [09/05/2025]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Gobetti, S. and R. Orair (2017) 'Resultado Primário e Contabilidade Criativa: Reconstruindo as Estatísticas Fiscais Acima da Linha do Governo Geral' ['Primary Balance and Creative Accounting: Rebuilding the General Government's Fiscal Statistics above the Line']. IPEA Discussion Paper No. 2288. Brasília: Instituto de Pesquisas Econômicas Aplicadas.

Goñi, E., J. López and L. Servén (2011) 'Fiscal Redistribution and Income Inequality in Latin America', *World Development* 39(9): 1558–69.

Gough, I., G. Wood, A. Barrientos, P. Bevan, G. Room and P. Davis (2004) *Insecurity and Welfare Regimes in Asia, Africa and Latin America: Social Policy in Development Contexts*. Cambridge: Cambridge University Press.

Grudtner, V. and E. Aragon (2017) 'Multiplicador dos Gastos do Governo em Períodos de Expansão e Recessão: Evidências Empíricas para o Brasil' ['Government Spending Multiplier in Expansion and Recession Periods: Empirical Evidence for Brazil'], *Revista Brasileira de Economia* 71(3): 321–45.

Haile, F. and M. Niño-Zarazúa (2018) 'Does Social Spending Improve Welfare in Low-income and Middle-income Countries?', *Journal of International Development* 30(3): 367–98.

Hamer-Adams, A. and M. Wong (2018) 'Quantifying Fiscal Multipliers in New Zealand: The Evidence from SVAR Models'. Reserve Bank of New Zealand Analytical Note Series No. 2018/5. Wellington: Reserve Bank of New Zealand.

Hanni, M., R. Martner and A. Podestá (2015) 'The Redistributive Potential of Taxation in Latin America', *Cepal Review* 116: 7–26.

Heimberger, P. (2020) 'The Dynamic Effects of Fiscal Consolidation Episodes on Income Inequality: Evidence for 17 OECD Countries over 1978–2013', *Empirica* 47: 53–81.

Heppke-Falk, K., J. Tenhofen and G. Wolff (2006) 'The Macroeconomic Effects of Exogenous Fiscal Policy Shocks in Germany: A Disaggregated SVAR Analysis'. Discussion Paper No. 41. Frankfurt am Main: Deutsche Bundesbank.

Hollmayr, J. and J. Kuckuck (2018) 'Fiscal Multipliers of Central, State and Local Government and of the Social Security Funds in Germany: Evidence of a SVAR.' Discussion Paper No. 28. Frankfurt am Main: Deutsche Bundesbank.

ILO (2021a) *World Social Protection Report 2020–22: Social Protection at the Crossroads — In Pursuit of a Better Future*. Geneva: International Labour Organization.

ILO (2021b) *World Social Protection Report 2020–22: Regional Companion Report for Latin America and the Caribbean*. Geneva: International Labour Organization.

ILO (2024) *World Social Protection Report 2024–26: Universal Social Protection for Climate Action and a Just Transition*. Geneva: International Labour Organization.

Ilzetzki, E., E. Mendoza and C. Vegh (2013) 'How Big (Small?) Are Fiscal Multipliers?', *Journal of Monetary Economics* 60: 239–54.

Izquierdo, A., R. Lama, J. Medina, J. Puig, D. Riera-Crichton, C. Vegh and G. Vuletin (2019) 'Is the Public Investment Multiplier Higher in Developing Countries? An Empirical Investigation'. NBER Working Paper Series No. 26478. Cambridge, MA: National Bureau of Economic Research.

Jalles, J. (2017) 'How Do Fiscal Adjustments Change the Income Distribution in Emerging Market Economies?', *International Journal of Emerging Markets* 12(2): 310–34.

Jappelli, T. and L. Pistaferri (2014) 'Fiscal Policy and MPC Heterogeneity', *American Economic Journal: Macroeconomics* 6: 107–36.

Jemec, N., A. Kastelec and A. Delakorda (2013) 'How Do Fiscal Shocks Affect the Macroeconomic Dynamics in the Slovenian Economy?'. Bank of Slovenia Working Paper. Ljubljana: Bank of Slovenia.

Joumard, I., M. Pisu and D. Bloch (2012) 'Less Income Inequality and More Growth — Are they Compatible? Part 3. Income Redistribution via Taxes and Transfers across OECD Countries'. OECD Economics Department Working Papers No. 926. Paris: Organisation for Economic Co-operation and Development.

Kabeer, N. (2010) 'Can the MDGs Provide a Pathway to Social Justice? The Challenge of Intersecting Inequalities', in I. Ortiz, L. Daniels and S. Engilbertsdóttir (eds) *Child Poverty*

14677660, 2025, 1, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/dech.12869 by Test, Wiley Online Library on [09/05/2025]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

and Inequality: New Perspectives, pp. 57–62. New York: United Nations Children's Fund (UNICEF).
Kalecki, M. (1942) 'A Theory of Profits', *The Economic Journal* 52(206/207): 258–67.
Kalecki, M. (1943) 'Political Aspects of Full Employment', *Political Quarterly* 14(4): 322–31.
Karras, G. and M.C.Y. Yang (2022) 'Fiscal Policy in the 21st Century: Evidence on Automatic Stabilizers in the European Union', *Journal of Government and Economics* 6: 100038.
Keynes, J.M. (1936) *The General Theory of Employment, Interest and Money*. London: Macmillan.
Keynes, J.M. (1937) 'The General Theory of Employment', *The Quarterly Journal of Economics* 51(2): 209–23.
Kilian, L. and H. Lütkepohl (2017) *Structural Vector Autoregressive Analysis*. Cambridge: Cambridge University Press.
Konstantinou, P. and A. Partheniou (2021) 'The Effects of Government Spending over the Business Cycle: A Disaggregated Analysis for OECD and Non-OECD Countries', *The Quarterly Review of Economics and Finance* 80(C): 809–22.
Lopes, M., M. Mollo and F. Colbano (2012) 'Metas de Inflação, Regra de Taylor e Neutralidade da Moeda: Uma Crítica Pós-Keynesiana' ['Inflation Target, Taylor Rule, and Money Neutrality: A Post-Keynesian Critique'], *Revista de Economia Política* 32(2): 282–304.
Loureiro, P., F. Rugitsky and A. Saad-Filho (2020) 'Celso Furtado and the Myth of Economic Development: Rethinking Development from Exile', *Review of Political Economy* 33(1): 28–43.
Lozano, I. and K. Rodriguez (2011) 'Assessing the Macroeconomic Effects of Fiscal Policy in Colombia', *Journal of Financial Economic Policy* 3(3): 206–28.
Lustig, N. et al. (2012) 'The Impact of Taxes and Social Spending on Inequality and Poverty in Argentina, Bolivia, Brazil, Mexico, and Peru: A Synthesis of Results'. Center for Global Development Working Paper No. 311. Washington, DC: Center for Global Development.
Mabbett, D. and W. Schelkle (2007) 'Bringing Macroeconomics Back into the Political Economy of Reform: The Lisbon Agenda and the "Fiscal Philosophy" of the EU', *Journal of Common Market Studies* 45: 81–104.
Mendonça, D., E. Marçal and M. Holland (2016) 'Is Fiscal Policy Effective in Brazil? An Empirical Analysis'. Working Paper No. 09. São Paulo: São Paulo School of Economics.
Ocampo, J.A. and N. Gómez-Arteaga (2017) 'Social Protection Systems, Redistribution and Growth in Latin America', *CEPAL Review* 122: 7–30.
OECD (2019) *Can Social Protection Be an Engine for Inclusive Growth?* Paris: Organisation for Economic Co-operation and Development.
Onaran, O. and G. Galanis (2012) 'Is Aggregate Demand Wage-led or Profit-led? National and Global Effects'. Conditions of Work and Employment Series No. 400. Geneva: International Labour Organization.
Orair, R., F. Siqueira and S. Gobetti (2016) 'Política Fiscal e Ciclo Econômico: Uma Análise Baseada em Multiplicadores do Gasto Público' ['Fiscal Policy and Economic Cycle: An Analysis Based on Public Expenditure Multipliers']. Brasília: XXI Prêmio do Tesouro Nacional.
Ortiz, I., A. Chowdhury, F. Durán-Valverde, T. Muzaffar and S. Urban (2019) *Fiscal Space for Social Protection: A Handbook for Assessing Financing Options*. Geneva: International Labour Organization.
Ostry, J., A. Berg and C.G. Tsangarides (2014) 'Redistribution, Inequality and Growth'. IMF Staff Discussion Note 14/02. Washington, DC: International Monetary Fund.
Palomo, T., L. Carvalho and R. Toneto (2022) 'Marginal Propensity to Consume Heterogeneity and Redistributive Policies: The Brazilian Case'. MADE Working Paper No. 10. São Paulo: Research Center on Macroeconomics of Inequalities.
Pereira, A. and O. Sagalés (2009) 'Long-term Effects of Fiscal Policies in Portugal'. Working Paper No. 35. Williamsburg, VA: College of William and Mary.

14677660, 2025, 1, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/dech.12869 by Test, Wiley Online Library on [09/05/2025]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Pereira, M. and L. Wemans (2013) 'Output Effects of Fiscal Policy in Portugal: A Structural VAR Approach'. Economic Bulletin. Lisboa: Banco de Portugal.
Peres, M (2006) 'Os Efeitos Dinâmicos da Política Fiscal sobre a Atividade Econômica: um Estudo para o Caso Brasileiro' ['The Dynamic Effects of Fiscal Policy on Economic Activity: A Study of the Brazilian Case']. Master's thesis, University of Brasília.
Peres, M. and R. Ellery (2009) 'Efeitos Dinâmicos dos Choques Fiscais do Governo Central no PIB' ['Dynamic Effects of Fiscal Shocks from the Central Government on GDP'], *Pesquisa e Planejamento Econômico* 39(2): 159–206.
Perotti, R. (2004) 'Estimating the Effects of Fiscal Policy in OECD Countries'. IGIER Working Paper No. 276. Milan: Innocenzo Gasparini Institute for Economic Research.
Perotti, R (2007) 'In Search of the Transmission Mechanism of Fiscal Policy', in D. Acemoglu, K. Rogoff and M. Woodford (eds) *NBER Macroeconomics Annual* Volume 22, pp. 169–226. Chicago, IL: University of Chicago Press.
Pires, M. (2014) 'Política Fiscal e Ciclos Econômicos no Brasil' ['Fiscal Policy and Economic Cycles in Brazil'], *Economia Aplicada* 18(1): 69–90.
Quiñonez, P. (2022) 'Social Spending and Income Inequality in Latin America. A Panel Data Approach', *Social Policy & Society* 23(3): 565–92.
Reeves, A., S. Basu, M. McKee, C. Meissner and D. Stuckler (2013) 'Does Investment in the Health Sector Promote or Inhibit Economic Growth?', *Globalization and Health* 43(9): 1–12.
Resende, C. (2019) 'Impulso Fiscal: Uma Abordagem de Multiplicadores Fiscais com Aplicação para a Economia Brasileira' ['Fiscal Impulse: A Fiscal Multiplier Approach Applied to the Brazilian Economy']. Master's thesis, Escola de Economia de São Paulo, Fundação Getulio Vargas.
Resende, C. and M. Pires (2021) 'O Impulso de Multiplicador Fiscal: Implementação e Evidência para o Brasil' ['The Fiscal Multiplier Impulse: Implementation and Evidence for Brazil'], *Estudos Econômicos* 51(2): 213–43.
Restrepo, J. (2020) 'How Big Are Fiscal Multipliers in Latin America?'. IMF Working Paper No. 17. Washington, DC: International Monetary Fund.
Roelen, K., R. Sabates-Wheeler and S. Devereux (2016) 'Social Protection, Inequality and Social Justice', in *World Social Science Report: Challenging Inequalities: Pathways to a Just World*, pp. 231–36. Paris: United Nations Educational, Scientific and Cultural Organization.
Romer, C. and D. Romer (2016) 'Transfer Payments and the Macroeconomy: The Effects of Social Security Benefit Increases 1952–1991', *American Economic Journal: Macroeconomics* 8(4): 1–42.
Sanches, M. and L. Carvalho (2022) 'A Contribuição da Política Fiscal para a Crise Brasileira de 2015–2016: Uma Análise Baseada em Multiplicadores de Despesas e Receitas Primárias do Governo Central no Período 1997–2018' ['The Contribution of Fiscal Policy to the Brazilian Crisis of 2015–2016: An Analysis Based on Multipliers of Central Government Primary Expenditures and Revenues from 1997 to 2018'], *Nova Economia* 32(1): 7–36.
Sanches, M. and L. Carvalho (2023) 'Multiplier Effects of Social Protection: A SVAR Approach for Brazil', *International Review of Applied Economics* 23(1): 93–112.
Sarangi, N. and J. von Bonin (2017) 'Fiscal Policy on Public Social Spending and Human Development in Arab Countries'. UN-ESCWA Technical Paper No. 13. Beirut: United Nations Economic and Social Commission for Western Asia.
Sarkar, D. and S. Bhowmick (2023) 'Towards Universal Social Security: Priorities for the G20'. ORF Occasional Paper No. 386. New Delhi: Observer Research Foundation.
Şen, H. and A. Kaya (2020) 'How Large Are Fiscal Multipliers in Turkey?', *Turkish Studies* 21(5): 772–99.
Silva, R., V. Carvalho and A. Ribeiro (2013) 'How Large are Fiscal Multipliers? A Panel-data VAR Approach for the Euro Area'. FEP Working Papers No. 500. Porto: Faculdade de Economia da Universidade do Porto.

14677660, 2025, 1, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/dech.12869 by Test, Wiley Online Library on [09/05/2025]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Sims, C. (1980) 'Macroeconomics and Reality', *Econometrica* 48(1): 1–48.
Singer, H. (1950) 'The Distribution of Gains between Investing and Borrowing Countries', *American Economic Review* 40(2): 473–85.
Skrbic, M. and H. Simovic (2015) 'The Size and Determinants of Fiscal Multipliers in Western Balkans: Comparing Croatia, Slovenia and Serbia'. Faculty of Economics and Business Zagreb Working Paper Series No. 15–10. Zagreb: Faculty of Economics and Business Zagreb.
Smeeding, T. and A. Grodner (2000) 'Changing Income Inequality in OECD Countries: Updated Results from the Luxembourg Income Study (LIS)', in R. Hauser and I. Becker (eds) *The Personal Distribution of Income in an International Perspective*, pp. 205–24. Berlin: Springer.
Spilimbergo, A., S. Symanski and M. Schindler (2009) 'Fiscal Multipliers'. IMF Staff Position Note. Washington, DC: International Monetary Fund.
Stampini, M. and L. Tornarolli (2012) 'The Growth of Conditional Cash Transfers in Latin America and the Caribbean: Did They Go Too Far?'. IZA Policy Paper No. 49. Bonn: Institute for the Study of Labour.
Tahir, M., J. Ahmed and W. Ahmed (2018) 'Robust Quarterization of GDP and Determination of Business Cycle Dates for IGC Partner Countries'. IGC Working Paper I-37400-PAK-1. London: International Growth Centre.
Tenhofen, J., G. Wolff and K. Heppke-Falk (2010) 'The Macroeconomic Effects of Exogenous Fiscal Policy Shocks in Germany: A Disaggregated SVAR Analysis', *Journal of Economics and Statistics* 230(3): 328–55.
Thirlwall, A.P. (1979) 'The Balance of Payments Constraint as an Explanation of International Growth Rate Differences', *Banca Nazionale del Lavoro Quarterly Review* 128: 45–53.
UNESCAP and ILO (2021) *The Protection We Want: Social Outlook for Asia and the Pacific*. Bangkok: United Nations Economic and Social Commission for Asia and the Pacific and International Labour Organization.
Valencia, F. (2015) 'Fiscal Multipliers in Mexico'. IMF Mexico Selected Issues. IMF Country Report No. 15/314. Washington, DC: International Monetary Fund.
Vdovychenko, A. (2018) 'How Does Fiscal Policy Affect GDP and Inflation in Ukraine?'. Visnyk of the National Bank of Ukraine No. 244. Kiev: National Bank of Ukraine.
Wang, C., K. Caminada and K. Goudswaard (2012) 'The Redistributive Effect of Social Transfer Programmes and Taxes: A Decomposition across Countries', *International Social Security Review* 65(3): 27–48.
Wang, C., K. Caminada and K. Goudswaard (2014) 'Income Redistribution in 20 Countries over Time', *International Journal of Social Welfare* 23: 262–75.
Wolff, E. and A. Zacharias (2007) 'The Distributional Consequences of Government Spending and Taxation in the US, 1989 and 2000', *Review of Income and Wealth* 53(4): 692–715.
Zacharias, A., T. Masterson and F. Rios-Avila (2018) 'Stagnating Economic Well-being and Unrelenting Inequality: Post-2000 Trends in the United States'. Public Policy Brief No. 146. New York: Levy Economics Institute.

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