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Multiplier effects of social protection in Cabo Verde: An empirical analysis

1. Introduction

Public expenditure on the social protection system is a fundamental factor to ensure the achievement of inclusive growth and human development. In addition to stimulating aggregate demand through increases on household consumption levels, which is an effective factor in responding to recessions and economic crisis and promoting economic growth more generally, the higher income security for households resulting from public investments in social protection impact on the economy through several channels. There is ample evidence in the literature that a higher level of investment in social protection is an effective instrument in reducing poverty and inequality, paving the way for ensuring greater political stability by reducing social tensions and conflicts within the country. The available evidence also shows the positive impact of cash (or in-kind) transfer programs on human development and productivity by i) addressing the issue of hunger and nutrition by providing better access to food and enhanced nutritional status; ii) reducing the health system's dependence on out-of-pocket payments leading to better and more equitable health outcomes; and, iii) contributing to better educational attainments and reducing child labor through assistance to families with free tuition, learning materials, school feeding programs, and removing the reliance on children on income-earning and care work (ILO, 2014, 2016, 2017; UNESCAP and ILO, 2021; Ortiz et al., 2015; Ortiz et al., 2019; Alderman and Yemtsov, 2012, 2014; Barrientos, 2011, 2012, 2013; Barrientos and Hulme, 2016; Gebregziabher and Niño-Zarazúa, 2014; Addison et al., 2015; Haile and Niño-Zarazúa, 2018; Gough et al., 2004; Atkinson, 1989, 1999).

Focusing on its importance for generating inclusive economic growth, social protection, which is one of the four pillars of the decent work agenda[1], generates access to full and productive employment and decent work for all, including women and young people. Participation in the labor market, especially by women, is stimulated through cash

[1] Promoting jobs and enterprise, guaranteeing rights at work, extending social protection, and promoting social dialogue are the four pillars of the ILO Decent Work Agenda, with gender as a cross-cutting theme. Source:
https://www.ilo.org/wcmsp5/groups/public/---europe/---ro-geneva/---ilo-lisbon/documents/event/wcms_667247.pdf, Retrieved 2021-06-17.

transfers, active labor market measures, health insurance, and family support policies such as childcare and disability care. Also, income security provides a significant boost to entrepreneurship and other economic activities involving higher risks and, therefore, higher expected returns. Unemployment benefits, especially unemployment insurance, provide unemployed individuals with time to find suitable jobs and thus helps adjustments in the labor force in the event of structural economic and labor market changes, which potentially raises the matching efficiency in the labor market. Moreover, social pension insurance plays an essential role as a productivity-enhancing mechanism by "taking over" (or "buying out") the increasingly unproductive older employees, which reduces the productivity gap between older persons and younger employees (Gongcheng and Scholz, 2018; Cichon et al., 2004; Barrientos et al., 2003). At the same time, it also serves the social purpose of providing a continuation of certain income levels to older persons. All in all, it is reasonable to claim that social protection has a positive impact on productivity, local economic development, output growth, and aggregate demand, thus being essential to the achievement and maintenance of inclusive economic growth and social progress (Barrientos and Malerba, 2020).

Coupled with the growing evidence on the several benefits of increased public investment in social protection, there is an increasing trend to support and encourage it on the part of intergovernmental organizations and governments worldwide. In effect, the 2030 Agenda for Sustainable Development recognizes the key role played by social protection in the achievement of several of its goals. For instance, public investment in social protection plays this role by contributing to ending poverty (Sustainable Development Growth – henceforth, SDG – target 1.3); by achieving healthy lives and well-being (SDG target 3.8), gender equality (SDG target 5.4), decent work and economic growth (SDG target 8.5); and by reducing inequality (SDG target 10.4). Thus, the need for increased investment in social protection is also largely recognized in the 2030 Agenda, as reflected, for example, in SDG target 1.a on resource mobilization, calling for "adequate and predictable means" for developing countries, and SDG indicator 1.a.2 on monitoring the proportion of public spending on social protection, health and education, the ultimate aim of which is to "end poverty in all its dimensions".[2]

[2] See, for instance, the United Nations' E-Handbook on SDG Framework and Metadata, available in *https://www.unescwa.org/ehandbook-sdg-framework-metadata*. Accessed 06-17-2021.

More specifically, and addressing social protection, SDG target 1.3 advises countries to implement "nationally appropriate social protection systems and measures for all, including floors" (United Nations, 2021); or, in other words, achieving universal coverage and appropriate social protection for all. This is predicated on the international standard – the ILO's Social Protection Floors Recommendation, 2012 (No. 202) adopted by governments, employers, and workers at the 100th Session of the International Labour Conference in 2011.

In spite of some progress made since the launch of the 2030 Agenda in 2015 – for instance, at least 23 low- and middle-income countries have achieved universal social protection coverage considering at least one social protection benefit – a significant gap exists in the coverage and financing of social protection worldwide. ILO (2017) reports that, globally, the coverage gap is a real and daily threat to 4 billion (55 percent of the world's population) people's lives and well-being. More specifically, only 35 percent of children receive benefits from child allowances that enable them to receive childcare, better education, and several forms of nutrition. Besides, only 41 percent of women with newborns receive maternity cash benefits that provide them with income security during their children's critical first few months of life, only around 22 percent of unemployed people receive unemployment benefits, and only 28 percent of people with severe disabilities receive disability benefits. Older persons seem to be relatively better off as compared to the four groups mentioned, with 68 percent of all persons above retirement age receiving a pension; yet the levels of their benefits are, in many cases, largely inadequate.

The situation in Cabo Verde, the focus of this report's analysis, although worrisome given the goals of universal coverage for the population, is quite favorable when compared to the average for the Africa region. Also considering the countries of North Africa, on average, only 17 percent of the population is covered in at least one area of social protection (excluding health) in the continent.[3] In fact, Cabo Verde is placed well above the average of countries in the region where it is located, with roughly 39 percent of the population covered by at least one social protection benefit (excluding health) in 2018. The country has above-average population coverage compared to the African continent

[3] It is worth noting that we use the most recent available data (usually for 2018) on ILO's Social Protection Platform for Cabo Verde and the comparison with other countries in Africa. This data can be accessed at: *https://www.social-protection.org/gimi/WSPDB.action?id=13*.

in almost all categories that make up the social protection network. For instance, almost 85 percent of older persons in Cabo Verde receive pensions[4], while the average for the Africa region is 27 percent. Moreover, 38 percent of children receive some type of benefit (child allowances) in the country, 30 percent of people with severe disabilities receive some type of disability benefit from the government, and almost 20 percent of women with newborns receive maternity benefits.

The disparity becomes even more striking if we compare Cabo Verde's social protection system with that of the countries that compose the PALOP (Portuguese-speaking African Countries) and share institutional similarities – mainly the Portuguese colonization and the conquest of independence in relation to it in the mid-1970s – with Cabo Verde. For example, in terms of effective coverage, approximately only 11 percent of the population of the region is covered by at least one social protection benefit, and only 10 percent of older persons receive some pension.[5]

Although the social protection net is quite ample and solidified in Cabo Verde, especially in comparison with the countries of the region, there is still a long way to go in order to achieve universal coverage within the country. In that regard, Angel-Urdinola and Wodon (2008) argue that the Cabo Verdean government needs to improve the efficiency of public spending, especially as components of the social protection network are not reaching the poor adequately, despite the significant reduction in poverty rates since the independence of the country. In fact, due to the exclusion of portions of the Cabo Verdean population from social assistance – due, for instance, to the difficulty in accessing government's transfers –, UNECA (2015) highlights that the substantive success of poverty reduction policies in the country was not enough to revert (despite it marginally reduced) a picture of high income inequality that places the country among the 15 most unequal in Africa in terms of Gini coefficient.[6]

The significant coverage gap worldwide is closely associated with low public investment in social protection, with more severe conditions in Africa, Asia, and the Pacific regions

[4] For a detailed discussion on Cabo Verde's government effort to develop and expand a universal coverage scheme of social pensions for the elderly, see Ortiz et al. (2016). For an earlier and also informative review on this topic, see United Nations (2011).

[5] Despite not being the direct focus of this report, it is worth highlighting that Cabo Verde also presents universal health coverage (healthcare) for its population, a pattern quite different compared not only to the Africa region but also to the majority of less developed and developing countries worldwide.

[6] Using the Gini coefficient estimated by the World Bank for all African countries for years between 2008 and 2020, available at *https://data.worldbank.org/indicator/SI.POV.GINI?locations=ZG*.

(ILO, 2017). Again, Cabo Verde stands out among the countries in the region (even considering the countries of North Africa), with public expenditures on social protection corresponding to 6.4 percent of the GDP (Gross Domestic Product), whilst the average for countries in Africa is roughly 4 percent of the GDP.[7] The difference becomes more substantial if we compare spending on social protection in the country with the average for PALOP countries, of only 2 percent of the GDP. Yet compared to its "aspirational peers", such as Seychelles, St. Kitts and Nevis, and Mauritius, spending on social protection is relatively low in the country (World Bank, 2019). In fact, it is important to emphasize that this level of spending on social protection seems relatively inadequate, especially if we consider the country's general panorama and in view of the objective of universalizing access to social assistance.

According to the World Bank, over the past 30 years, Cabo Verde's social and economic achievements "have been spectacular and are unprecedented on the African continent" (World Bank, 2018; p. 7).[8] These achievements become even more remarkable if we consider that Cabo Verde is a small country in terms of population and size, comprising islands with relatively low accessibility and populated by less than 600,000 inhabitants. However, the average GNI (Gross National Income) per capita grew six times between 1985 and 2016 in the country. This intense growth process culminated, in 2007, in a significant change in the country's economic status, rosing from the less developed country (LDC) category to a developing country (Middle Income Country or, shortly, MIC). Associated with such economic growth, as briefly discussed in the preceding paragraphs, social development was also quite substantial, especially with respect to the efforts to reduce poverty in the country. Based on the national poverty line, the incidence of extreme poverty has fallen from approximately 30 percent of the population in 2001 to 10 percent in 2015.[9] As much as economic growth rates have slowed since the Global Financial Crisis[10], not just poverty rates continued to decline but also non-monetary

[7] For a detailed description of Cabo Verde's government revenues and expenditures, as well as the fiscal challenges for the next decades, see World Bank (2019).

[8] For a brief overview of the economic performance and social advances in Cabo Verde see, for instance, *https://www.worldbank.org/en/country/caboverde/overview.*

[9] This pattern is also observed for more general poverty lines. For instance, using the national poverty line (equivalent to PPP US$ 5.40), the incidence of poverty reduced from 58 percent of the population in 2001 to roughly 35 percent in 2015 (World Bank, 2018).

[10] In general, by affecting Cabo Verde's main economic activity, which is tourism, global economic crises have major impacts on the country, reducing not only economic growth rates but potentially social development (limiting poverty reduction strategies and the expansion of the social protection system). Within this context, it is noteworthy that the impacts of the Covid-19 pandemic were quite significant in

poverty indicators improved substantially. For instance, life expectancy at birth, which was almost 73 years in 2018, is the highest among all countries in Sub-Saharan Africa, as well as other health and education indices, in addition to the electricity grid and piped water coverage. Nevertheless, the country's progress across the indicators of the SDGs has been quite uneven (World Bank, 2018). In particular, Cabo Verde has been facing difficulties in advancing the goals related to the decent work agenda (SDG 8) and, as discussed earlier, reduced inequality (SDG 10).

Moreover, it is worth noticing that the country continues to show large differences in the average and extreme poverty rates across geographic areas, with substantial inequalities between the islands that compose the country and even between cities and regions within the same island. In this regard, Durán-Valverde et al. (2012) argue that in addition to several structural problems in secondary education and housing, the prevalence of high fragmentation in the social protection network constitutes an institutional bottleneck that hinders progress in expanding social assistance throughout the country and providing incentives to inclusive growth.[11] In addition to disparity in social outcomes between geographic locations pointed out earlier, it can also be observed persistent differences between socioeconomic classes and gender in the country (Durán-Valverde et al., 2012; World Bank, 2018).

More specifically, World Bank (2018) highlights that a significant fraction of the poorest population in the country is still not covered by social assistance, especially low-income families with working-age members. This point is directly related to the exclusion of certain occupations, such as fishermen and self-employed rural workers, largely present in the country's rural areas from the social protection system. A symptom of such exclusion, for instance, is the prevalence of undernourishment in the country, with approximately 18.5 percent of the population in such a situation in 2017-2019.[12] It is also important to unerscore the relative social exclusion of the youth in the country. Despite the intense modifications throughout the country's labor market in recent years, which

the country, with an increase in poverty rates (both general and extreme) and food insecurity (FAO et al., 2021).

[11] Durán-Valverde et al. (2012) could record approximately 90 active social programs in the country, although most of these practically did not receive significant transfers from the government. In sum, the five main programs linked to the social protection network corresponded to practically the entirety of this component of government spending, which, according to the authors, demonstrates the central government' difficulty in reaching the poorest population in the country on various social assistance fronts.

[12] For an extensive discussion on food insecurity in the African continent, with a detailed description of the data for Cabo Verde, see FAO et al. (2021).

reduced the unemployment rate from approximately 21 percent in 2005 to 12 percent in 2018, it is striking to notice that more than 41 percent of the population aged 15 to 24 was unemployed in 2016. Another factor contributing to these structural problems is the persistence of informality in the country, as roughly 58 percent of the employed population was classified as informal workers in 2018. Faced with such challenges and considering the demographic transition that the country will experience in the coming decades, as well as the continuity of the urbanization process, it is recommended that the country's social protection system undergo reforms to achieve greater coverage of the population, especially the poorest and seeking the incorporation of young people and excluded rural area populations into Cabo Verdean society (Angel-Urdinola and Wodon, 2008; Durán-Valverde et al., 2012; World Bank, 2018; World Bank, 2019).

Given that lack of social protection constitutes a significant obstacle to economic and social development, associated with high and persistent levels of poverty, inequality, and economic insecurity, there is a global consensus around the idea that extending social protection to all is a priority (Ortiz et al., 2019; Durán-Valverde et al., 2019; Osabohien et al., 2020). Along these lines, and as discussed in the previous paragraphs, it is worth noting that Cabo Verdean society has been seeking to expand the coverage of its social protection net, aiming, among other things, to continue reducing the level of poverty in the country, stimulating job creation and income maintenance for various groups of the Cabo Verdean population.

Given the socio-economic situation described in the last paragraphs and the efforts from the Cabo Verdean government to expand social programs in the last decades, some crucial questions remain: can social expenditures, in fact, stimulate Cabo Verde's economy and generate inclusive growth and development? Do varied categories of governmental social expenditures present different responses regarding their impacts on promoting economic growth in Cabo Verde? What are the social expenditures with the most significant effect on Cabo Verdean aggregate output considering an additional unit of investment (highest fiscal policy effectiveness)?

This report seeks to answer these questions by estimating the multiplier effects of total government spending and of one particular component of social expenditures in Cabo Verde. Although the literature on fiscal multipliers and the effectiveness of fiscal policy has grown significantly in the previous decades (especially since the Global Financial Crisis), studies investigating the effects of social expenditures on the level of economic

activity for Cabo Verde are quite scarce. In this regard, the current report contributes to the existing literature arguing in favor of the importance of social protection in generating sustainable and inclusive economic growth. The study's key finding is that one additional unit of government expenditures generates almost or more than one unit of expansion in real GDP, while the impacts are significantly higher for the social protection expenditure considered in this report. In particular, an increase in Social Benefits Expenditures can generate output responses up to approximately three times the initial investment over two and a half years. These results have a relevant policy implication not only in the short run, but it is also indicative of the paramount importance of social protection in the effective building, in the long run, of a comprehensive, non-discriminatory, and gender-sensitive social protection system for inclusive and sustainable economic growth and potentially achieving the sustainable development goals of the 2030 Agenda.

The remainder of this report progresses as follows. In the second section, we present an analytical review of the literature on social spending multipliers, first summarizing the existing arguments and results for different countries worldwide, and then focusing our analysis on the evidence for the Cabo Verdean economy. The third section provides a detailed presentation and discussion of the estimation methodology used in the empirical part of this report. The fourth section presents the sources of our data and describes our variables of interest. In the fifth section, we report the estimation results and discuss their relevance to the related literature, highlighting the policy implications of our findings. The sixth and last section delivers the concluding remarks of this report.

2. Social benefits and government expenditure multiplier: an analytical review of the literature

Since the Global Financial Crisis, there has been significant growth in the literature on fiscal multipliers. More precisely, in country-specific studies, the usage of linear VAR models (autoregressive vectors) 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 approach, following Blanchard and Perotti (2002). When disaggregating different government expenditures, this literature usually shows a higher and more persistent multiplier effect of public investment than public consumption on output. In this context, only a few studies have focused on estimating the impacts of different social expenditures, namely income transfers (such as unemployment insurance or cash

transfers) and social security, on economic growth. Blanchard and Perotti (2002) and Perotti (2004) treat transfers as a component that should be subtracted from total revenue – a strategy followed by several authors (Tenhofen et al., 2010; Lozano and Rodriguez, 2011; Peres, 2006; Peres and Ellery, 2009; Alves, 2017; Mendonça et al., 2016; Grudtner e Aragon, 2017; Jemec et al., 2013; Castro and Fernandez, 2011; Burriel et al., 2010; Giordano et al., 2007; Borg, 2014; Skrbic and Simovic, 2015; among others). Yet this strategy has been criticized in the recent literature (Gáldon, 2013; Gechert et al., 2018; Baum and Koester, 2011; Pereira and Wemans (2013)).

In that regard, Pereira and Wemans (2013) argue as follows: "Initial studies applying the structural VAR methodology to fiscal policy adopted a very aggregate definition of budgetary variables, considering only taxes net of transfers, on the one hand, and public expenditure (fundamentally consumption and public investment), on the other. These definitions were used in a great deal of the subsequent work in this field. It is, however, plausible that the various headings that make up these aggregates have distinctive influences on economic activity". (Pereira and Wemans, 2013, p.10).

Moreover, Gechert et al. (2018) claim that, despite the existence of numerous studies on fiscal multipliers, social expenditures have not received nearly the same attention. According to the authors, this fact represents a relative paradox in the face of the growing importance of social expenditures: "In recent years there has been a tremendous surge in the literature on the size of fiscal multipliers. While many papers have focused on the effects of federal and local public procurement, employment and investment spending, and tax shocks, the impact of changes in social security contributions and benefits has received only limited attention. This seems surprising given the fact that social security systems have grown substantially in OECD countries after the Second World War and account for about half of the overall budget in countries like Germany". (Gechert et al., 2018, p.2).

While the implementation of the American Recovery and Reinvestment Act (ARRA) in the United States during the Global Financial Crisis has been partially justified in terms of larger multiplier effects of income transfers by the Council of Economic Advisers (2009), only a few authors have estimated the effect of this type of expenditures on output. The existing literature that started from the conventional VAR approach of Blanchard and Perotti (2002) shows conflicting results, as shown in Table 1 below.

In short, some authors find significant multiplier effects for social expenditures (the impact multipliers is close to one) (Gechert et al., 2018; Gáldon, 2013; Adams and Wong, 2018), but, in some cases, the results suggest that the multiplier is non-persistent (the accumulated multiplier is close to zero) (Adams and Wong, 2018).[13] In other cases, the impact multiplier for social transfers is close to one, and the effect remains above zero in accumulated terms (Pereira and Wemans, 2013). Besides, some authors have even found a negative non-significant accumulated effect (Claus et al., 2006; Bruckner and Tuladhar, 2010).

On the other hand, various studies estimate positive but very low multipliers for social transfers. These studies usually estimate higher multipliers associated with government consumption, cuts in direct taxes, and, especially, public investments (Huseyin and Ayse, 2017; Sarangi and Bonin, 2017; Bova and Klyviene, 2019; Pereira and Wemans, 2013; Silva et al., 2013). In other cases, the multiplier for social transfers is large in absolute terms, but different types of expenditure feature a similar or a higher multiplier effect on aggregate output (Pereira and Wemans, 2013; Fatás and Mihov, 2001; Pereira and Sagalés, 2009).

Also, Romer and Romer (2016), using a "narrative method" based on episodes of fiscal expansion in different countries, find that permanent increases in social expenditures exert significant and substantial impacts on consumption. However, tax reductions seem to have the highest and most persistent multiplier effect, which could be explained, in the authors' view, by a larger positive response of interest rates to an expansion in social expenditures. Similarly, Alesina et al. (2017) report results for a panel of OECD countries showing that fiscal consolidations based on higher taxes are more costly in terms of output than those based on spending cuts, whether from government consumption spending or transfers. Meanwhile, Gechert et al. (2018) employ a similar methodology for social spending in Germany and find a higher and more persistent multiplier effect for social spending than for decreases in the social contributions that finance these expenditures.[14]

[13] The authors find lower multipliers in the long run (accumulated) and attribute the lower output responses to rising inflation and interest rates, proposing some kind of crowding-out effect.

[14] The authors offer the following possible explanation: "Given that benefits are likely pro-poor while contributions are paid by middle- and upper-income classes, it seems plausible that benefit shocks have a stronger aggregate demand effect. Moreover, some benefits are in-kind and will have a direct GDP effect". (Gechert et al., 2018, p.19).

Besides, 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 (Silva et al., 2013; Furceri and Zdzienicka 2012; Reeves et al., 2013; Ilzetski et al., 2013; Beetsma and Giuliodori, 2011; Valencia, 2015; Izquierdo et al., 2019; Carrière-Swallow et al., 2018; Deleidi et al., 2019; Konstantinou and Partheniou, 2019). For social expenditures, Furceri and Zdzienicka (2012) find a positive accumulated multiplier (but smaller than one) 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[15], which reaches 3 (baseline scenario). In their estimations, health expenditures present an even higher multiplier (near 4.9).

Table 1 presents a brief description of the empirical literature on the multiplier effects of social expenditures – from aggregate government spending to several decompositions of transfers – in different countries (or panel of countries), distinct periods and using several empirical approaches or econometric techniques.

[15] In this article, the authors apply a panel model instead of the traditional VAR: "Vector autoregressive models have been applied to quarterly data for small numbers of countries, but for annual data with larger numbers of countries fixed effects models are more consistent". (Reeves et al., 2013).

TABLE 1 – SUMMARY OF RESULTS ON THE EMPIRICAL LITERATURE OF MULTIPLIER EFFECTS OF SOCIAL EXPENDITURES

Study	Country	Period	Social Expenditure	Methodology	Multiplier Results
Adam and Wong (2018)	New Zealand	1990-2017	Transfers (social assistance and superannuation)	SVAR	1.53 (impact) and 0.76 (cumulative over one year)
Auerbach and Gorodnichenko (2014)	Japan	1960-2012	Government spending	Direct projections (based on Auerbach and Gorodnichenko (2013))	1.74 (peak) and 2.3 (cumulative)
Auerbach and Gorodnichenko (2014)	Japan	1985-2012	Government spending	Direct projections (based on Auerbach and Gorodnichenko (2013))	0.5 (peak) and 0.44 (cumulative)
Bayoumi (2001)	Japan	1981 – 1998	Government spending	VAR	0.65 (short-term multiplier)
Bova and Klyviene (2019)	Portugal	1995-2017	Transfers (old age, unemployment and disabilities transfers)	SVAR	-0.27 (impact) and 0.1 (cumulative)
Bruckner and Tuladhar (2010)	Japan	1990-2000	Local government expenditure on social assistance	One-equation methods	-0.25 (impact)
Dufrenot et al. (2016)	US	1960-2012	Transfers (Social Security)	Non-linear methods (MS/TVTP)	It reaches 1.68 (consumption) and 0.02 (investment); recession
Fatas and Mihov (2001)	US	1960-1996	Social security, other transfers and subsidies	VAR (Choleski decomposition)	Do not estimate multipliers directly but capture a positive and

					significant impact of transfers on GDP after eight quarters.
Furceri and Zdziniecka (2012)	OECD countries panel	1980-2005	Social expenditure (old age, incapacity-related, unemployment benefits and other expenditures)	One-equation method	Short-term multipliers: 0.6 (total expenditure), 0.9 (health) and 2.1 (unemployment benefits)
Gáldon (2013)	US	1948-2012	Social Security, unemployment benefits and other	Non-linear methods (TVPSV-VAR)	>1 (impact and long-run). Near 1.5-2 (long-run) at the end of the 2008/2009 crisis. Reaches almost 3 (long-run) at the end of 1950's and beginning of 1960's
Gechert et al. (2018)	Germany	1974-2013	Social Security	SVAR with "narrative" identified shocks	0.5-1.5 (impact)
Gechert and Ranneberg (2014)	Meta-analysis 98 studies	+1800 observations	Transfers	Meta-regression analysis	Between 2 and 3 (cumulative/recession)
Hollmayr and Kuckuck (2018)	Germany	1993-2017	Social expenditures (pensions/unemployment)	SVAR	2 (impact); between 0.3 and 3.8 (after 5 years)
Hur (2007)	South Korea	1979-2000	Government spending	SVAR	Between 1.2 and 1.6 (ten-period cumulative)
Huseyin and Ayse (2017)	Turkey	2002-2016	Transfers	SVAR	0.02-0.23 (impact)

Kanazawa (2018)	Japan	1980-2014	Public investment	Local projection/ IV method	4.95 (peak; 17th period – quarterly data)
Kuttner and Posen (2002)	Japan	1976-1999	Government spending	SVAR	1.06 (four-year cumulative multiplier)
Konstantinou and Partheniou (2019)	Panel of OECD and non-OECD countries	1991-2015	Social expenditures	Non-linear one equation	0.8 (OECD countries) and 0.076 (non-OECD); cumulative in two years; recession
Mahaphan (2013)	Thailand	1988-2009	Public investments and government consumption	VECM	0.6 (peak, 2nd period) for public investment, 0.09 (peak, 1st period) for government consumption
Miyamoto, Nguyen and Sergevev (2017)	Japan	1980-2014	Government spending	Local projection method (based on Jordà (2005))	1.48 (impact; when the nominal interest rate is near the zero-lower bound (ZLB)) and 0.71 (impact; other periods)
Orair et al. (2016)	Brazil	2002-2016	Social expenditures (pensions, social programs, and unemployment benefits)	Non-liner VAR (STVAR)	1.51 (peak) and 8 (cumulative in four years); recession
Park and Lee (2019)	South Korea	2000-2018	Government spending	VAR	1.09 (impact) and 1.68 (six-period, quarterly data, cumulative)
Pereira and Sagalés (2009)	Portugal	1980-2005	Public transfers	VAR	1.88 (impact) and 1.81 (cumulative)

Pereira and Wemans (2013)	Portugal	1995-2011	Social transfers in cash	SVAR	Near 1 (peak) and 0.6 (cumulative one year)
Reeves et al. (2013)	Panel of EU countries	1995-2010	Social expenditure	One-equation method	3 for social protection, near 4.9 for health.
Resende (2019)	Brazil	1997-2018	Social expenditure (pensions, social programs, and unemployment benefits)	VAR	0.72 (impact); 4.3 (cumulative in two years)
Romer and Romer (2016)	US	1952-1991	Social Security benefits	"Narrative"/VAR	Significant and great response of consumption (mainly in the impact) – but tax revenues had a higher effect in the analyzed period
Sanches and Carvalho (2019)	Brazil	1997-2018	Social expenditure (pensions, social programs, and unemployment benefits)	SVAR	0.75 (impact), 1.2 (peak) and near 3 (cumulative in two years)
Sarangi and Bonin (2017)	Egypt	1990-2015	Social expenditure	SVAR	0.04 (impact) and 0.17 (peak)
Silva et al. (2013)	Panel of Euro zone countries	1998-2008	Transfers - social expenditures in cash/in kind – plus subsidies and other expenditures	VAR	-0.118 (impact) and 0.82 (cumulative ten quarters); recession scenario
Tang, Liu, and Cheung (2013)	Thailand	1993-2019	Government spending	SVAR	-0.37 (impact)

Regarding the empirical literature on Cabo Verde, it is important to mention that studies calculating fiscal multipliers are almost inexistent, especially studies with disaggregation of social expenditures.

In a theoretical-formal approach, Christie and Rioja (2014), using a two-sector endogenous growth model, analyze the role of public spending for economic development in Cabo Verde. The authors highlight the importance of public investment as an engine of economic development in the last decades in the country but point to a latent limitation arising from a certain misallocation of resources (public spending too focused on infrastructure) and the increase in public debt. In short, the results suggest that the reallocation of public spending from infrastructure to "human capital" formation stimulus, with a particular focus on education and health, can have strong positive effects on Cabo Verde's long-run growth rates. In fact, these results give substance to the arguments in favor of fiscal reforms in the country discussed earlier in this report, as for example in Angel-Urdinola and Wodon (2008) and World Bank (2018, 2019).

Following a more disaggregated approach, dividing aggregate government expenditures between current expenditures and public investment, Conceição (2020) combines estimates of vectors of error correction (VECM) and ARDL models to analyze the impacts of fiscal policy and its effectiveness in the country. The results suggest that both government current expenditures and public investment present positive impacts on output, even though the effect of public investment is greater in magnitude. Overall, the author finds evidence that fiscal policy is efficient in terms of its role in stimulating and stabilizing the Cabo Verdean economy. Furthermore, it is worth noting that, similar to the evidence from Christie and Rioja (2014), Conceição (2020) suggests that the form of collection matters on the net impact of expansions in public spending on economic growth. In particular, the impact of public investment is significantly reduced if public debt expansions finance it compared to tax increases. On the other hand, the positive effects of current expenditures on the Cabo Verdean output are quite similar for both financing possibilities, which then suggests the effectiveness of such expenditures as a fiscal policy instrument in the country.

Notwithstanding, in this sense, it is also important to highlight that the specific literature on the Cabo Verdean economy lacks a more detailed analysis of the impacts of social spending, especially investment in social protection, on the reduction of poverty and income inequality in the country. Given the broad discussion presented in this report's

introduction, it seems straightforward to suggest that the expansion of social protection in Cabo Verde would be associated with extensive improvements in the living conditions of the population within the country, creating bridges to achieve inclusive economic growth and social development. The results of this report are a first indicative in this regard, as we will see shortly.

In general, there are no studies – to our knowledge – for Cabo Verde with a detailed estimation of the impact of social expenditure and the associated multipliers for disaggregated categories of government spending. This report tries to fill this apparent gap in the literature, and our results suggest that, in fact, increases in social expenditures positively impact Cabo Verdean's output not only in the short and medium run but also with possible prominent impacts in the long-run economic and social development of the country. In particular, Social Benefits Expenditures – a component of current government expenditure - present well-above-average impacts on real GDP in the short and medium run compared to Total Government Expenditures. These results partially corroborate, albeit indirectly, the earlier findings in the literature.

3. Methodology

As seen in the previous section, most attempts to estimate the multipliers of different types of government expenditures make use of a structural VAR (or SVAR) approach.

The SVAR methodology became well known in the literature of fiscal multipliers through the empirical study carried out by Blanchard and Perotti (2002). The authors argue that the VAR methodology is appropriate for analyzing the effects of fiscal policy due to its taking into account the lags that are characteristic of decision-making and implementation of government spending decisions. When dealing with relatively high-frequency data (monthly or quarterly), there is usually very little or even no response of fiscal policy to unexpected contemporaneous shocks in output. In other words, GDP does not affect public spending contemporaneously because policymakers take more time than a quarter (or a month) to perceive the output shock and decide the next steps in fiscal policy, as well as to present them to the legislature. The purpose of the identification strategy is to isolate the exogenous shocks, recovering the structural shape of the shocks; that is, to obtain a non-recursive orthogonalization of the error terms.

The first step in the procedure is to estimate the vector autoregression in reduced form. In all the estimations presented in this report, the vector of endogenous variables is three-dimensional, including time series of expenditures, revenues, and output. As proposed by Sims (1980), it is a VAR model, where each variable is explained by lags of itself and the other variables of the model, being then able to capture dynamic relationships. However, the reduced form shocks 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); c) random discretionary shocks: structural shocks, which are uncorrelated and unobservable (and therefore we need to recover them). We have:

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

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

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

In the expressions above, u_t^g, u_t^t, u_t^y are the unexpected movements in the expenditure, revenue and output variables, respectively. These "surprise" movements are the residuals in the reduced form, as they are the part of the data that is not explained by the VAR model. 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, in that it does not depend on policies and "normal" economic evolution (Coudret, 2013). The coefficients α_{ij} reflect the response of variable i to variable j – the components (a) and (b) listed above are captured by the coefficients α. On the other hand, β_{ij} measures the contemporaneous response of variable i to a structural shock in variable j – that is, the component (c) in the previous list (Perotti, 2007).

Furthermore, the 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 (Vdovychenko, 2018). In order to solve this problem, we follow a two-step procedure. First, we start from the identification hypothesis that we have already discussed in this section, thus removing component (b) and making the coefficients reflect only the first component – the response of the automatic stabilizer: "it typically takes longer than a

quarter for discretionary fiscal policy to respond to, say, an output shock" (Perotti, 2007, p.176). The second step in the procedure, as suggested by Perotti (2007), consists in using external information to the model to estimate the coefficients α_{gy} and α_{ty}.

In that regard, recall that we already know that α_{gy} reflects the contemporary elasticity of expenditure with respect to output, whereas α_{ty} is the contemporary elasticity of revenues with respect to output. Besides, we also know that the α coefficients measure the discretionary response of fiscal variables to unexpected changes in output, as well as the automatic response (Jemec et al, 2013). Given the identification hypothesis, there is no discretionary response of fiscal variables to output so that these elasticities reflect only the automatic stabilizer responses, as the use of quarterly data eliminates the discretionary component. Thus, the hypothesis of identification uses the following elasticity:

$$\alpha_{gy} = 0 \tag{4}$$

The elasticity of revenue with respect to output was estimated based on the "IMF method", as in Andreis (2014) and Maciel (2006), which is a regression using dummy variables for periods, outliers, and a trend control.

Besides, since u_t^g and u_t^t are correlated, from these separate estimations of the exogenous elasticities, we obtain the cyclically adjusted residuals $u_t^{g,ca}$ and $u_t^{t,ca}$ – which are the shocks without the effects of the cycle, in order to eliminate the automatic stabilizer responses. Thus, the component (a) is removed, so that we have exogeneity:

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

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

The structural shocks e_t^g and e_t^t can be obtained from the assumption of ordering the variables – that is, structural decompositions.

In that regard, Blanchard and Perotti (2002) claim that there is no reason to choose $\beta_{gt} = 0$ or $\beta_{tg} = 0$ a priori; that is, from a shock in spending and revenue, there is no theoretical or empirical justification to support which of the variables will react first. Perotti (2007) points out that, as the correlation between adjusted residuals is small, the order does not change the result. In this report, we used $\beta_{gt} = 0$ and estimated the regression by OLS of the adjusted revenue residuals on the residuals of the structural form of expenditures, to obtain β_{tg} following Equation (6), as done, for instance, in Burriel at al. (2010). The

purpose of this regression is to obtain the estimates of the structural shocks – e_t^g and e_t^t. Such shocks are "isolated" from the influence of output because the automatic response component has been removed. It then becomes possible to make the shocks exogenous by removing the (a) and (b) components mentioned above.

Moreover, from Equation (5) it is possible to recover e_t^g using it to estimate Equation (6) by OLS (Burriel et al, 2010). We then obtain instrumental variables, the structural shocks e_t^t and e_t^g in Equation (3), as the regressors (residuals of the reduced form) are correlated with the error term (structural shock). Those structural shocks of the expenditure and revenue are used as instruments since the correlation between them and the structural shock of output, e_t^y, is low. The instruments are estimated using Equations (5) and (6) and assuming $\alpha_{gy} = 0 = \beta_{gt}$. The last step in the procedure consists in estimating the impulse-response functions using the estimated coefficients.

The basic model is estimated using the vector of endogenous variables, in real terms:[16] logarithm of social expenditures, logarithm of total primary revenue and the logarithm of output. Note that dynamic effects of public spending can also be analyzed using a three-dimensional SVAR by replacing total social expenditures by their different components and the aggregate GDP by household consumption and private investment (Çebi, 2015; Burriel et al, 2010).

Furthermore, regarding our main interest in this report, which is the estimation of the multipliers associated with the social expenditures, Spilimbergo et al. (2009) points out that there are four main alternatives to calculate expenditure multipliers: i) the impact multiplier, for the analysis of a short-run period, given by $\frac{\Delta Y(t)}{\Delta G(t)}$; ii) the horizon multiplier, for calculating the multiplier in a specific period of time, given by $\frac{\Delta Y(t+n)}{\Delta G(t)}$; iii) the peak multiplier, which represents the highest value in the period under analysis, given by

[16] The variables used in this empirical study are not stationary and, therefore, their first difference are used (they are integrated of order 1), including the control variables, as showed by tests (Dickey-Fuller, Phillips and Perron, KPSS). Thus, the experiments are performed in terms of growth rate. We used the cumulative impulse-response function in order to obtain the responses in terms of levels. The number of lags is chosen based on the information criteria and the autocorrelation LM test (Matteo et al, 2018). When several information methods are used together, the literature recommends choosing that lag that most methods point to as being 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 all diagnostic tests are presented in Appendix A.

$max \frac{\Delta Y(t+n)}{\Delta G(t)}$; iv) the accumulated multiplier, that considers the total effect over a longer period of time, given by $\frac{\sum_{i=1}^{n} \Delta Y(t+i)}{\sum_{i=1}^{n} \Delta G(t+i)}$.

In sum, the importance of calculating the impact multiplier is that it provides an assessment of fiscal policy in terms of immediate output response to a shock in the fiscal variable when the government aims to deal with a crisis, for example. Accumulated (or cumulative) multipliers, in turn, are important in order 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. Thus, it measures the cumulative change in output after a cumulative change in the government spending over a given time horizon (Lozano and Rodriguez, 2011; Borg, 2014; Burriel et al., 2010; Tenhofen et al., 2010; Restrepo, 2020). Cumulative multipliers are also known as integral multipliers, and their importance is pointed out by Restrepo (2020), who claim that: "The cumulative multiplier, according to Ramey and Zubairy (2018), may be a better representation when the effects of fiscal policy build over time". (Spilimbergo et al (2009), Restrepo (2020)).

In order to calculate the multipliers, we need to divide the elasticity of the response by the average share of social expenditures in output (or its components). Given that the variables are expressed in (natural) logarithmic form, impulse-response functions provide the elasticity of output or income (Y) with respect to the fiscal variable (X):

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

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

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

In order to estimate the cumulative multiplier, we justify the number of periods based on Garcia et al (2013), p.11: "The long-run multiplier is defined as the cumulative multiplier when $\rightarrow \infty$, but in practice is used the number of periods needed for the multiplier to

stabilize at its long-run value". When the impact of social expenditures on GDP is more persistent, the cumulative multiplier is calculated for a longer period.

In this report, we estimate multiplier effects of social protection for Cabo Verde through two three-dimensional structural linear VAR. In both estimations we follow the strategy used in Blanchard and Perotti (2002) and include three endogenous variables: logarithm of social expenditures (or its components), logarithm of total government revenues and logarithm of GDP (or its components). Based on the estimations, we generate cumulative impulse response functions so as to obtain the dynamic responses of social expenditures on the level of real GDP. Then, as detailed above, we use these functions to obtain the elasticities of GDP in response to a shock in social expenditures and finally calculate the multipliers.

4. Database and data description

We used quarterly data available in **Ministério das Finanças and Instituto Nacional de Estatística**. Social Benefits, Total Government Expenditures and Government Tax Revenues series were obtained from **Ministério das Finanças**, nominal GDP series was obtained from **Instituto Nacional de Pesquisas** (Quarterly National Accounts estimates, in accordance with the 1993 National Accounts System methodology).

The CPI index, used as deflator to adjust the series to 2018 prices, was obtained from **Instituto Nacional de Pesquisas**. All series used in the VAR model were seasonally adjusted using the X12 Arima Method, available in Eviews.

Figure 1 pictures the Total Government Expenditures series and Figure 2 show the Social Benefits Expenditures series for Cabo Verde.

Figure 1 - Total Government Expenditures in Cabo Verde (in millions of *Escudos de Cabo Verde* in 2018 national prices, seasonally adjusted)

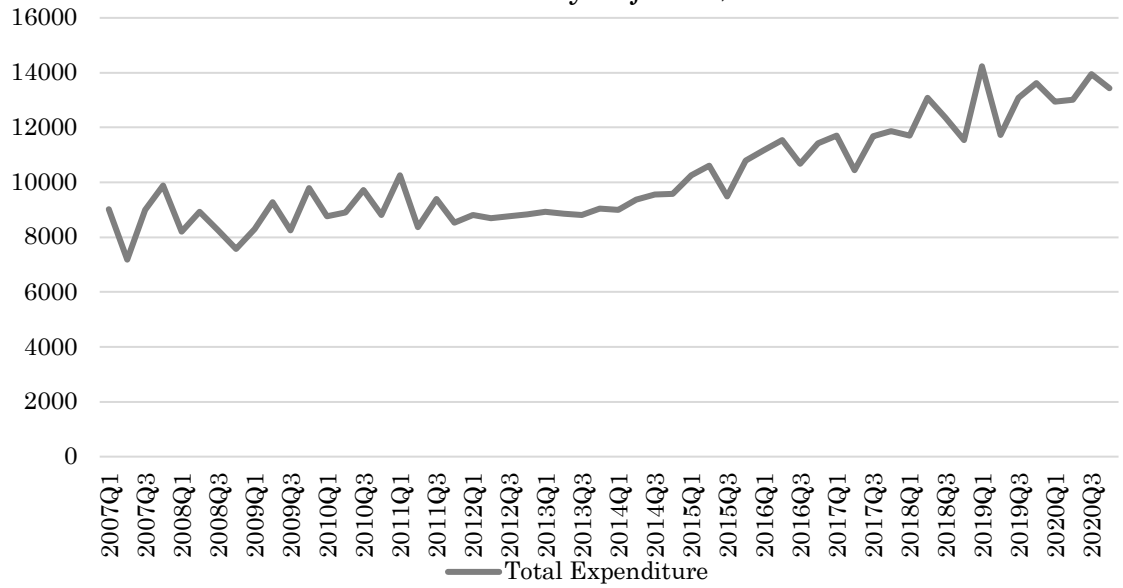
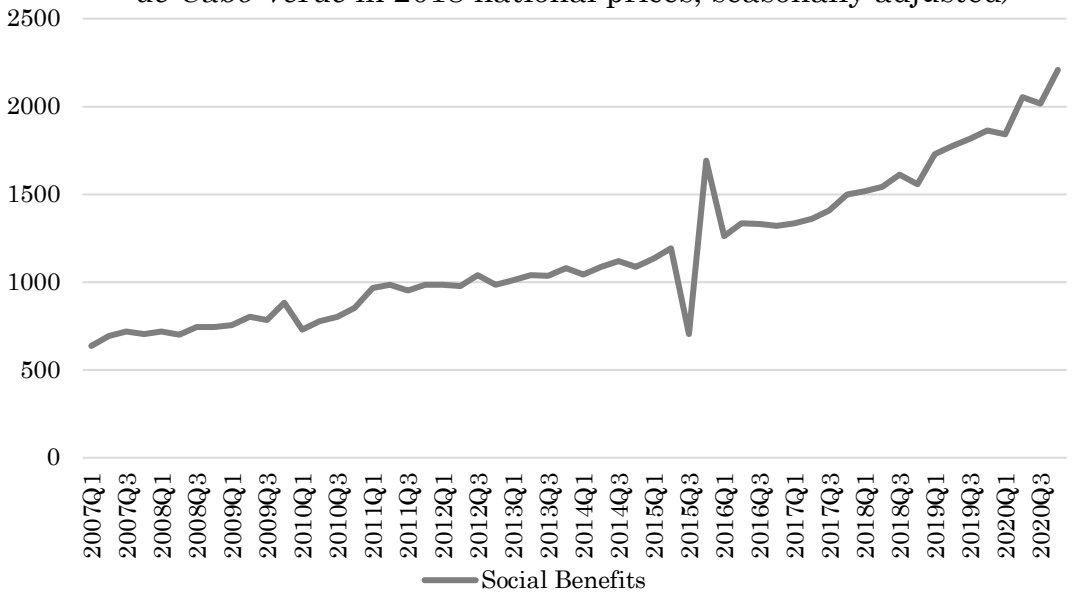


Figure 2 - Social Benefits in Cabo Verde (in millions of *Escudos de Cabo Verde* in 2018 national prices, seasonally adjusted)



From Figure 1, we can directly notice a relevant increase in government expenditures – a trend described, for instance, in Durán-Valverde et al. (2012) and World Bank (2018, 2019). In fact, Total Government Expenditures in 2020 reached almost twice the spending level of 2007, the initial year of our sample. However, the growth trend was not constant over the years under analysis. In fact, between 2007 and 2013, government spending fluctuated around a level similar to the initial year of our sample. But those expenditures began to grow more consistently since 2014.

The increasing trend is also observed for one of the components of those expenditures – Social Benefits Expenditures – as depicted in Figure 2. Yet it should be highlighted that the average growth rate of this component of government spending in the period under analysis is significantly higher than of the total expenditures. While Total Government Expenditures grew at an average rate of 1.2%, Social Benefits Expenditures grew at an average rate of 3.7% between 2007 and 2020. Associated with that trend, while in 2007, social benefits spending represented only 7% of total government spending, in 2020, this component accounts for approximately 17% of total expenditures.

Given this notable increase in the relative share of Social Benefits Expenditures in the total government spending in recent decades, the contribution of this report to the related literature seems to have even more relevance with regard to evaluating the effectiveness of fiscal policy and providing useful empirical evidence that can possibly suitably inform new efforts by policymakers in the country.

5. Estimation results

Based on the Structural VAR approach followed in Blanchard and Perotti (2002), we estimated fiscal multipliers for different series of government expenditures in Cabo Verde. As discussed earlier, all the respective structural VARs were estimated using the three-dimensional vectors of the following variables in logarithmic form: government expenditures, tax revenues and GDP. The first difference of each variable was used to avoid spurious relationships as all series are integrated in first order according to standard stationary tests (ADF, PP, and KPSS).

We carried out two different experiments using different expenditures series as described above – namely, Total Government Expenditures and Social Benefits Expenditures –, control variables and time dummies. Regarding the time binary variables included in our estimations, we considered the following "breaks": dummy1 controls for a strong break in Social Benefits series in 2015Q4 (see Figure 2); dummy2 controls for COVID-19 crisis (2020Q2); dummy3 controls for Great Financial Crisis (2008Q2; 2008Q3; 2008Q4).[17]

[17] It is worth underscoring that we tested several variables as control for our estimations. For example, we used the price of Brent crude oil, as well as nominal Exchange rate. As those variables did not present statistical significance in our estimation, we did not include those variables in the estimations presented in this report.

We get three different multipliers from each VAR, where Y is GDP and G, expenditure:

- Impact: instantaneous effect: $\frac{\Delta Y(t)}{\Delta G(t)}$.
- Peak: represents the highest value in the period under analysis: max $\left[\frac{\Delta Y(t+n)}{\Delta G(t)}\right]$.
- Accumulated: measures the total effect of higher expenditures over time (n periods): $\frac{\sum_{i=1}^{n} \Delta Y(t+i)}{\sum_{i=1}^{n} \Delta G(t+i)}$.

Based on the specifications presented above, we explore the results of the respective SVAR estimations in the next subsections, emphasizing the impulse-response functions of the types of social expenditure on aggregate output as well as the calculation of the multipliers associated with those government expenditures. It should be recalled that the diagnostic tests and estimated coefficients are described in detail in the Appendix.

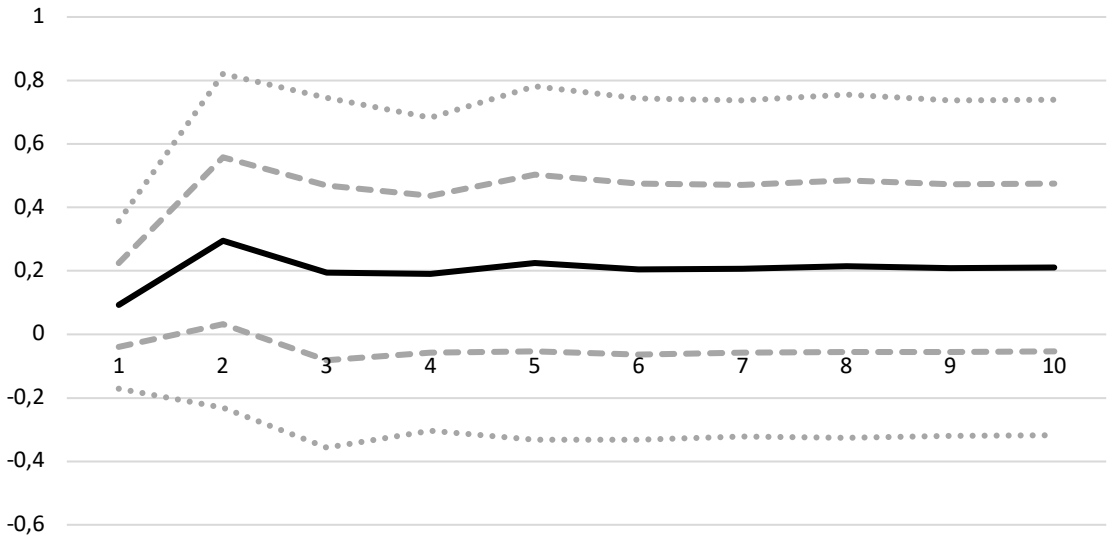
5.1. Effects of Total Government Expenditure on output

Following the first of the VAR specifications presented earlier, we explore in this section the effects of Total Government Expenditures shocks on Cabo Verdean level of economic activity using the described data for the period 2007-2020. It is worth noting that all the series were displayed in 2018 prices using the CPI.

In this first model, we included two lags and one binary variable – "dummy 3" – in the estimation. This specification presents the best estimations in terms of significance and residual diagnostics. In that regard, it is worth underlining that this model does not present either autocorrelation problems or heteroskedasticity.

Figure 3 shows the accumulated impulse-response function of GDP to a shock in Total Government Expenditures.

Figure 3 - Accumulated response of GDP to a shock in Total Government Expenditures



Dotted lines represent a confidence interval of 95% (two standard deviations). Dashed lines show a confidence interval of 68% (one standard deviation). Accumulated response of GDP was divided by the accumulated shock in social expenditure.

From Figure 3, it is direct to see that shocks in Total Government Expenditures positively impact on the Cabo Verdean real GDP. However, the accumulated responses are not statistically significant, even considering a one standard deviation confidence interval, at almost all analyzed quarters. The only exception is the second quarter after the initial shock, in which the positive response of output to changes in expenditures is slightly statistically significant. It should be highlighted that the impact of a rise in government expenditures on the level of economic activity reaches its peak in the second quarter after the shock, the exception regarding statistical significance, a result that thus points to the potential economic stimulus of a general fiscal shock in a half-year window. In fact, this result indicates that fiscal policy (again, in the general case of an increase in government expenditures) can be an efficient instrument in the short run in Cabo Verde.

Associated with the impulse response functions showed above, the estimated multipliers effects for Total Government Expenditures are the following: **0.36 (impact), 0.865 (peak, second quarter), and 0.837 (accumulated in ten quarters)**. The substance of this result is that a one-unit increase in Total Government Expenditures leads to a total expansion of approximately 0.84 in real GDP after two and a half years in Cabo Verde.

By indicating the role of government spending in stimulating the Cabo Verdean economy, this result corroborates the related evidence previously found by Conceição (2020). It is noteworthy that this result is of great relevance for the country's policymakers, primarily due to the dependence on fiscal policy as an instrument of economic policy. In a small developing country that operates with an exchange rate anchor, which extensively limits the use of monetary policy, discussions, and results regarding the effectiveness of fiscal policy are certain to be essential. Therefore, this initial result is a first indication of the importance and effectiveness of fiscal policy in the country as a promoter of economic growth in the short run. In addition, this first result is also a stimulus for the continuity of discussions regarding fiscal reforms by the Cabo Verdean government. If even with the difficulties pointed out, for example in Angel-Urdinola and Wodon (2008) and World Bank (2019), increased public spending positively affect the level of economic activity in the country, appropriate reforms that increase the efficiency of government spending will be of great relevance to expand such positive effects and possibly generate and sustain more inclusive growth trajectories.

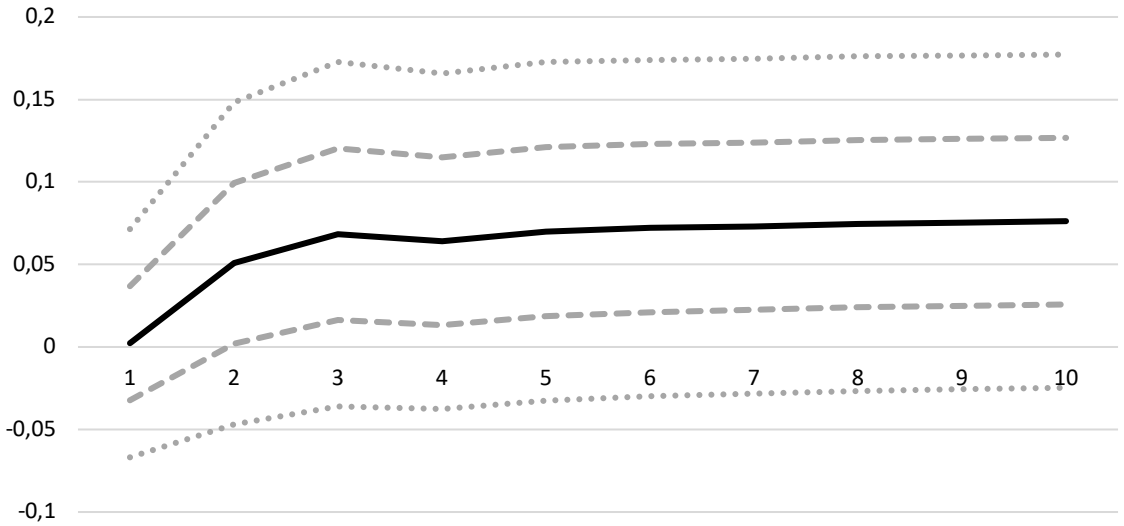
5.2. Effects of Social Benefits on output

Let us now consider the second specification estimated in this report, which explores the effects of Social Benefits Expenditures on the real GDP of Cabo Verde. In this case, the model was estimated using real social benefits, real GDP, and tax revenues for 2007-2020. Similarly to the previous specification, all series were displayed in 2018 prices using the CPI.

We included two lags in the estimation and considered two binary variables – namely, dummies 1 and 2. It is to be emphasized that this specification showed the best estimations in terms of general statistical significance and residual diagnostics. As discussed earlier, all residual tests are presented in the Appendix of this report. It is worth underlining here that the model does not suffer from autocorrelation problems, and the null hypothesis of the White's test was not rejected, which means that the estimated model does not present heteroskedasticity.

Figure 4 presents the accumulated impulse-response function of real GDP to a shock in Social Benefits Expenditures in Cabo Verde.

Figure 4 - Accumulated response of GDP to a shock in Social Benefits Expenditures



Dotted lines represent a confidence interval of 95% (two standard deviations). Dashed lines show a confidence interval of 68% (one standard deviation). Accumulated response of GDP was divided by the accumulated shock in social expenditure.

It is straightforward to see from Figure 4 that Social Benefits Expenditures positively impact on the level of economic activity in Cabo Verde. Differently from the preceding, for Total Government Expenditures, the responses of output to shocks in this component of the social protection net are vastly statistically significant in almost all analyzed periods (except the first quarter) considering a one standard deviation confidence interval. But from the fifth quarter until the end of two and a half years after the initial shock, we note that the responses of output become statistically significant at levels close to the 5% significance. Besides, it is noteworthy that the impact of a Social Benefits Expenditures innovation achieves its peak two quarters after the initial shock. Interestingly, the output response to shocks in such social expenditure increases again (after a substantial decrease in the fourth quarter) during the second year after the initial government spending shock, almost reaching the same magnitude as the peak impact. This behavior is suggestive that the cumulative effects of increases in Social Benefits Expenditures on Cabo Verde's level of economic activity are not only quite substantial in the short and medium run but also in the long run, with higher statistical significance, which could be further investigated in

studies using "longer" time series for the social expenditures and other related variables of interest.[18]

Associated with the impulse response functions showed above, the estimated multipliers effects for Social Benefits Expenditures are summarized as follows: **0.08 (impact), 2.61 (peak, second quarter), and 2.66 (accumulated in ten quarters)**. Notice that the multipliers associated with those responses present large magnitudes, especially for the peak and the accumulated over two and a half years. In both cases, those measures are more prominent than for the Total Government Expenditures, as examined earlier in this econometric experiment.

From a more detailed perspective, it should be pointed out that public spending on Social Benefits has a positive effect significantly higher than Total Government Expenditures, as seen in the previous subsection. In fact, the peak multiplier, which occurs in the second quarter in both cases (and it is indicative of the relative importance of this component of government expenditures for the total impact), is approximately two units higher for Social Benefits than the average of government expenditures. Moreover, note that the accumulated multiplier of Social Benefits Expenditures is more than three times larger than the multiplier for Total Government Expenditures, indicating that one unit increase in social benefits spending is associated with an increase of almost three units in Cabo Verdean output.

Therefore, this component of the government's expenditure has an above-average effect and, it is worth mentioning, suggests higher effectiveness of this fiscal policy instrument compared to other categories that compose the total government expenditures in the country. Besides, it is also worth pointing out the considerable effects of expenditures in this component of the social protection net on Cabo Verdean society, a topic that will be explored in more detail shortly. In general, this result is, in a way, complementary to those found in Christie and Rioja (2014) and Conceição (2020). In addition to the already explored (in the related literature) positive impacts of public investment on the level of economic activity, our empirical findings clearly suggest the substantial relevance of social protection expenditures, particularly of Social Benefits Expenditures, for socio-economic development in Cabo Verde. Moreover, this result also complements previous

[18] Subject to data availability, it would be interesting to examine the impacts of government fiscal policy choices on Cabo Verde's macroeconomic variables over the previous decades, using "long" time series (annual frequency) to capture longer-term relationships between social expenditures and economic and social development within the country.

studies, as we examine the effect of a disaggregated government spending on output in Cabo Verde, showing the greater effectiveness of this component of total spending relative to the average of government expenditures. Yet, data availability permitting, further disaggregation should be pursued so as to better compare the relative effectiveness of different fiscal policy instruments in Cabo Verde.

It is worth highlighting the relationship of this initial result with the discussions carried out earlier in this report about the importance of social protection as an engine of social development. As examined in the data description, Social Benefits Expenditures have grown significantly in the last decades in Cabo Verde and, in particular, with a well-above-average growth trend compared to Total Government Expenditures. Our results suggest that this increased public spending has substantial positive impacts on the level of economic activity. However, the effects of such social expenditures on Cabo Verdean society are far more important than those directly measured by economic growth. As largely discussed in the related literature, the expansion of the social protection network potentially affects several layers of the society, ensuring income security for families in delicate financial situations, which, in turn, has varied effects in the economy, such as the expansion of access of women and young people to the formal labor market, the reduction of poverty and food insecurity (related to increases in labor productivity) and attaining better educational levels throughout the country. In fact, not only for the direct effect on the level of economic activity but for such "deeper and more fundamental" impacts, it seems fair to argue that a portion of the recent improvement in several social development indicators in the country is possibly directly related to the increase in social protection expenditures. Given the economic crisis that the country is currently facing, dealing with the negative impacts of the Covid-19 pandemic on tourism and foreign direct investment, this result is a strong stimulus for more significant investment in the social protection system as a way to resume (and, later, maintain) the economy growing at adequate rates and, at the same time, deepen social transformations throughout the country.

These effects are even more relevant when considering the social panorama presented for Cabo Verde, a country that, despite having a solid social protection system in comparison to the average of African countries, is still a long way to go in terms of social protection spending in order to achieve universal coverage (Durán-Valverde et al. 2012; World Bank, 2018). As a brief reminder, despite the advances in poverty reduction in the last decades, significant portions of the country's population still live with very uncertain

income and severe food insecurity, in addition to the existence of groups which have been excluded from the recent economic and social development process (such as the youth and rural workers). Added to these problems, considerable informality in the labor market and high income inequality continue to be challenging structural problems. Thus, these results represent new evidence of the importance of investment in social protection for inclusive economic growth in Cabo Verde, serving as support for the policies recently adopted by the country's government and also as a stimulus for greater social spending directed towards the specific component of the social protection system studied here – Social Benefits Expenditures. Thus, the results found in this report point to the relevance of investments in social protection as an inducer of sustainable and inclusive economic growth in Cabo Verde.

5.3. Summary of results and implications

After presenting the detailed results for both categories of government expenditures analyzed in this paper, it is worth, by way of conclusion, briefly discussing a summary of the main results arising from our estimations and relating them to the existing literature, as well as to explore policy implications of these results.

Table 2 summarizes the results for the estimated multipliers associated with the impulse response functions of aggregate output to shocks in social expenditures in Cabo Verde.

TABLE 2 - SUMMARY OF THE RESULTS FOR ESTIMATED MULTIPLIERS

Social Expenditure	Impact Multiplier	Peak Multiplier (in period "t")	Accumulated Multiplier (over ten quarters)
Total Government Expenditures	0.36	0.86 (Second quarter)	0.83
Social Benefits Expenditures	0.08	2.61 (Second quarter)	2.66

First, our main conclusion arising from the results presented in Table 2 is that government expenditures (and we analyzed not only the total expenditures but also a disaggregated component of those expenditures) positively impact on the level of economic activity in

Cabo Verde. This result is indirectly in keeping with the (quite scarce) literature on fiscal policy impacts and effectiveness in the country (Conceição, 2020). More importantly, the government expenditure multipliers estimated in this report reveal that for both categories considered, an additional unit of investment generates nearly or more than one unit of increase in output in a relatively short period of time, possibly reaching almost three units increase in output over two and a half years after the initial shock.

In particular, shocks in Total Government Expenditures have consistent positive impacts on the Cabo Verdean output, although such impacts are not statistically significant (even considering a one standard deviation confidence interval) except for one of the analyzed periods. Nevertheless, the peak effect of those government expenditures on output is, in fact, statistically significant, and it occurs two quarters after the initial shock, a result that suggests the effectiveness of fiscal policy in generating stimulus to economic activity in the short run in the country. This result is in keeping with previous empirical studies for the Cabo Verdean economy, especially those conducted by Christie and Rioja (2014) and Conceição (2020). As discussed earlier, this first result is significant for the management of economic policy in the country, as it points to the effectiveness of that fiscal instrument in a small developing country that presents limited or no possibility of using discretionary monetary policy given the existence of an exchange rate anchor.

Furthermore, by disaggregating total government spending and examining particularly the effects of social benefits on Cabo Verde's economic activity, our results suggest that this component of the country's social protection net has very significant positive effects on the level of economic activity both in statistical and economic terms. For almost all periods under analysis, output responses to a shock in such expenditure are statistically significant at significance levels that that gradually approach the 5% level, in particular after the first year from the initial shock. Furthermore, it is essential to emphasize that the multipliers associated with such expenditures are substantially higher than the average for government expenditures, reaching 2.66 after two and a half years of the initial shock. Given that this component of government spending grew much more than the average of Total Government Expenditures in recent decades, this result is a strong indication that the government of Cabo Verde is expanding, over time, the effectiveness of fiscal policy by increasing the relative importance of Social Benefits in total government spending. As noted earlier, this above-average growth in one of the components of the social protection net is concomitant with the remarkable process of poverty reduction and the improvement

of several social development indicators in the country. Thus, it is possible to conjecture that, besides its direct positive effects on the level of economic activity, those increased spending on social protection directly impacted positively on the social transformations in the country. This represented a substantial improvement in the living conditions of a growing portion of the Cabo Verdean population, a point that gives greater substance and credence to the above conjecture, which we first raised in the introduction to this report.

Yet, despite the relevance of these results, it should be underlined that the scope of this report is limited due to scarce data availability, as we have analyzed only one component of government social spending. Therefore, further research should be carried out so that we have the possibility of exploring the effectiveness of fiscal policy in the country more thoroughly and broadly, which would certainly greatly improve the evaluation of such effectiveness. In short, it seems quite essential that researchers and policymakers focus, as done in this report, on the analysis and estimation of the specific effects of each type of government social expenditure on Cabo Verdean output, calculating the impact, peak, and accumulated fiscal multipliers.

Lastly, as a direct policy implication, our results suggest that increases in Expenditures in Social Benefits configure an effective way to boost Cabo Verde's economic growth, especially considering the short- and medium-run effects of fiscal policy. Also, it should be highlighted that output responses to the spending shock seem to grow at the end of the period under analysis, which may indicate substantial and significant long-run effects on the level of economic activity as well. This report's results become even more significant when we consider the effects of investments in social protection in addition to the direct impact on the level of economic activity. Besides substantially boosting economic activity in the country, the expansion of the social protection system has also fundamental social effects, reducing food insecurity, poverty, and inequality. Therefore, our results strongly indicate that social expenditures are crucial for inclusive economic growth and social development in Cabo Verde.

In view of the Cabo Verdean government's recent effort to expand its social protection net, with the development and extension of social programs, including several actions during the Covid-19 pandemic, the results of this report can be considered a significant stimulus in such direction. By providing detailed evidence that investments in social protection are quite effective in stimulating economic activity and potentially generating inclusive growth within the country, the results presented in this report can serve not only

as a thermometer for the Cabo Verdean government, indicating the validity of measures already taken to increase investment in social security, but also as a compass, indicating an adequate direction for government social expenditure, with the main focus being on Expenditures in Social Benefits.

6. Concluding remarks

This report provides evidence of the impact of social protection expenditures on economic activity in Cabo Verde. The research methodology is robust as it relies on a technique that allows the use of economic theory to transform the reduced-form VAR model into a system of structural equations, making it feasible to obtain impulse responses that can be given structural interpretations.

Using quarterly data on Total Government Expenditures, Social Benefits Expenditures, total tax revenues, and real GDP over the period between 2007 and 2020, the findings of this report provide empirical evidence of a positive impact of government expenditures and, particularly, social protection expenditures, on the Cabo Verdean level of economic activity. Our results show that the estimated multipliers for government expenditures are: 0.36 (impact), 0.85 (peak, second period), and 0.86 (accumulated after ten quarters), for Total Government Expenditures; 0.08 (impact), 2.61 (peak, second quarter), and 2.66 (accumulated over ten quarters) for Social Benefits Expenditures.

The estimated results confirm that the peak and accumulated multipliers are nearly (total spending) or above one (social benefits), implying that one unit of spending on social expenditures can generate up to almost three units of increase in output. In particular, the results suggest that increases in Social Benefits Expenditures are associated with the most substantial boosts to the level of economic activity in Cabo Verde in the short and medium run. These findings have direct policy implications, as they serve not only as a stimulus for the continuation and expansion of social protection programs developed by the Cabo Verdean government as of late, but, most importantly, suggests paths to improve the effectiveness of fiscal policy in the country, pointing in detail to specific components of government spending that most significantly impact the Cabo Verdean economy both in periods of expansion and recession.

By indicating the relevance of the effects of Social Benefits to stimulate economic growth in Cabo Verde, this report contributes to establish the case for public expenditure on social

protection, showing that it is critical for the building of a robust, non-discriminatory, disability-inclusive, and gender-sensitive social protection system which is also socially effective and economically productive under both normal and crisis conditions. As such, this report paves the way for policymakers and analysts to engage in social dialogues, incorporating all stakeholders involved in building and strengthening social protection systems, to contend in favor of the key importance of social protection in contributing to the generation of sustainable and inclusive economic growth.

By way of conclusion, it is useful to underline some possible extensions of this research that can significantly improve the understanding of the effects of social expenditures in Cabo Verde. First, it is worth pointing out a direct extension of the empirical experiments carried out in this report, which is the estimation of multipliers for other components of government expenditures, following up on this research agenda to assess the effectiveness of fiscal policy based on the examination of various disaggregated social expenditures. In addition, as highlighted earlier in this report, it would be knowledge-enhancing to analyze the long-run impacts of components of social expenditure, and therefore of government decisions in terms of fiscal policy, on key macroeconomic variables in Cabo Verde in the last decades, using time series with annual frequency and considering several years in the sample – something that was not possible in this report due to data availability. Finally, a germane extension of the research carried out in this report would be to explore the impacts of the social expenditures analyzed here, especially those that make up the social protection system, not only on the level of economic activity, as widely explored here, but on the several variables that can somehow and to some extent reflect inclusive social development in the country, which would certainly give greater empirical substance to the suggestions based on the results of this report. For example, studies that explore the direct impacts of social protection on poverty reduction and income inequality, as well as on the educational level and food insecurity measures in the country, certainly configure a promising research avenue of pursue.

References

ADAMS, A.; WONG, M. **Quantifying fiscal multipliers in New Zealand: the evidence from SVAR Models**. Reserve Bank of New Zealand Analytical Note Series, 2018.

ADDISON, T.; NIÑO-ZARAZÚA, M.; TARP, F. Aid, social policy and development. **Journal of International Development**, v. 27, n. 8, p. 1351-1365, 2015.

ALDERMAN, H.; YEMTSOV, R. **Productive role of safety nets**. Social Protection and Labour, Discussion Paper No. 1203. World Bank, 2012.

ALDERMAN, H.; YEMTSOV, R. How can safety nets contribute to economic growth? **The World Bank Economic Review**, v. 28, n. 1, p. 1-20, 2014.

ALESINA, A.; BARBIERO, O.; FAVERO, C.; GIAVAZZI, F.; PARADISI, M. **The effects of fiscal consolidations: Theory and evidence**. NBER Working Paper, n.23385, 2017.

ALVES, R. **O impacto da política fiscal sobre a atividade econômica ao longo do ciclo econômico: evidências para o Brasil**. Dissertação de Mestrado. Instituto de Pesquisas Econômicas. Universidade de São Paulo, 2017.

ANDREIS, A. **Balanço Orçamentário Estrutural no Brasil: a política fiscal no Brasil é pró ou anticíclica no período pós plano real?** Finanças Públicas, XIX Prêmio Tesouro Nacional, 2014.

ANGEL-URDINOLA, D.; WODON, Q. **Assessing the Targeting Performance of Social Programs: Cape Verde**. University Library of Munich, Germany, 2008.

ATKINSON, A.; **Poverty and social security**. Harvester Wheatsheaf, 1989.

ATKINSON, A.; **The economic consequences of rolling back the welfare state**. MIT press, 1999.

AUERBACH, A.; GORODNICHENKO, Y. Measuring the output responses to fiscal policy. **American Economic Journal: Economic Policy**, v.4, n.2, p. 1-27, 2012.

AUERBACH, A.; GORODNICHENKO, Y. "**Fiscal Multipliers in Recession and Expansion**," in A. Alesina and F. Giavazzi, eds., Fiscal Policy after the Financial Crisis, Chicago: University of Chicago Press, 63-98, 2013.

AUERBACH, A.; GORODNICHENKO, Y. **Fiscal Multipliers in Japan**, Technical Report, National Bureau of Economic Research 2014.

BAUM, A.; KOESTER, G. **The impact of fiscal policy on economic activity over the business cycle –evidence from a threshold VAR analysis**. Discussion Paper Series Economic Studies - Deutsche Bundesbank, n.3, 2011.

BAYOUMI, T. The morning after: explaining the slowdown in Japanese growth in the 1990s. **Journal of International Economics**, 53(2):241–259, 2001.

BARRIENTOS, A. Social protection and poverty. **International Journal of Social Welfare**, v. 20, n. 3, p. 240-249, 2011.

BARRIENTOS, A. Social transfers and growth: What do we know? What do we need to find out?. **World Development**, v. 40, n. 1, p. 11-20, 2012.

BARRIENTOS, A.; HULME, D. (Ed.). **Social protection for the poor and poorest: Concepts, policies and politics**. Springer, 2016.

BARRIENTOS, A.; MALERBA, D. Social assistance and inclusive growth. **International Social Security Review**, v. 73, n. 3, p. 33-53, 2020.

BARRIENTOS, A. **Social assistance in developing countries**. Cambridge University Press, 2013.

BARRIENTOS, A.; GORMAN, M; HESLOP, A. Old age poverty in developing countries: contributions and dependence in later life. **World development**, v. 31, n. 3, p. 555-570, 2003.

BEETSMA, R.; GIULIODORI, M. The effects of government purchases shocks: review and estimates for the EU. **The Economic Journal**, v.121, p.4-32, 2011.

BLANCHARD, O.; PEROTTI, R. An empirical characterization of the dynamic effects of changes in government spending and taxes on output. **Quarterly Journal of Economics**, v.117, n.4, p.1329–1368, 2002.

BORG, I. Fiscal Multipliers in Malta. Central Bank of Malta Working Papers, n.06, 2014.

BOVA, E.; KLYVIENE, V. **Macroeconomic effects of fiscal shocks in Portugal**. European Economy Discussion Paper, n.096, 2019.

BRUCKNER, M.; TULADHAR, A. **Public Investment as a Fiscal Stimulus: Evidence from Japan's Regional Spending During the 1990s**. IMF Working Paper, n.110, 2010.

BURRIEL, P.; CASTRO, F.; GARROTE, D.; GORDO, E.; PAREDES, J.; PEREZ, J. Fiscal policy shocks in the euro area and the US an empirical assessment. **Fiscal Studies**, v.31, n.2, p. 251–285, 2010.

CARRIÈRE-SWALLOW, Y.; DAVID, A.; LEIGH, D. **The macroeconomic effects of fiscal consolidation in emerging economies: evidence from Latin America**. International Monetary Fund. IMF Working Papers, n.142, 2018.

CASTRO, F.; FERNANDEZ, L. **The Effects of Fiscal Shocks on the Exchange Rate in the Spain**. Documentos de Trabajo - Bank of Spain, n.1121, 2011.

CASTRO, F.; HERNANDEZ DE COS, P. The economic effects of fiscal policy: The case of Spain. **Journal of Macroeconomics**, v. 30, n.3, p. 1005-1028, 2008.

ÇEBI, C. **Government Spending Multiplier in Turkey**. Central Bank of the Republic of Turkey (Turkiyes Cumhuriyet Merkez Bankasi) Working Paper, n.15, 2015.

CHRISTIE, T.; RIOJA, F. Government expenditures, financing, and economic growth in Cape Verde. **Journal of Economics and Development Studies**, v. 2, n. 4, p. 01-19, 2014.

CICHON, M.; SCHOLZ, W.; VAN DE MEERENDONK, A.; HAGEMEJER, K.; BERTRANOU, F.; PLAMONDON, P. **Financing social protection**. International Labour Organization, 2004.

CONCEIÇÃO, K. **Como é que as despesas públicas afetam o crescimento económico: o caso de Cabo Verde**. Doctoral Dissertation, ISCTE, 2021.

COUDRET, N. **Fiscal Multipliers in the Netherlands: A Structural VAR Approach**. Master Thesis in Policy Economics. Erasmus School of Economics, 2013.

COUNCIL ECONOMICS ADVISERS. **Estimates of job creation from the American recovery and reinvestment act of 2009**, 2009.

DELEIDI, M.; IAFRATE, F.; LEVRERO, E. Public investment fiscal multipliers: an empirical assessment for European countries. **Structural Change and Economic Dynamics**, v.52, p.354-365, 2019.

DURÁN-VALVERDE, F; PACHECHO, J; HENRIQUES, J. **A Proteção Social em Cabo Verde: situação e desafios.** International Labour Organization, 2012.

DURÁN-VALVERDE, F.; PACHECO-JIMÉNEZ, J.; MUZAFFAR, T.; & ELIZONDO-BARBOZA, H. **Measuring financing gaps in social protection for achieving SDG target 1.3 global estimates and strategies for developing countries.** International Labour Organization, 2019.

DURÁN-VALVERDE, F.; PACHECO-JIMÉNEZ, J.; MUZAFFAR, T.; & ELIZONDO-BARBOZA, H. **Financing gaps in social protection global estimates and strategies for developing countries in light of the COVID-19 crisis and beyond**. International Labour Organization, 2020.

FAO; ECA; AUC. **Africa regional overview of food security and nutrition 2020: Transforming food systems for affordable healthy diets**. Accra, FAO, 2021.

FATAS, A.; MIHOV, I. **The Effects of Fiscal Policy on Consumption and Employment: Theory and Evidence**. Centre for Economic Policy Research (London). CEPR Discussion Paper, n.2760, 2001.

FURCERI, D.; ZDZIENICKA, A. The Effects of Social Spending on Economic Activity: Empirical Evidence from a Panel of OECD Countries. **Fiscal Studies**, v.33, n.1, p.129-152, 2012.

GARCIA, J.; LEMUS, A.; MRKAIC, M. **Fiscal Multipliers in the ECCU**. IMF Working Paper, n.13/117, 2013.

GECHERT, S.; RANNENBERG, A. **Are Fiscal Multipliers Regime-Dependent? A Meta Regression Analysis.** IMK working paper, n.139, 2014.

GECHERT, S.; PAETZ, C.; VILLANUEVA, P. **The Macroeconomic Effects of Social Security Contributions and Benefits – Evidence from Germany**. Macroeconomic Policy Institute (IMK), 2018.

GIORDANO, R.; MOMIGLIANO, S.; NERI, S.; PEROTTI, R. The effects of fiscal policy in Italy: Evidence from a VAR model**. European Journal of Political Economy**, v.23, p.707–733, 2007.

GONGCHENG, Z.; SCHOLZ, W. Global social security and economic development: Retrospect and prospect, **ILO Asia-Pacific Working Paper Series**, Bangkok, International Labour Organization, Geneva, 2019.

GOUGH, I.; WOOD, G.; BARRIENTOS, A.; BEVAN, P.; ROOM, G.; DAVIS, P. **Insecurity and welfare regimes in Asia, Africa and Latin America: Social policy in development contexts**. Cambridge University Press, 2004.

GEBREGZIABHER, F.; NIÑO-ZARAZÚA, M. **Social Spending and Aggregate Welfare in Developing and Transition Economies**. WIDER Working Paper 2014/082, 2014.

GRUDTNER, V.; ARAGON, E. Multiplicador dos gastos do governo em períodos de expansão e recessão: evidências empíricas para o Brasil. **Revista Brasileira de Economia**, v.71, n.3, p.321-345. 2017.

HAILE, F; NIÑO-ZARAZÚA, M. Does Social Spending Improve Welfare in Low-income and Middle-income Countries?. **Journal of International Development**, v. 30, n. 3, p. 367-398, 2018.

HANDAYANI, S.; BUCKLEY, C. (Ed.). **Social assistance and conditional cash transfers: Proceedings of the regional workshop**. Asian Development Bank, 2009.

HOLLMAYR, J.; KUCKUCK, J. **Fiscal multipliers of central, state and local government and of the social security funds in Germany: evidence of a SVAR**. Deutsche Bundesbank Discussion Paper, n.28, 2018.

HUR, S. Measuring the effectiveness of fiscal policy in Korea. **Fiscal Policy and Management in East Asia, NBER-EASE**, 16, University of Chicago Press, pp. 63-93, 2007.

HUSEYIN, S.; KAYA, A. **How large are fiscal multipliers in Turkey?.** ZBW – Deutsche Zentralbibliothek für Wirtschaftswissenschaften, Leibniz Information Centre for Economics, 2017.

ILO. **World Social Protection Report 2014/15: Building economic recovery, inclusive development and social justice**. International Labour Organization, 2014.

ILO. **Developmental impacts of expanding social protection**. International Labour Organization, 2016.

ILO. **World Social Protection Report 2017–19: Universal social protection to achieve the Sustainable Development Goals**. International Labour Organization, 2017.

ILZETZKI, E.; MENDOZA, E.; VEGH, C. How Big (Small?) Are Fiscal Multipliers? **Journal of Monetary Economics**, v.60, p.239–254, 2013.

IZQUIERDO, A.; LAMA, R.; MEDINA, J.; PUIG, J.; RIERA-CRICHTON, D.; VEGH, C.; VULETIN, G. **Is the public investment multiplier higher in developing countries? An empirical investigation**. National Bureau of Economic Research Working paper series, n.26478, 2019.

JEMEC, N.; KASTELEC, A.; DELAKORDA, A. **How do fiscal shocks affect the macroeconomic dynamics in the slovenian economy?.** Delovni Zvezki Banke Slovenije Bank of Slovenia Working Paper, 2013.

KANAZAWA, N. **The public investment multipliers: Evidence from stock returns of narrowly defined industry in Japan**. Discussion Paper Series, Hitotsubashi Institute for Advanced Study, HIAS-E-66, 2018.

KONSTANTINOU, P.; PARTHENIOU, A. The Effects of Government Spending Over the Business Cycle: A Disaggregated Analysis for OECD and Non-OECD Countries. **Quarterly Review of Economics and Finance**, 2019.

KUTTNER, K.; POSEN, A. Fiscal policy effectiveness in Japan. **Journal of the Japanese and International Economies**, 16(4):536–558, 2002.

LOPES, M.; MOLLO, M.; COLBANO, F. Metas de inflação, regra de Taylor e neutralidade da moeda: uma crítica pós-keynesiana. **Revista de Economia Política**, v.32, n.2, p.282-304, 2012.

LOZANO, I.; RODRIGUEZ, K. Assessing the macroeconomic effects of fiscal policy in Colombia. **Journal of Financial Economic Policy**, v.3, n.3, p.206-228, 2011.

MACIEL, P. **Proposta à regra fiscal brasileira: orientação pelos ciclos econômicos**. XI Prêmio do Tesouro Nacional, 2006.

MAHAPHAN, K**. Fiscal policy and macroeconomic variables: The case of Thailand**, Doctoral Dissertation, Lincoln University, New Zealand, 2013.

MATTEO, D.; VINCENZO, D.; MAZZUCATO, M.; AGNOLUCCI. Fiscal Multipliers: a SVAR approach for the US. **Associazione Italiana per la Storia dell'Economia Politica (STOREP)**, 2018.

MENDONÇA, D.; MARÇAL, E.; HOLLAND, M. **Is fiscal policy effective in Brazil? An empirical analysis**. Working paper series, São Paulo School of Economics, 2016.

MERTENS, K.; RAVN, M. A Reconciliation of SVAR and Narrative Estimates of Tax Multipliers. **Journal of Monetary Economics**, v.68, p.S1–S19, 2014.

MIYAMOTO, W.; NGUYEN, T.; SERGEYEV, D. (2018). Government spending multipliers under the zero lower bound: Evidence from Japan**. American Economic Journal: Macroeconomics**, 10(3), 247-77.

ORAIR, R.; SIQUEIRA, F.; GOBETTI, S. **Política fiscal e ciclo econômico: uma análise baseada em multiplicadores do gasto público**. XXI Prêmio do Tesouro Nacional, 2016.

ORTIZ, I.; CHOWDURY, A; DURÁN-VALVERDE, F.; MUZAFFAR, T.; URBAN, S. **Fiscal Space for Social Protection: A Handbook for Assessing Financing Options.** International Labour Organization, 2019.

ORTIZ, I.; CUMMINS, M.; KARUNANETHY, K. **Fiscal space for social protection and the SDGs options to expand social investments in 187 countries**. International Labour Organization, 2015.

ORTIZ, I.; SCHMITT, V.; DE, L. **Social Protection Floors Volume 1: Universal Schemes**. Social Protection Floors, 1. International Labour Organization, 2016.

OSABOHIEN, R.; MATTHEW, O.; OHALETE, P.; OSABUOHIEM, E. Population–Poverty–Inequality Nexus and Social Protection in Africa. **Social Indicators Research**, 151, 575-598, 2020.

PARK, K.; LEE, E. **Identifying Government Spending Shocks and Multipliers in Korea.** Bank of Korea WP 2019-22. 2019.

PEREIRA, A.; SAGALÉS, O. **Long-term effects of fiscal policies in Portugal**. College of William and Mary - Working Paper, n.35, 2009.

PEREIRA, M.; WEMANS, L. Output effects of fiscal policy in Portugal: a Structural VAR approach. Banco de Portugal. **Economic Bulletin**, 2013.

PERES, M. **Os efeitos dinâmicos da política fiscal sobre a atividade econômica: um estudo para o caso brasileiro**. Dissertação de Mestrado – Universidade de Brasília, 2006.

PERES, M.; ELLERY, R. Efeitos dinâmicos dos choques fiscais do governo central no PIB. **Pesquisa e Planejamento Econômico**, v.39, n.2, p.159–206, 2009.

PEROTTI, R. **Estimating the effects of fiscal policy in OECD countries**. IGIER Working Paper, n.276, 2004.

PEROTTI, R. In search of the transmission mechanism of fiscal policy. **NBER Macroeconomics Annual,** v.22, 2007.

PIRES, M. Política fiscal e ciclos econômicos no Brasil. **Economia Aplicada**, v.18, n.1, p.69-90, 2014.

RAMEY, V.; ZUBAIRY, S. Government spending multipliers in good times and in bad: evidence from us historical data. **Journal of Political Economy**, 126(2):850–901, 2018.

REEVES, A.; BASU, S.; MCKEE, M.; MEISSNER, C.; STUCKLER, D. Does investment in the health sector promote or inhibit economic growth? G**lobalization and Health**, v.43, n.9, 2013.

RESENDE, C. **Impulso fiscal: Uma abordagem de multiplicadores fiscais com aplicação para a economia brasileira**. Dissertação de Mestrado. Escola de Economia de São Paulo. Fundação Getulio Vargas, 2019.

RESTREPO, J. **How big are fiscal multipliers in Latin America?** IMF Working Paper, n.17, 2020.

ROMER, C.; ROMER, D. Transfer Payments and the Macroeconomy: The Effects of Social Security Benefit Increases, 1952-1991. **American Economic Journal: Macroeconomics,** v.8, n.4, p.1-42, 2016.

SANCHES, M.; CARVALHO, L. **A contribuição da política fiscal para a crise brasileira recente: uma análise baseada em multiplicadores de despesas primárias do governo central no período 1997-2018**. Working Paper FEA/USP, n.35, 2019.

SARANGI, N.; BONIN, J. **Fiscal policy on public social spending and human development in Arab countries. Economic and Social Commission for Western Asia**. Technical paper, n.13, 2017.

SILVA, R.; CARVALHO, V.; RIBEIRO, A. **How Large are Fiscal Multipliers? A Panel-Data VAR Approach for the Euro Area**. FEP Working Papers, n.500, 2013.

SIMS, C. Macroeconomics and reality. **Econometrica,** n.48, p.1-48, 1980.

SKRBIC, M.; SIMOVIC, H. **The size and determinants of fiscal multipliers in Western Balkans: comparing Croatia, Slovenia and Serbia**. EFZG Working Paper Series, n.15-10, 2015.

SPILIMBERGO, A.; SYMANSKI, S.; SCHINDLER, M. **Fiscal multipliers**. Technical report. IMF Staff Position Note, IMF, 2009.

TANG, H.; LIU, P; CHEUNG, E. Changing impact of fiscal policy on selected ASEAN countries, **Journal of Asian Economics**, vol. 24, pp. 103-116, 2013.

TENHOFEN, J.; WOLFF, G.; HEPPKE-FALK, K. The Macroeconomic Effects of Exogenous Fiscal Policy Shocks in Germany: A Disaggregated SVAR Analysis. **Journal**

of Economics and Statistics (Jahrbuecher fuer Nationaloekonomie und Statistik), v.230, n.3, p.328-355, 2010.

UNECA. **The Poverty and Inequality Nexus in Africa.** United Nations Publication. United Nations Commission for Africa, 2015.

UNESCAP; ILO. **The Protection We Want: Social Outlook for Asia and the Pacific**. United Nations Publication, Bangkok, 2021.

UNITED NATIONS. **Protecção Social em Cabo Verde.** Centro de Informação de Protecção Social (CIPS), Projecto BIT/STEP Portugal. United Nations Mozambique, 2011.

UNITED NATIONS. **SDG Indicator Metadata, Goal 1 - End poverty in all its forms everywhere, Target 1.3**. United Nations, Sustainable Development Goals, 2021.

VALENCIA, F. Fiscal multipliers in Mexico. IMF Mexico Selected Issues**. IMF Country Report**, n.15/314, p.4-9, 2015.

VDOVYCHENKO, A. **How does fiscal policy affect GDP and inflation in Ukraine?** Visnyk of the National Bank of Ukraine, n. 244, p. 25–43, 2018.

WORLD BANK. **Republic of Cabo Verde: Adjusting the Development Model to Revive Growth and Strengthen Social Inclusion**. World Bank Group, 2018.

WORLD BANK. **Revisiting the Efficiency of Public Spending to Reduce Debt and Improve Education and Health Outcomes.** Public Expenditure Review, Republic of Cabo Verde. World Bank Group, 2019.

APPENDIX A – Estimated coefficients and residual analysis

In this Appendix, we present diagnostic tests and estimated coefficients for all VAR specifications explored in this report. It should be mentioned that, in this Appendix, we consider the following typology for statistical significance when reporting the results: **** 1% / *** 5% (two standard-deviation bands) / **10% / *30% (one standard-deviation bands).

1. Total Government Expenditures specification – VAR 1

First specification – "VAR 1": estimated using real Total Government Expenditures, Real GDP, and Tax Revenues for the period 2007-2020. All these series were displayed in 2018 prices using the CPI. Additional variables included: two lags and binary variable "dummy 3". The following table summarizes the estimated coefficients of this SVAR.

TABLE 3 - VAR 1 ESTIMATED COEFFICIENTS

	Government Expenditures	Revenue variable	GDP
Total Government Expenditures (0)			-0.158312
Total Government Expenditures (-1)	-1.0110****	0.1814	0.1096
Total Government Expenditures (-2)	-0.55959****	0.06531	0.02895
Revenue (0)			0.109437
Revenue (-1)	0.143584*	-0.648771****	0.099288
Revenue (-2)	0.046414	-0.412495***	-0.149877*
GDP (-1)	-0.232781*	3.27E-01	-0.472224***

GDP (-2)	-0.126267	0.221099	-0.036647
C	0.030691****	-0.000233	0.000368
Dummy3	-0.118141****	-0.036089	0.007706

(0) Note that it refers to the SVAR's contemporaneous response of GDP to government expenditures and to revenues (if negative, the impact is positive due to matrix algebra).

Regarding the analysis of the residuals of this specification, the outputs below report the White, LM (autocorrelation) and VAR stability tests. Note that we do not reject the null hypothesis of the White's test (with no cross terms), which suggests that the residuals do not feature heteroscedasticity, even though we reject the null hypothesis of the test using cross terms. In addition, note that the LM test suggests that there are no autocorrelation problems in this SVAR model, as we do not reject the null hypothesis in any considered lag. Finally, it is important to emphasize that this model is stable, given that the roots of the characteristic polynomial are smaller than one in absolute value.

White test p-value: 0.03 (with cross terms); 0.1477 (no cross terms).

LM test p-value:

0.1028
0.7136
0.2357
0.2724
0.8893
0.9577
0.2834

VAR Roots (modulus)

0.734634
0.734634
0.485326
0.485326
0.459727
0.459727

2. Social Benefits specification – VAR 2

Second specification – "VAR 2": estimated using real Social Benefits, Real GDP, and Tax Revenues for the period 2007-2020. Again, it is worth indicating that all series were displayed in 2018 prices using the CPI. We included two lags and two binary variables – namely, dummies 1 and 2. The following table reports the estimated SVAR coefficients.

TABLE 4 - VAR 2 ESTIMATED COEFFICIENTS

	Social Expenditure	Revenue variable	GDP
Social Expenditure (0)			-0.011643
Social Expenditure (-1)	-0.4569****	-0.0034	0.069266***
Social Expenditure (-2)	-0.10559	-0.02684	0.067149***
Revenue (0)			0.073933**
Revenue (-1)	-0.184902*	-0.695812****	0.034454
Revenue (-2)	-0.189672*	-1.83E-01*	0.008884
GDP (-1)	0.169323	0.2505	-0.49344****
GDP (-2)	-0.064668	-0.089492	-0.23785****
C	0.019224*	0.00984	0.006155**
Dummy1	0.610922****	0.056451	0.063563***
Dummy2	0.08392	-0.500757****	-0.401071****

(0) It refers to the SVAR's contemporaneous response of GDP to social benefits and to revenues (if negative, the impact is positive due to matrix algebra).

Similarly to the previous case, the outputs below report the White, LM (autocorrelation) and VAR stability tests. Note that we do not reject the null hypothesis of the White's test,

which suggests that the residuals do not feature heteroscedasticity. Besides, note that the LM test suggests that there are no autocorrelation problems in this SVAR model. Finally, it is to be emphasized that this model is stable, as the roots of the characteristic polynomial are smaller than one in absolute value.

White test p-value: 0.298 (with cross terms); 0.996 (no cross terms).

LM test p-values:

0.9597
0.7140
0.1646
0.9521
0.9983
0.5024
0.7168
0.9974

VAR Roots (modulus):

0.561107
0.561107
0.448480
0.448480
0.409756
0.120323