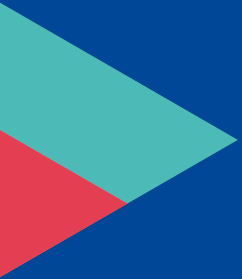International
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► Economic expansion through social investment in Viet Nam

An empirical estimation of fiscal multipliers

Printed in *Viet Nam*

Table of Contents

Acknowledgements

Glossary

Fiscal multiplier

The fiscal multiplier measures the effect that increases in fiscal spending will have on a nation's Gross Domestic Product (GDP). In general, fiscal multipliers are defined as the ratio of a change in GDP to a change in government spending.

Total social policy investment (or Total social expenditures)

This is the total state budget spent on social policies, as defined by Party Resolution No. 15-NQ/TW

Social insurance investment

A subcategory of *Total social policy investment*, including pensions and social insurance benefits, premiums to the voluntary social insurance and supports for the unemployment insurance fund.

Abstract

The report provides empirical estimates for the impact on GDP of investing in social policies and social insurance in Viet Nam, using quarterly data over the period 2005 - 20.

The key finding is that one additional currency unit (Viet Nam dong) of investment in social policies increases real GDP by more than one currency unit (dong).

Specifically, a 1 million dong increase in (a) Investment in social policies and (b) Investment in social insurance leads, at peak (that is after slightly more than a year), to a GDP expansion of 3.2 and 3.5 million dong, respectively.

Furthermore, the report provides estimates that suggest that social policies played an important role in stabilizing GDP in the wake of COVID-19 crisis, in particular through the implementation of Resolution 42/NQ-CP/2020 and Resolution 68/NQ_CP/2021.

The key policy implication is that increasing public investment in social policies – and in particular social protection – can significantly stimulate the economy, while guaranteeing at the same time income security to a larger share of the population.

Introduction

Social protection is a fundamental human right, enshrined in the core United Nations (UN) human rights instruments. In Viet Nam, this is reinforced and reflected in several national legislations, starting with the Constitution, which states that "Citizens have the right to social security." (Article 34).

Since 2012, **Viet Nam has made significant efforts to strengthen its social security system**, including a revision of the Social Insurance Law (2014), the Social Health Insurance Law (2014) and the Law on Employment (2013), bringing the reality of Viet Nam Social Security closer to the principles and ideas of Party Resolution 15-NQ/TW. In more recent years, the Government of Viet Nam has taken further important steps to lay the basis for gradually expanding social protection coverage to eventually cover all citizens across the lifecycle. These intentions are captured in recent reform processes such as the Master Plan on Social Insurance Reform (Resolution 28-NQ/TW) and the Master Plan on Social Assistance Reform and Development (Prime Minister Decision 488/QD-Ttg) and their corresponding action plans.

However, **Viet Nam's public investment in social protection excluding health is still relatively low**, amounting to 4.3 per cent of GDP, which is lower than the average share of 7.5 per cent in the Asia and the Pacific region.[1] Despite the intense developments in the labour market over recent years, the same data source shows that still 68.5 per cent of the employed population can be classified as informal as of 2021 [2].

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1   Source: ILO World Social Protection Database, accessed June 2022.
2   Source: General Statistics Office (GSO), 2021: Overall Situation of Workers in Informal Employment in Viet Nam.

▟▟ The focus of the current report is on the pivotal role of social policies in generating economic growth and development in an inclusive, sustainable and shock-responsive manner.

Investing in social policies plays an important economic role, in particular during recessions, by boosting aggregate demand through increases in household consumption. In addition, it is also an effective instrument in reducing poverty and inequality, thus paving the way for ensuring political stability by reducing social tensions and conflicts. The available evidence in the literature also records the positive impact of cash (or in-kind) transfer programs on human development and productivity by: i) addressing the issue of hunger and providing enhanced nutritional status; ii) reducing the health system's dependence on out-of-pocket payments, which leads to better and more equitable health outcomes; and iii) contributing to better educational attainments and reducing child labour through assistance to families in the form of free tuition, learning materials, school feeding programs, and removing the reliance on children on income-earning and care work.

Income security promotes a significant boost in entrepreneurship and other economic activities associated with higher risks and, therefore, higher economic returns. Social protection generates access to full and productive employment and decent work for all,

including women and young people. Some examples follow:

▶ **Cash transfers, active labour market measures, health insurance, and family support policies**, such as childcare and disability care, encourage greater participation in the labour market, especially by women.

▶ **Unemployment benefits** provide unemployed individuals with time to find suitable (and more productive) jobs and thus help adjustments in the labour force, while acting as an automatic stabilizer for the economy in times of crisis.

▶ **Retirement pensions** play an essential role as a productivity-enhancing mechanism by "buying out" the increasingly unproductive older employees, thereby reducing the productivity gap between older and younger employees, whilst smoothing consumption for the elderly.

Over the past 30 years, following the "Doi Moi", Viet Nam has achieved quite significant economic and social development – transitioning from being one of the poorest nations in the world to a lower middle-income country. According to the World Bank, GDP per capita almost

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tripled between 2002 and 2018, and more than 45 million people were lifted out of poverty.

Given the socio-economic situation described above and the efforts from the Vietnamese government to expand social programmes in the last decades, the following questions naturally arise:

- ▶ Can an increase in government investment in social policies stimulate Viet Nam's economy?

- ▶ Do different categories of social policy investment exert different impacts on economic activity?

- ▶ If the answer to the previous question is positive, which category has the most significant effect on Vietnamese GDP?

This report tries to provide answers to these questions by estimating empirically the impact on GDP of investment in Social Policies in Viet Nam using quarterly data over the period 2005-2020. The key finding is that **one additional currency unit of investment in social policies generates more than one currency unit in expansion of real GDP**. Specifically, a 1 million dong increase in (a) Total social policy investment and (b) Social insurance investment leads, to an accumulated GDP expansion of 1.6 and 1.8 million dong, respectively.

Data

The study uses quarterly data from 2005 to 2020 from two sources: the *General Statistics Office of Viet Nam and The Ministry of Finance of the Socialist Republic of Viet Nam*. It starts with the broader concept of Social Policies, as set forth by Party Resolution 15-NQ/TW (2012), and then investigates the availability of data for each of its subcomponents (*See Figure 1 below*).

**Figure 1: Data availability
for different social policy components**

Total social policy Expenditures

Basic services expenditures

Social security Expenditures

Merit policies expenditures

Social insurance expenditures

Social assistance expenditures

Active labour market policy expenditures
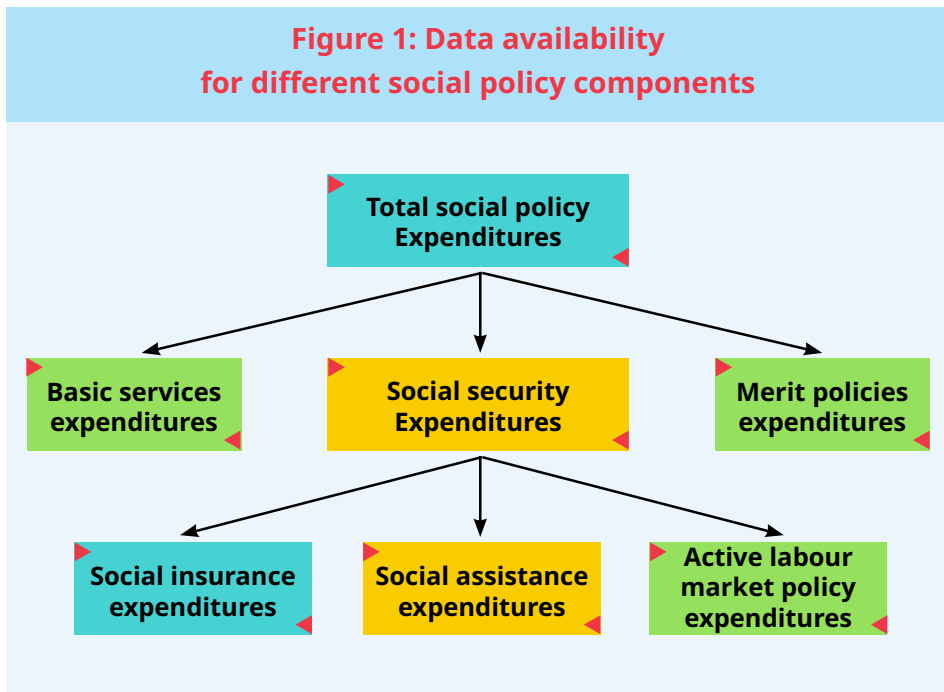
Given the available data for social spending series and the relatively short time span (2005-20), preference has been given to those data variables for which we were able to get more solid and robust estimates – identified **in blue** in the figure above. Other categories of social policy investment, such as social assistance, would be of

significant interest to this study. However, the lack of data consistency and/or availability, made these estimates impossible to be calculated. Therefore, the remaining of this report will focus its analysis on two key areas of Government investment: social policies, and social insurance.

Looking at the historical trends, the data shows a substantial increase in government investment in social policies over the period analyzed. By 2018, this investment reached almost four times the investment level of 2005 (*see Figure 2*).

Figure 2: Investment in social policies in Viet Nam 2005 (in billions of dong in 2010 national prices, seasonally adjusted)
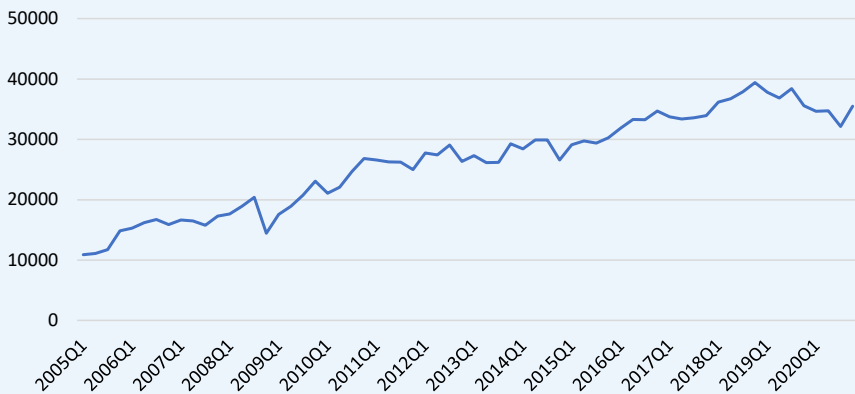
These numbers clearly underline the dedication and commitment of the Party and the Government to increase the support provided to Vietnamese citizens through social policies.

The following sections of this report will estimate how much this commitment has impacted economic growth in Viet Nam since 2005.

The concept of the fiscal multiplier: A useful tool

The effectiveness of fiscal policy is usually measured in the economics literature by the fiscal multiplier. The fiscal multiplier measures how much one currency unit (for example, 1 million dong, in the case of Viet Nam) of an increase in government spending translates into an increase in GDP. If the value of the multiplier is higher than one, then GDP increases by more than the expansion in government spending. In what follows, we will use the concept of the so-called peak multiplier, which informs us about the highest value of the multiplier during the period of analysis.

Since the Global Financial Crisis of 2008, there has been considerable growth in the empirical literature on fiscal multipliers focusing both in the United States and in Europe. Fiscal policy has different effects depending, among others, on: the fiscal instrument used; the persistence of the fiscal expansion; the level of public debt; the source of financing; the implementation delays; the level of inequality; the monetary policy stance; the state of the business cycle; the exchange rate regime; the degree of openness of the economy; or the quality of institutions.

Results: Econometric analysis

We now turn to the presentation of the main findings from the econometric analysis. We aim to shed light on the effects of government investment in social policies and social insurance on GDP. Table 1 summarizes the results for the estimated peak multipliers, using data for the period 2005 - 20.

Table 1: Summary of Estimated fiscal multipliers

Investment category	Peak multiplier: 5th quarter	Statistically significant?
Social policy	3.2	Yes
Social insurance	3.4 - 3.6	Yes

Investment in social policies has a statistically significant and positive impact on the Vietnamese real GDP after one year (specifically, from the fourth to seventh quarter). 1 million dong increase in *Total social policy investment* leads to an expansion of 3.2 million dong in real GDP after slightly more than a year (see the peak multiplier in Table 1). Thus, the results indicate that there can be a substantial boost of economic activity in Viet Nam through an increase in the investment in social policies.

The positive effect of *Social insurance investment* on GDP increases after the first year of the shock, reaching its peak in the fifth period. 1 million dong increase in *Social insurance investment* leads to an

expansion in the range of 3.4 - 3.6 million dong in real GDP after slightly more than a year (see the peak multiplier in Table 1).

This suggests that **increasing subsidization to the social insurance system to support the expanse of its coverage in alignment with the targets of Party Resolution 28 can simultaneously help to boost Viet Nam's economy.**

Figure 3: Impact of investment in social policies in GDP

Investment in social policies: **+1**

GDP growth after 5 quarters: **+3.2**
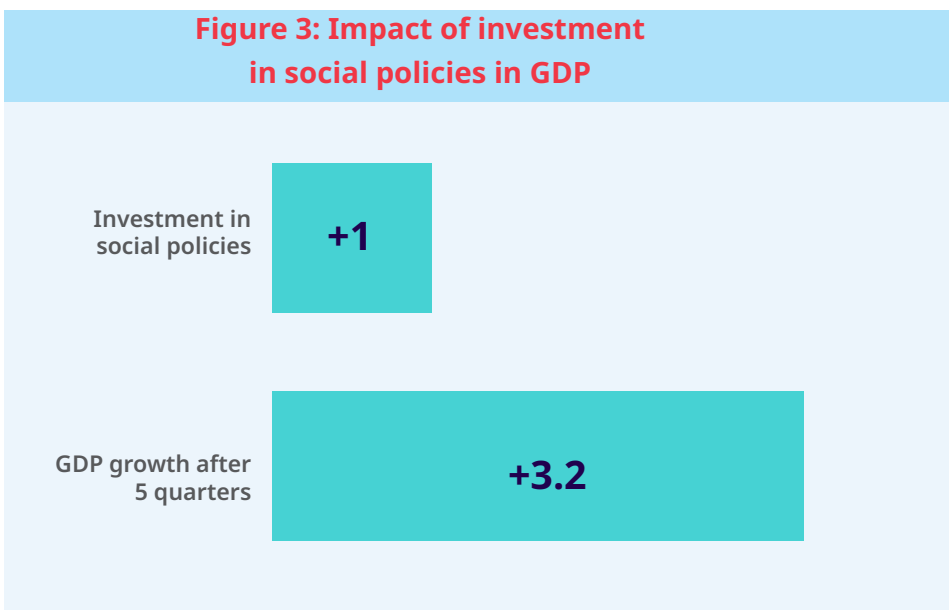
These results offer a rich set of policy conclusions, which can be summarized as follows.

▶ **Investment in social policy positively impacts the level of economic activity in Viet Nam**, in line with the related literature on the impact and effectiveness of fiscal policy in the country (please see details in the full report).

▶ For all subcategories of spending on social policies analyzed, **the fiscal multipliers estimated are all higher than one**, indicating that an additional currency unit of government

investment generates more than one currency unit of increase in GDP in a relatively short period of time (i.e, a bit more than a year).

▶ The estimated multipliers specifically reveal that a 1 million dong investment increase in social policies in general, and social insurance specifically, at peak (that is after slightly more than a year), lead to a GDP expansion of 3.2, and 3.5 million dong, respectively.

▶ In terms of international comparisons, **the above estimates fall within the broad range of magnitudes reported in the empirical literature on fiscal multipliers for social protection**, using a variety of estimation methods and country samples[3].

Therefore, in addition to previous results in the literature which suggest, for example, the fundamental role of investments in research and development, infrastructure, and education, in stimulating economic growth, the findings of the present report stress the positive effects of investment in social policies, with a special emphasis on *social insurance*, for achieving sustainable and inclusive economic development in Viet Nam. They complement previous ILO research that focused on the manufacturing and construction sectors using enterprise census data for all registered firms across the Socialist Republic of Viet Nam's 63 provinces during 2012–16.[4]

The findings in that report suggested that firms which increased social security coverage by 10 per cent experienced a per-worker revenue gain of between 1.2 and 1.5 per cent and a profit gain of up to 0.7 per cent, with exact estimates depending on the survival time of the firm.

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3   *See Table 1 in the full report for details*
4   *See Torm, N., 2019. Social protection among Vietnamese SMEs: Implications for firm perfor-mance, 2012–16 (https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---ilo-ha-noi/documents/publication/wcms_721947.pdf)*

In light of these results, discussions at a broader political level looking at issues related to economic growth/development strategies for countries in general, and Viet Nam in particular, should also consider investments in social protection as part of the key engines of growth. At the micro level, social protection can enhance growth directly and indirectly, through four main channels: (i) preventing the loss of productive capital, (ii) accumulating productive assets and increasing access to labour markets, (iii) increasing innovation and risk taking; and (iv) increasing investment in human capital. At the macro level, social protection can boost growth directly by increasing household productivity and employment, and by stimulating aggregate demand. It can do so indirectly in different ways. It can facilitate economic reform and transformation processes, for instance when it comes to transitions to a greener economy or transitions from informal to formal employment. It can also help, building human capital, contributing to social cohesion and lower inequality, and influencing demographics (through impacts on fertility rates)[5].

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5   For more details, see Mathers, N. and Slater, R., 2014. Social protection and growth: Research synthesis. Australia: Department of Foreign Affairs and Trade Australian Government.

Application to the COVID-19 fiscal package

In response to the global economic recession brought by the COVID-19 pandemic, many (if not most) governments around the world adopted unprecedented fiscal stimuli to avert the most acute impacts of the crisis. In this chapter, we applied to the estimations of the fiscal multiplier in Viet Nam presented in the previous section to estimate the economic impact of some COVID-19 response measures implemented during the period.

For this purpose, we focused on two policy "packages" delivered by the Government of Viet Nam which consisted, mostly, if not completely, of Social Policies: "Package 1" (with a planned budget of 61 billion dong, Resolution 42/NQ-CP/2020 and "Package 2" (close to 14 billion dong, Resolution 68/NQ-CP/2021).

The estimations in this chapter assume that both packages were fully executed, and all funds delivered to the target beneficiaries. Even if that was not the case, the exercise remains relevant, as it still shines light on the potential of social policies to act a stabilizer of economic activity, and increase the resilience of the Vietnamese economy to an exogenous, negative economic shock.

As can be seen in Table A2 of the Appendix, the planned budget of "Package 1" included four main categories of fiscal support: (i) cash transfers, (ii) loans, (iii) suspension in social insurance contribution,

and (v) training support for job retention. The budget of "Package 2" similarly included three main categories of fiscal support: (i) cash transfers, (ii) loans for wage subsidy, and (iii) suspension in social insurance contribution, which includes as a sub-category the "Training for job retention" fiscal support (see Table A3 of the Appendix).

Even though we recognize that multipliers for each of these four types of fiscal assistance may considerably differ and would ideally be estimated separately subject to data availability, we attempt to roughly approximate their economic impact through the available estimates for social policy peak multipliers to give an idea of the possible impact. [6]

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For "Package 1" (61 billion dong), the implied expansion in GDP after 5 quarters ranges from 196 to 294 billion dong, depending on which multiplier is used (namely, for social policies or social insurance). Table A2 includes the implied effects on GDP for each of the four main spending categories as well as the sub-categories of cash transfers.

For "Package 2" (13.8 billion dong), the implied expansion in GDP after 5 quarters ranges from 44.2 to 66.3 billion dong, depending on which multiplier is used. Table A3 includes the implied effects on GDP for each of the three main spending categories as well as their sub-categories.

Table 2: Effects on GDP of COVID packages based on the peak multipliers

	Budget (all policies, billions of dong)	Effects on GDP (billions of dong) after 5 quarters based on peak multipliers	
		Social policies (3.2 multiplier)	Social insurance (3.5 multiplier)
COVID Package 1 - Resolution 42/NQ-CP/2020	61 280	196 096	214 480
COVID Package 2 - Resolution 68/NQ-CP/2021	13 815	44 208	48 352

In a nutshell, the estimates in Table 2 can be seen as GDP losses avoided by the implementation of crisis support measures. The combined effect of the two packages, in case of 100 per cent execution, represented a contribution of almost 4 per cent of total GDP, once again underlining the economic potential of investing in social policies.

Therefore, the COVID-19 measures implemented by the Government of Viet Nam focused on social policies played an important role in mitigating the negative impact of the pandemic in the Vietnamese economy. Furthermore, this is likely to enable the Vietnamese economy to bounce back faster after the pandemic, helping it to return in a quicker fashion to the fast economic growth path observed in the years that preceded the pandemic, which will be of paramount importance to enable Viet Nam to achieve its goals of becoming a Upper Middle Income country by 2030, and a High Income country by 2045.

Conclusions

The report contributes to establishing the case for the importance of public investment on social protection, not only to realize its goal as a human right, but also to promote sustainable, inclusive and sustainable economic growth.

The findings presented pave the way for policymakers and analysts to engage in social dialogue, incorporating all stakeholders involved in building and strengthening social protection systems, to argue in favor of the importance of social protection in successfully yielding sustainable and inclusive economic growth.

The analysis in this report provides empirical evidence that investment in social policies positively impacts the level of economic activity in Viet Nam. For the categories of spending on social policies analyzed, the fiscal multipliers estimated were all higher than one, indicating that an additional currency unit of government investment generates more than one currency unit of increase in GDP in a relatively short period of time (i.e, a bit more than a year).

By applying the multiplier estimates to the COVID-19 fiscal support in Viet Nam, this report shows that the COVID-19 packages deployed by the Government of Viet Nam which focused on social policies helped significantly to stabilize economic activity, and reduced the economy slow down that inevitable came with the arrival of the pandemic. Broadly, this is evidence of the important role social policies, and social insurance in particular, can play in helping countries sustain negative economic shocks, while providing at the same time support to the members of its society in greater need.

The study uses data at quarterly frequency from 2005 to 2020, which is a relatively short time span for econometric analysis. Systematic efforts of data collection and registration should continue, leading in the future to longer datasets, which are more suitable for econometric estimation. Finally, a relevant extension of this research would be to explore the impacts of the social expenditures on the several variables that can somehow capture inclusive social development in Viet Nam. 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, seem to be a promising way forward. Would more uniform data be available, another interesting avenue of future research would be to look at province-level fiscal multipliers. Vietnamese provinces (63) have quite a high degree of autonomy even when it comes to their investment in Social Policy, and thus it would be interesting to see how local multipliers would vary, would such data become available in the future.

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Appendix

▶ Econometric methodology

Most studies that estimate multipliers for government expenditures employ a Structural Vector Autoregressive (or SVAR) approach. The SVAR methodology is appropriate for analysing the effects of fiscal policy because of its consideration of 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 very little or no response of fiscal policy to concomitant unexpected shocks in GDP. In other words, GDP does not affect public spending contemporaneously because policymakers take more time than a quarter (or a month) to perceive the GDP 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 econometric procedure is to estimate the vector autoregression in reduced form. In all the estimations described here, the vector of endogenous variables is three-dimensional, including time series of government expenditures, government revenues, and GDP. In what follows below, we use the terms output and GDP interchangeably. A VAR model, where each variable is explained by lags of itself and the other variables of the model, it able to capture dynamic relationships. Yet, the reduced-form shocks do not have economic significance. 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 (for example, the tax changes in response to a recession); c) random discretionary shocks: structural shocks, which are uncorrelated and unobservable (we need to recover them).

Formally:

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

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

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

where 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. Moreover, e^g, e^t, and e^y are the structural shocks that are not correlated with each other by assumption and reflect the part of the "surprise" movements that is exogenous: it does not depend on policies and "normal" economic evolution. Moreover, 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.

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. To solve this problem, we follow a two-step procedure. First, we start from the identification hypothesis previously discussed ("it typically takes longer than a quarter for discretionary fiscal policy to respond to, say, an output shock"), thus removing component (b) and making the coefficients reflect only

the first component – the response of the automatic stabilizer. The second step is to use external information to the model to estimate the coefficients α_{gy} and α_{ty}. In that regard, we know that α_{gy} reflects the contemporary elasticity of expenditure with respect to output and α_{ty} is the contemporary elasticity of tax 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. 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. Consequently, the hypothesis of identification uses the following elasticity:

$$\alpha_{gy} = 0 \qquad (4)$$

The elasticity of tax revenue with respect to output was estimated based on the "IMF method", which is a regression using dummy variables for periods, outliers, and a trend control. Besides, since u^g and u^t are correlated, from these separate estimations of the exogenous elasticities, we obtain the cyclically adjusted residuals $u^{g,ca}$ and $u^{t,ca}$ – 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:

$$u_t^{g,ca} = u_t^g - \alpha_{gy}u_t^y = \beta_{gt}e_t^t + e_t^g \qquad (5)$$
$$u_t^{t,ca} = u_t^t - \alpha_{ty}u_t^y = \beta_{tg}e_t^g + e_t^t \qquad (6)$$

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, 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 sustain which of the variables will react first. As the correlation between adjusted residuals is small, the order does not change the result. 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). The purpose of this regression is to obtain the estimates of the structural shocks, that is, e^g and e^t. Such shocks are "isolated" from the influence of output because the automatic response component has been removed. It therefore becomes possible to turn the shocks exogenous by removing the (a) and (b) components mentioned above.

Moreover, from Equation (5) it is possible to recover e_t^g and use it to estimate Equation (6) by OLS. We then obtain instrumental variables, the structural shocks e_t^g and e_t^t in Equation (3), since 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 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: 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 its different components.

▶ Calculation of fiscal multipliers

There are four main approaches to calculate expenditure multipliers, namely: 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 max $\frac{\Delta Y(t+n)}{\Delta G(t)}$; iv) the cumulative multiplier, that takes into account the total effect over a longer period of time, given by $\frac{\sum_{i=1}^{n} \Delta Y(t+i)}{\sum_{i=1}^{n} \Delta G(t+i)}$.

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). As the variables are in (natural) logarithmic form, impulse-response functions provide the elasticity of output or income (Y) with respect to the fiscal variable (X):

$$\xi_{Y,X} = \frac{\frac{\Delta Y}{Y}}{\frac{\Delta X}{X}} = \frac{\Delta Y}{Y} \frac{X}{\Delta X} = \frac{\Delta Y}{\Delta X} \frac{X}{Y} \qquad (7)$$

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 thus have the following result:

$$\frac{\Delta Y}{\Delta X} = \frac{\xi_{Y,X}}{\frac{X}{Y}} \qquad (8)$$

▶ Effects of social policy investment on GDP: Full estimation results

Following the first of the SVAR specifications reported earlier, we explore the effects of Total Expenditures on Social Policy shocks on the Vietnamese level of economic activity using data for the period 2005-2020. We included four lags (according to LR lag length criteria), which yielded the best estimations in terms of significance and eliminated heteroscedasticity. The White test did not detect heteroscedasticity, but the LM test detected the presence of autocorrelation in certain lags.

Figure A1 reports the accumulated impulse response function of real GDP to a shock in Total Social Policies Expenditure. Shocks in Total Social Policies Expenditures have a positive impact on the Vietnamese real GDP after the first three periods following the initial shock, while the effects earlier are not statistically significant. The impact of a total social policies expenditure innovation achieves its peak in a bit more than a year after the initial shock (fifth period). While the accumulated responses are not highly statistically significant (5 per cent significance level) – except for the peak effect –, note that the positive responses after the fourth period of analysis are largely statistically significant considering a one standard deviation confidence interval.

Figure A1 - Accumulated response of GDP to a shock in invesment in social policies
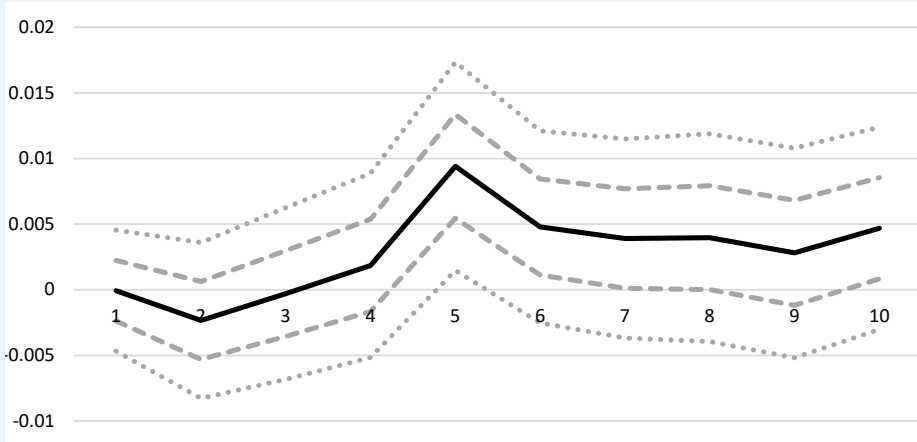
Dotted lines represent a confidence interval of 95% (two standard deviations).
Dashed lines show a confidence interval of 68% (one standard deviation).

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▶ Effects of social insurance investment on GDP: Full estimation results

We estimated two different specifications to capture the effect of social insurance expenditures on Vietnamese output. The following subsections explore the results of each of these estimates.

First specification

In the first specification, we included four lags (according to LR lag length criteria), two binary variables – dummies 2 and 3 -, and the real exchange rate (REER) variable as a control variable, which yielded the best estimations in terms of significance and eliminated serial heteroscedasticity. Figure A2 shows the accumulated impulse-response function of real GDP to a shock in Total Social Insurance Expenditures. The responses of real GDP to shocks in Social Insurance Expenditures are primarily positive, with the exception of the first three periods, but lower than for the previously analyzed expenditures and are also less statistically significant – note that the responses are not statistically significant at the 5 per cent significance level in none of the analyzed periods. However, they are significant after the fourth period considering a one standard deviation confidence interval.

Second specification

This second specification also included four lags (according to LR lag length criteria) and the real exchange rate as a control variable. However, now we took into account other binary variables – namely, dummies 1, 3, 4, 5, 6 –, which, again, yielded the best results in terms of stability and autocorrelation. Figure A3 depicts the accumulated responses of real GDP to a shock in Total Social Insurance Expenditures. Similarly to the previous specification, the output responses are negative for the first three periods after the initial shock, although not statistically significant even considering a one standard deviation

confidence interval. From the fourth period up to two and a half years after the shock, the responses are consistently positive but only statistically significant when considering a one standard deviation confidence interval.

Figure A2 - Accumulated response of GDP to a shock in total social insurance expenditures
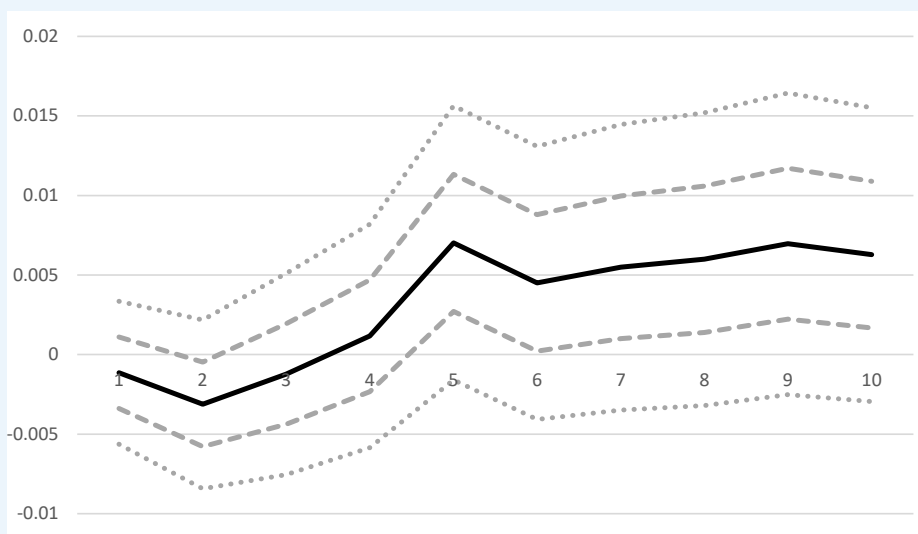
Dotted lines represent a confidence interval of 95% (two standard deviations).
Dashed lines show a confidence interval of 68% (one standard deviation).

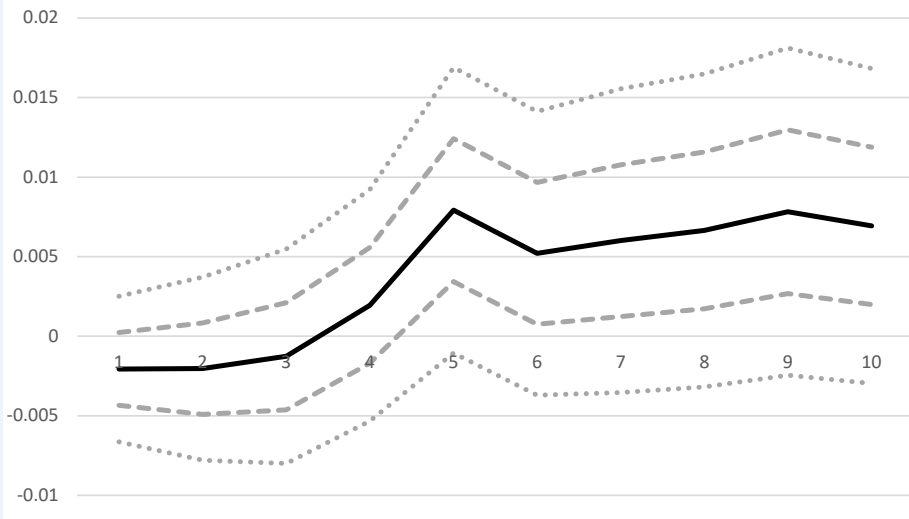## Figure A3 - Accumulated response of GDP to a shock in total social insurance expenditures

Dotted lines represent a confidence interval of 95% (two standard deviations).
Dashed lines show a confidence interval of 68% (one standard deviation).

**Table A2: Effects on GDP of COVID-19 Package 1
(Resolution 42/NQ-CP/2020) based on the peak multipliers**

COVID Package 1 – Resolution 42/ NQ-CP/2020	Effects on GDP (billions of dong) after 5 quarters based on peak multipliers		
Expenditure category	Budget (billions of dong)	Social policies	Social insurance
	Planned	3.2 Multiplier	3.5 Multiplier
All policies	**61 280**	**196 096**	**214 480**
Cash transfers	35 580	113 856	124 530
PP with merits	1 613	5 161	5 645
Social assistance beneficiaries	4 588	14 681	16 057
PP in poor and near poor HHs	6 161	19 715	21 563
Workers in informal economy with job lost	18 000	57 600	63 000
Household business with Revenue below dong 100 million/month	614	1 965	2 149
Loans	**16 200**	**51 840**	**56 700**
Suspension in SI contribution	**6 500**	**20 800**	**22 750**
Training supports for job retention	**3 000**	**9 600**	**10 500**

Table A3: Effects on GDP of COVID-19 Package 2 (R68/2021) based on the peak multipliers

COVID Package 2 - Resolution 68/2021			Effects on GDP (billions of dong) based on peak multipliers	
TT	Expenditure category	Budget (billions of dong)	Social policies	Social insurance
			3.2 Multiplier	3.5 Multiplier
	All policies	**13 815**	**44 208**	**48 352**
	Contribution suspension	**5 051**	**16 163**	**17 679**
1	Reduce contribution to EII fund	4 255	13 617	14 894
2	Suspension contribution to pension and survivor fund	796	2 546	2 785
3	Training for job retention	0	0	0
	Cash transfers	**8 401**	**26 882**	**29 402**
4	Cash transfer for those suffered from contact suspension	698	2 232	2 441

COVID Package 2 - Resolution 68/2021			Effects on GDP (billions of dong) based on peak multipliers		
TT	Expenditure category	Budget (billions of dong)	Social policies	Social insurance
			3.2 Multiplier	3.5 Multiplier
5	Cash transfer for workers with job suspended	64	205	224
6	Cash transfer for workers with job lost	2	6	6
7.1	Policies for pregnant workers	0	0	0
7.2	Policies for workers' 0-6 children	0	0	0
7.3	Policies for positive (F0) and exposed (F1) children	11	34	37
8	Food allowance for F0 and F1 (quarantined)	260	832	910
9.1	Policies for artists	5	15	16
9.2	Policies for tourist guide	13	43	47

COVID Package 2 - Resolution 68/2021			Effects on GDP (billions of dong) based on peak multipliers	
TT	Expenditure category	Budget (billions of dong)	Social policies	Social insurance
			3.2 Multiplier	3.5 Multiplier
10	Support household business	266	852	932
11	Policies for informal economy workers	7 082	22 664	24 789
	Loans	**363**	**1 162**	**1 271**
12.1	Loans for wage subsidy due to production suspension	110	354	387
12.2	Loans for wage subsidy for production recovery	246	788	862
12.3	Loans for wage subsidy for firms working in transportation, tourism, sending Vietnamese workers abroad	6	21	23

Economic expansion through social investment in Viet Nam

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