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Effective Fiscal Policy in an Aging Economy

EVIDENCE FROM A BVAR ANALYSIS

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Abstract

As people age, their consumption and saving behavior tends to change. At the same time, the share of age-related public spending increases, leaving less resources for fiscal stimulus, especially if public debt ratio is already high. Using Finnish data in a Bayesian VAR model, we show that the composition of public spending matters for the effectiveness of fiscal stimulus in an aging economy. Our results suggest that increasing social transfers targeted mostly to the elderly boosts the economy less than increasing consumption expenditure that financially benefits the working aged population. This is due to a different saving and consumption behavior of the population group benefitting from the fiscal impulse. The results imply that in an aging economy targeting fiscal measures becomes more important than ever.

Tiivistelmä

Tehokas finanssipolitiikka ikääntyvässä taloudessa

Väestön ikääntyessä säästämis- ja kulutustottumukset tyypillisesti muuttuvat. Samalla väestön ikääntyminen kasvattaa ikäsidonnaisia julkisia menoja kaventaen finanssipoliittista liikkumavaraa erityisesti, jos julkinen talous on jo valmiiksi velkaantunut. Tämä tutkimus osoittaa suomalaisella aineistolla ja bayesiläisellä vektoriautoregressiivisellä mallilla, että julkisten menojen rakenne vaikuttaa finanssipolitiikan tehokkuuteen ikääntyvässä taloudessa. Tulokset viittaavat siihen, että ikääntyneille kohdistetut tulonsiirrot lisäävät talouden aktiviteettia vähemmän kuin julkiset kulutusmenot, jotka rahallisesti hyödyttävät työikäistä väestöä. Syynä ovat eri menolajeista rahallisesti hyötyvien väestöryhmien väliset erot säästämisessä ja kulutuksessa. Tulos merkitsee sitä, että finanssipoliittisten toimien kohdentaminen ikääntyvässä taloudessa on entistä tärkeämpää.

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Keywords: Population aging, Fiscal policy, Bayesian structural vector autoregressions

Asiasanat: Väestön ikääntyminen, Finanssipolitiikka, Bayesiläinen rakenteellinen vektoriautoregressiivinen malli

JEL: E62, H30, J10, C11

1 Introduction

As people age, their consumption and saving behavior tends to change. While economic theory predicts that workers save for retirement, in many European countries with generous public pension systems and old-age services, it is the retired who save well beyond retirement (Horioka and Ventura 2022).

Not only does spending behavior change with aging but also the source of income becomes less dependent on the business cycle. A worker losing her job in a downturn may be forced to cut spending, whereas public pensions - and hence pensioners' consumption - are unlikely to be affected by booms and busts. In aging economies, where the share of the working-age population shrinks while the share of old-age population increases, consumption may hence become less sensitive to the business cycle.

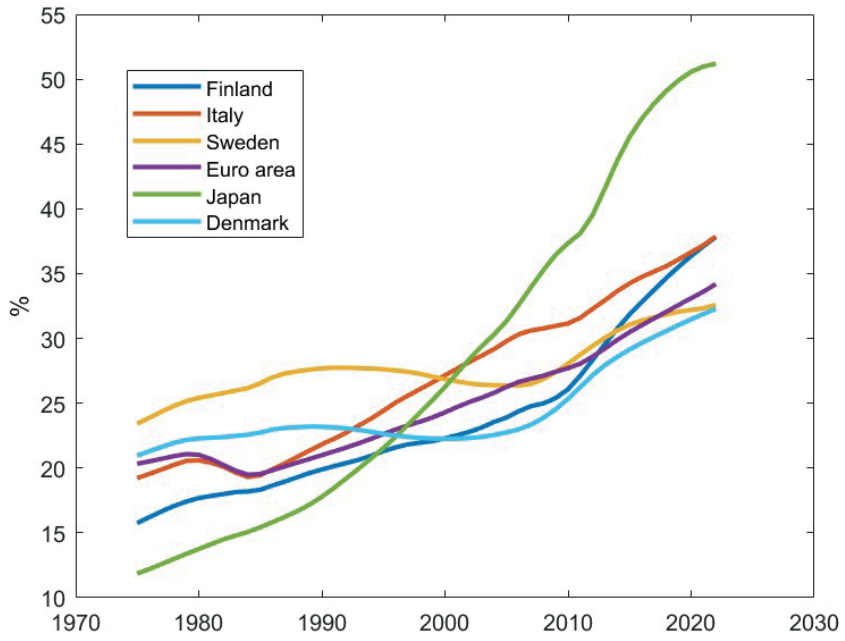
The life-cycle pattern in economic activities has implications for policy makers aiming to use fiscal policy to smooth out the business cycle. With an aging population, whose consumption is less dependent on the state of the business cycle, and accumulated wealth is saved rather than consumed, it may become harder to increase aggregate consumption to stimulate the economy. In brief, fiscal policy may become less effective.

There is only limited empirical evidence on whether and through which mechanisms fiscal policy effectiveness might weaken due to an aging population. To understand how demographics affect fiscal policy, researchers have analyzed a sample of economies with differing demographic structures (see Section 2 for references). Countries are typically divided into groups based on the aging state of the economy and then analyzed with panel VAR methods. All these studies provide evidence of weakening fiscal policy effectiveness in an aging economy.

A problem with panel methods is that the results are averages across countries. Although fiscal policy effectiveness is found to be lower in aging economies compared to non-aging ones on average, societies differ in certain aspects that are relevant for the phenomenon. First, economies are aging at varying paces; Japan, Italy and Finland, for example, are aging faster than Sweden, Denmark or the euro area on average (see Figure 1) although they can all be characterized as aging economies. There is no clear-cut threshold after which the impact of aging kicks in so that the division of countries into aging and non-aging is somewhat arbitrary. Second, public pension systems and the role of private saving

for retirement differ across countries, as do the incentives to save. Although being all welfare states, even the Nordic countries have differing pension systems, saving rates as well as demographics. Finland is aging way faster than its Nordic peers. All this means that, ideally, the effectiveness of national policies is assessed on a country basis.

Figure 1: Old-age dependency ratios



Source: World Bank

The topic is highly relevant for aging European economies and for practical policy making. If fiscal policy loses its effectiveness in stimulating the economy, alternative tools of economic policy need to be considered to stabilize the economy. Further research-based evidence and country-specific results are needed for plausible policy recommendations.

This paper analyzes the effectiveness of fiscal policy in Finland in 1999-2022 with a Bayesian vector autoregression. Instead of assessing fiscal policy effectiveness at different stages of aging we opt for an alternative approach. The time span covers a period during which Finland can plausibly be regarded as an aging economy. We then exploit the observation that, broadly speaking, different categories of government spending *financially* benefit different societal groups. This allows us to focus on the mechanism through saving and private consumption; namely: to what extent is the life-cycle pattern in saving and

consumption a key driver of the weakening fiscal policy effectiveness in an aging economy?

In line with the changing consumption and saving behavior described above, we find that fiscal stimulus financially benefitting the working aged (government consumption[1]) is more effective than one targeted mostly to the elderly (fiscal transfers[2]), and the reason being that the fiscal stimulus in the form of transfers is more likely saved than consumed.

Aging already puts pressure on transfers and social and health care spending, reducing the fiscal space available for expansionary policies especially when public debt is elevated. Therefore, our policy implication is not that the amount of fiscal stimulus should be increased to improve its effectiveness. Rather, the results call for a better targeted fiscal stimulus to stabilize the business cycle efficiently.

The paper is structured as follows. Section 2 provides an overview on the related literature. Section 3 explains the methodology and the data. Section 4 presents and discusses the results. Section 5 concludes.

2 Literature

Population aging changes the macroeconomic environment. According to empirical research, monetary policy is more effective when the share of the working age population is large (Leahy and Thapar 2019), while it starts to lose its effectiveness as the share of the elderly increases (Imam 2015). In an economy with a shrinking working age population and weakening monetary policy effectiveness, the role of fiscal policy in stabilizing the economy becomes more important.

However, recent research suggests that fiscal policy also loses its effectiveness when the share of elderly people rises compared to the working age population (Honda and Miyamoto 2020, 2021; Basso and Rachedi 2021; Miyamoto and Yoshino 2022). Honda and Miyamoto (2020, 2021) present empirical evidence for 17 OECD countries, incl. Finland, showing that the output-boosting effect of fiscal stimulus weakens as population aging proceeds. Specifically, the fiscal multiplier is found to be lower in aging economies compared to non-aging

[1] This is because government consumption expenditure to a large extent consists of salaries
[2] Transfers are mostly pensions.

economies, with public indebtedness further lowering it. Miyamoto and Yoshino (2022) present similar results for a panel of OECD countries, while Basso and Rashedi (2021) find that local fiscal multipliers across U.S. states increase with the share of young people in the population. Morita (2022) documents similar results for the Japanese prefectures.

The results imply that more public money needs to be spent to obtain the same amount of output stabilization in a downturn, unless measures to promote labor supply are implemented (Honda and Miyamoto 2021). As to the mechanism, the studies (Honda and Miyamoto 2020, 2021; Miyamoto and Yoshino 2022) find that private consumption is irresponsive to fiscal stimulus in aging economies, suggesting that aging amplifies Ricardian effects. In other words, older people would rather save. This is consistent with the finding that demand is stronger in an economy with relatively more young households because of their higher marginal propensity to consume (Basso and Rashedi 2021).

Theoretical studies have long predicted that demographics affect saving in the economy. A theory known as the life cycle hypothesis of consumption states that households save while working and dis-save during their retirement so that private saving in the economy depends on the relative size of the working cohort (Hassan et al. 2011). Increasing life expectancy is found to additionally increase saving so that consumption during a longer retirement period can be financed (Bloom, Canning and Graham 2003). However, empirics have been at odds with theoretical predictions as many older households have been observed to continue saving well past retirement age (Hassan et al. 2011).

The tendency of the retired elderly to not decumulate their wealth or to decumulate their wealth more slowly than expected - the Wealth Decumulation (or Retirement Saving) Puzzle - has been explained by bequest motives, concern over health condition at the old age or over sudden changes in the wealth level, and the possibility of living past one's life expectancy (Hassan et al. 2011). Later studies have shown that a public pension system and social security system providing services for the elderly effectively decrease households' life-cycle and precautionary saving (Rachel ja Summers 2019), resulting in a higher marginal propensity to consume for the working aged.

Horioka and Ventura (2022) have recently shown that the Puzzle also applies in the case of Europe. The authors report bequest motives, generous public pension systems, and the reluctance of retired elderly homeowners to sell or borrow

against their owner-occupied housing as explanations. Rohwedder (2022) adds that part of the spending decline is caused by lower enjoyment of activities with declining health. Mäki-Fränti (2022) finds that the Puzzle applies to Finnish households, which continue to save after retirement instead of dissolving their savings. As the share of elderly population continues to rise, he envisages that Finland's aggregate saving rate will rise until 2040.

Population aging is associated with increased saving in the economy to the extent that it has been linked to a global savings glut (Kopecky and Taylor 2022). The fact that age correlates with marginal propensity to consume (MPC) has important implications for the size of the multiplier (Kopecky 2022). The more households save, the less efficient is fiscal stimulus. This is in line with Brianca et al. (2016) who show that the number of liquidity constraint households and companies in the economy is an important channel through which fiscal policy affects economic activity. In the presence of liquidity contraints, the marginal propensity to consume increases, resulting in a higher fiscal multiplier.

Fiscal multipliers are therefore highly sensitive to the fraction of the population facing binding credit constraints, and explains why fiscal multipliers are lower in a country with low wealth inequality like Finland compared to the U.S. (Brianca et al. 2016). Simialrly, Guo et al. (2023) employ data for 20 European countries and provide evidence for a higher ratio of hand-to-mouth households enhancing fiscal multipliers.

This finding is also important for the effectiveness of fiscal stimulus in an aging economy because a worker losing her job in a downturn may be forced to cut spending, while pensioners' source of income is less dependent on the business cycle. As the old-age dependency ratio rises, it might be crucial to supplement the income of the working aged to stabilize the economy in a downturn.

3 Data and methodology

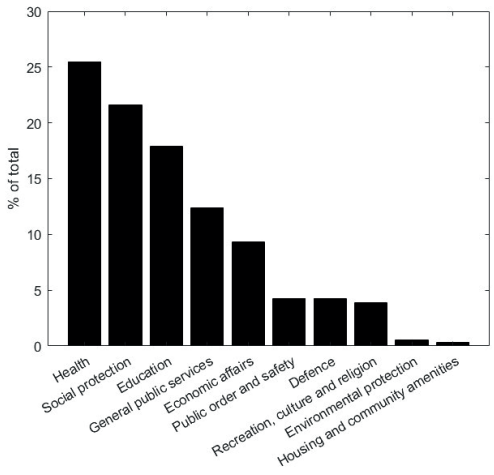
3.1 Dataset

The effectiveness of fiscal stimulus has previously been found to depend on a number of factors such as the state of the business cycle (Ramey and Zubairy 2018, Caggiano et al. 2015, Gorodnichenko et al. 2012), trade openness, exchange rate regime, public debt level (Ilzetzki et al. 2013), the size of automatic

stabilizers (Dolls et al. 2012), labour market rigidity (Gorodnichenko et al. 2012), monetary policy (Cloyne et al. 2020) and fiscal foresight (Leeper et al. 2013) meaning that fiscal multipliers change according to time and place (Brinca et al. 2014).[3]

However, the exact form of fiscal stimulus is not taken into account to the same extent (Oh and Reis 2012). Although public finances in the OECD countries have been dominated by increases in transfers, most of empirical research has focussed on government purchases, i.e. consumption and investment, resulting in a disconnect between the real-world motivation to study the implications of government fiscal spending for business cycle dynamics and the research that has sprung from it (Oh and Reis 2012).

Figure 2: General government consumption by function in 2022 in Finland

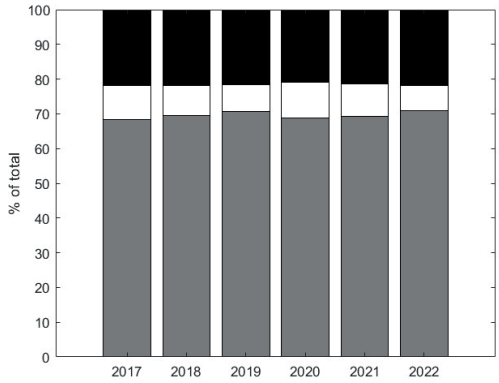


The distinction between different categories of government spending is crucial for the present analysis. To examine whether changing saving behavior has an impact on the effectiveness of fiscal stimulus, we exploit the fact that different categories of public spending *financially* benefit different population subgroups. Consisting mostly of services provided to citizens such as education, social and health care rather than physical goods, government consumption mainly consists of salaries (see Figure 2). Although the users of these services are mostly outside the workforce in Finland, the workers receiving the salary are the ones financially benefitting from the provision of these services. Hence, consumption is used as a proxy for expenditure *financially* benefitting the working aged. Social transfers,

[3] As to the state dependent multipliers, Cloyne et al. (2020) call for rurther identification assumptions to capture exogenous variation in the states themselves. Without it, state dependent impulse responses cannot be causally interpreted.

on the other hand, are mainly pensions (see Figure 3) and hence used as a proxy for expenditure *financially* benefitting the elderly population. Therefore, two different categories of government expenditure are alternately used in the VAR: general government consumption expenditure and social transfers.

Figure 3: Social transfers by function in 2017-2022 in Finland

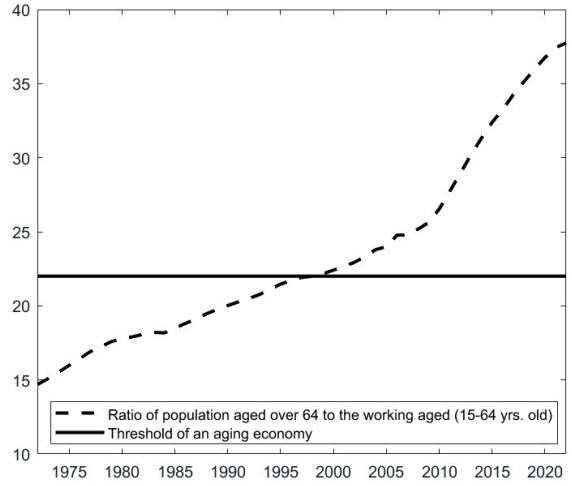


Notes: The grey bars are pensions, white bars are unemployment benefits and the black bars are other transfers.

In the baseline analysis we use quarterly data for Finland in a four variable VAR $\mathbf{y}_t = (G_t, s_t, Y_t, T_t)'$ where G_t denotes either real (general) government consumption or social transfers, s_t the saving rate, Y_t real GDP, and T_t is real (general) government revenue. To check the robustness of the results, we use real private consumption C instead of the saving rate. To compute G, T and C, we apply the GDP deflator to the seasonally adjusted nominal counterparts of G, T and C. Similarly to Caggiano et al. (2015), among others, government revenue T is defined as revenue net of transfers. The source of all data is Statistics Finland.

As shown in Figure 4, Finland's old-age dependency ratio, defined as the ratio of people 65 and older to those between 15 and 64 years old, has been above 22% since 1999, and the share of elderly has continued to rise ever since. Although the impact of aging is unlikely to kick in after a fixed threshold, this roughly corresponds to the threshold of aging used by Honda and Miyamoto (2020, 2021), and after which fiscal policy effectiveness is found to weaken. The chosen time span therefore covers a period during which Finland can plausibly be regarded as an aging economy. This allows us to focus on the mehanism through which aging potentially weakens the effectiveness of fiscal stimulus.

Figure 4: Finland's old age dependency ratio in 1972-2022



3.2 Model set-up

The structural VAR(p) model is of the form

$$y_t = c + \sum_{j=1}^{p} y_{t-j} A_j + B\varepsilon_t \tag{1}$$

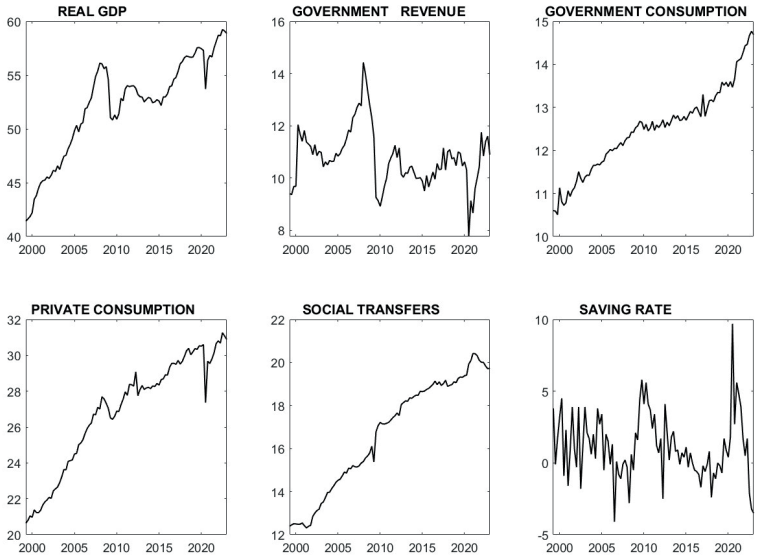
where y_t is a $N \times 1$ vector of endogenous variables, c is a $N \times 1$ vector of constant terms, A_j's $(j = 1, ..., p)$ are $N \times N$ coefficient matrices, ε_t is the $N \times 1$ vector of *iid* structural shocks and the structural impact matrix B is such that $BB' = \Sigma$, where Σ is the variance of the reduced form residuals.

The BVAR model in (1) is estimated by performing a Gibbs algorithm to obtain the parameters c, B, Σ. The lag length p is set to 2.[4]

We employ a Minnesota prior for the VAR coefficients incorporating the belief that the variables follow a random walk suitable for the data at hand (see Figure 5). That is, the prior for the VAR coefficients a is normal and given by $p(a) \sim N(\tilde{a_0}, H)$ with $\tilde{a_0} = vec(A_0)$ and A_0 is an $(N \times p + 1) \times N$ matrix with elements $a_{i+1,i} = 1$ for $i = 1, ..., N$. The variance of the prior H is given by the

[4] For a reduced form VAR, the HQ criterion selects VAR(3), while the BIC selects VAR(1). According to the adjusted portmanteau test there is autocorrelation left in the VAR(1) model (p-value = 0.04, while a p-value of 0.2 for VAR(2) suggests that a second order model is sufficient. As a robustness check, the VAR model was estimated with p=1 and p=3 as well and the results are qualitatively the same as those reported in Section 4.

Figure 5: Plot of time series 1999Q1-2022Q4 for Finland



Notes: All series (excl. the saving rate) are expressed in real temrs. Source of all data is Statistics Finland.

following relations $H = \left\{ \begin{array}{ccc} \frac{\lambda_1}{l^{\lambda_3}} & if & i = j \\ \frac{(\sigma_1 \lambda_4)}{(\sigma_j l^{\lambda_3})} & if & i \neq j \\ \sigma_1 \lambda_4 & for & the\ constant \end{array} \right\}$.

Under the strict form of the Minnesota prior, the covariance matrix of the residuals Σ is fixed and diagonal, while it is common among practitioners to relax this assumption and draw Σ from the inverse Wishart distribution so that $p(\Sigma) \sim IW(\bar{S}, \alpha)$ with prior scale matrix $\bar{S}$ and prior degrees of freedom α. We specify the prior scale matrix of the inverse Wishart distribution $\bar{S}$ as an identity matrix and the prior degrees of freedom α to 3*10^10. The values of the hyperparameters controlling the priors, λ's , are set to λ_1=0.5, λ_2= 0.2, λ_3 = 2, λ_4=10.

The Gibbs sampler then involves the following steps.

1) Sample the VAR parameters $a = \{c, A\}$ from the their conditional posterior distributions. The posterior distribution of a is given by

$$H(a \Big| \Sigma, Y_t) \sim N(M^*, V^*) \tag{2}$$

where $M^* = (H^{-1} + \Sigma^{-1} \otimes X_t' X_t)^{-1}(H^{-1}\tilde{a_0} + \Sigma^{-1} \otimes X_t' X_t \hat{a})$ and V* $= (H^{-1} + \Sigma^{-1} \otimes X_t' X_t)^{-1}$, with $\hat{a} = vec((X_t' X_t)^{-1}(X_t' Y_t))$ denoting the OLS estimates of

the VAR coefficients in vectorised format, $\tilde{a_0}$ is as stated above and the OLS estimate of Σ is used as a starting value for Σ.

2) Given a, draw Σ from its conditional posterior distribution

$$H(\Sigma \Big| a, Y_t) \sim IW(\bar{\Sigma}, T + \alpha) \tag{3}$$

where $\bar{\Sigma} = \bar{S} + (Y_t - X_t A^1)'(Y_t - X_t A^1)$ and A^1 is the previous draw of the VAR coefficients reshaped into a matrix with dimensions $(N \times p + 1) \times N$.[5]

The results are based on a sample of 40 000 draws after a burn-in of 30 000 iterations. Structural shocks are identified with Cholesky decomposition. The ordering of the variables in $\mathbf{y}_t = (G_t, s_t, Y_t, T_t)'$ means that shocks in saving, output and government revenue have no contemporaneous effect on government spending. This is in line with Blanchard and Perotti (2002), who argued that the government may be unable to quickly adjust its spending in response to changes in fiscal and macroeconomic conditions.

4 Results

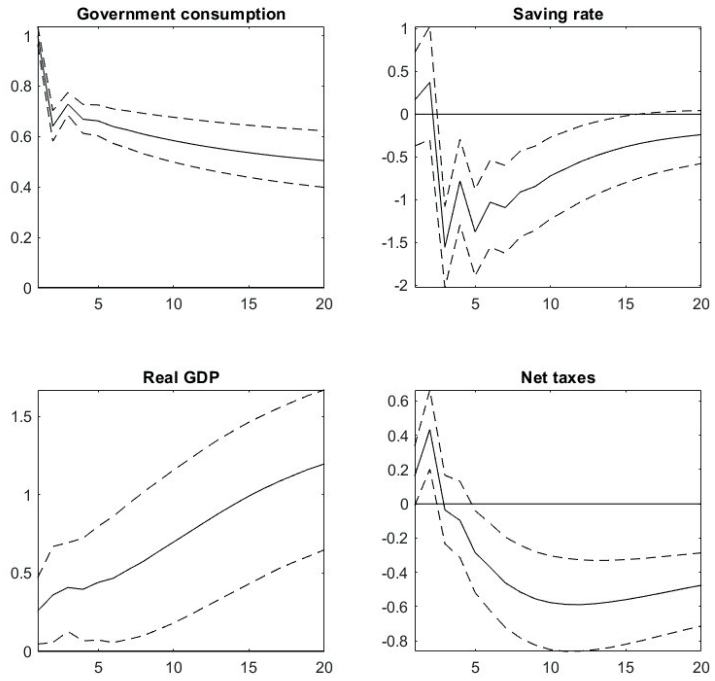
The impulse responses to general government consumption and social transfer shocks of size one are presented in Figures 6 and 7, respectively. The horizontal axes measure quarters after the shock, which occurs at time 0, while the vertical axes measure the response of each variable in billions of euros. The solid line is the median and the dashed lines around the median denote the 68% credible sets. To facilitate comparison, the impulse response functions are scaled so that government expenditure increases by one billion euros on impact.

Figure 6 shows that an expansionary government consumption shock has a positive effect on real GDP while the response of net revenue is first positive but turns quickly to negative. Interestingly, the response of the saving rate is negative. As expected with non-stationary data in levels, a one-off spending shock results in a permanent increase in spending.

It can be seen from Figure 7 that an expansionary social transfers shock results in a similar pattern for social transfers as for government consumption in Figure

[5] In practice, to draw $\hat{\Sigma}$ from the IW distribution with v degrees of freedom and a scale parameter S, we draw a matrix Z with dimensions $v \times N$ from the multivariate normal $N(0, S^{-1})$ and then obtain $\hat{\Sigma}$ from the following transformation $\hat{\Sigma} = \left(\sum_{i=1}^{v} Z_i Z_i'\right)^{-1}$.

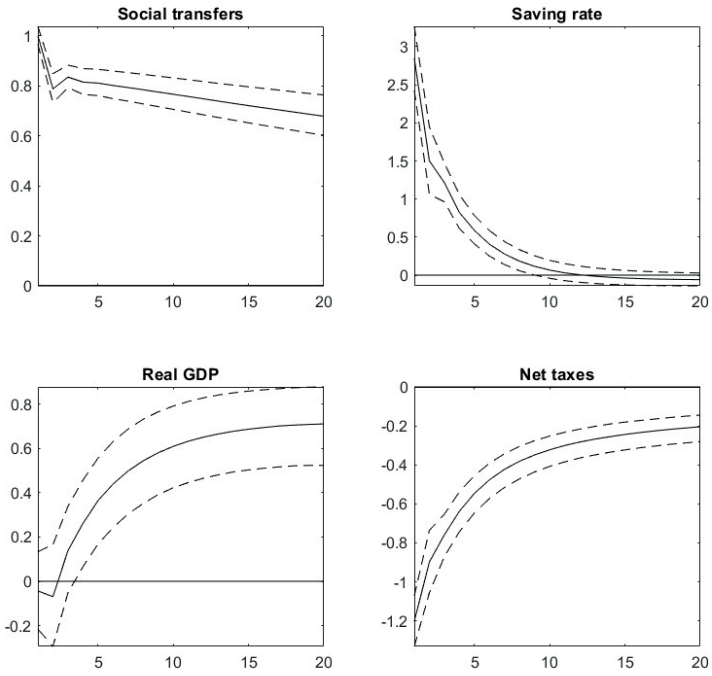
Figure 6: Impulse response functions to a government consumption shock



Notes: The solid line is the posterior median and the dashed lines are the 16th and 84th percentiles of the posterior probability. Model is a VAR(2) including a constant. The estimation period is 1999:Q1-2022:Q4.

6. Nonetheless, the response of real GDP is not as strong, and the response of net revenue is negative already on impact. Most importantly, the response of the variable of interest for the mechanism under study, the saving rate, is of the opposite sign.

Figure 7: Impulse response functions to a social transfer shock



Notes: See notes in Figure 6.

The positive response of the saving rate to an expansionary shock in social transfers and a negative response to an expansionary shock in government consumption is in line with the conjecture that the effectiveness of fiscal stimulus is different for public spending financially benefitting mostly the elderly or the working aged.

To shed more light on the impact of fiscal stimulus by the two alternative spending categories, we follow Ramey and Zubairy (2018) and compute cumulative fiscal multipliers as

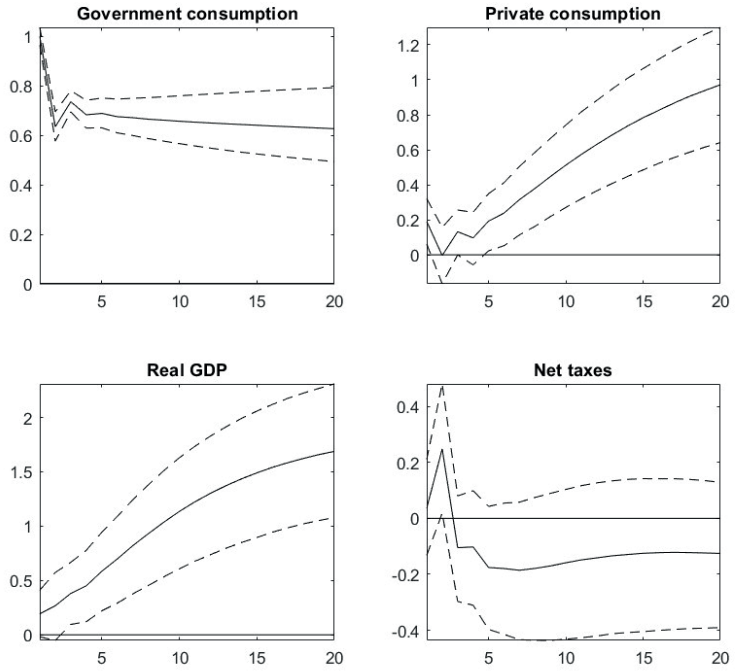
$$\frac{\sum_{i=0}^{H} Y_i}{\sum_{i=0}^{H} G_i} \tag{4}$$

Here, $\sum_{i=0}^{H} Y_i$ is the cumulative response of the GDP variable from impact to $H = 20$ and $\sum_{i=0}^{H} G_i$ is the cumulative response of the government spending variable, i.e. either government consumption or social transfers from impact to $H = 20$.

Overall, fiscal multipliers are heavily dependent on time and multiple factors not

considered here[6] and even small changes in the method of calculation can make a very big difference in the resulting multipliers (Ramey 2011). In the present analysis they are simply used to summarize and compare the effectiveness of two different kinds of fiscal stimulus. While the cumulative multiplier for government consumption reaches a value of 1.3, the multiplier for social transfers is lower at 0.7, confirming what could be inferred from the impulse response functions above.

Figure 8: Robustness check - impulse response functions to government consumption shock

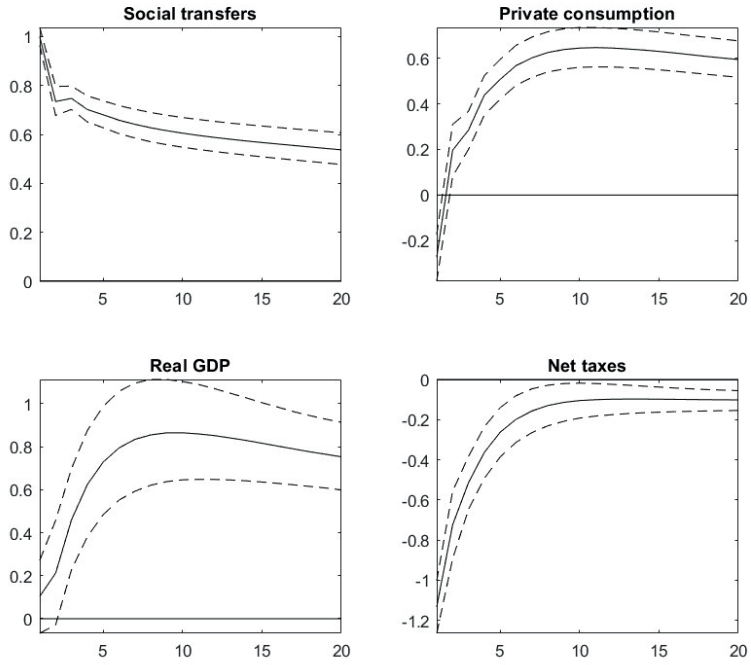


Notes: See notes in Figure 6.

To check the robustness of our results, we repeat the analysis using private consumption instead of the saving rate. The impulse response functions shown in Figures 8 and 9 show a similar pattern: while the responses of government consumption and social transfers are similar in magnitude, real GDP increases by less as a response to a social transfer shock than to a government consumption

[6]Ilzetzki et al. (2013) show a number of dimensions by which fiscal multipliers are dependent on country characteristics other than the business cycle. As to fiscal foresight, which is typically accounted for with a forward-looking fiscal variable, we believe that it is more likely to change the magnitude of the multipliers than their respective order. Furthermore, studies using news about future military spending as the identified fiscal shock as in Ramey and Zubairy (2018) are not informative about important classes of government spending such as transfers considered here.

Figure 9: Robustness check - impulse response functions to a social transfers shock



Notes: See notes in Figure 6.

shock. And again, in the first case net revenue is clearly negative, while its response is insignificant in the latter. Although positive in both cases, the response of private consumption is visibly stronger to a government consumption shock than to a social transfer shock. To better summarize and compare the results, we compute the cumulative multipliers as above. While both multipliers are somewhat higher (1.4 and 1.0), the multiplier for government consumption is again higher than that for social transfers.

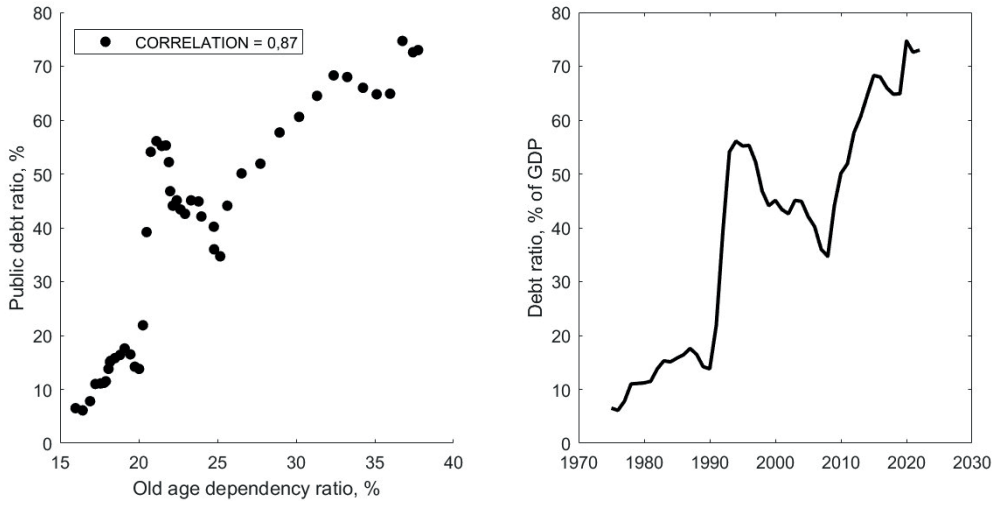
A caveat of the analysis is the use of social transfers instead of data on pensions that are unavailable at a quarterly fequency. However, as show in Figure 3, 70 percent of social transfers are pensions while the rest are unemployment, sickness, housing and childcare benefits, the receivers of which are likely to be hand-to-mouth consumers with a high marginal propensity to consume. Hence, the inclusion of these is more likely to overestimate the impact and multipliers compared to results obtained with mere pensions given pensioners' lower marginal propensity to consume.

To summarize, unlike reported by Miyamoto and Yoshino (2022) for a group of aging economies, we find statistically significant output responses of a govern-

ment spending shock in aging Finland. There is evidence of the output effect being somewhat weaker for social transfers mostly targeted to the elderly than for government consumption, as an increase in transfers results in higher saving.

The results suggest that the working aged decrease their saving as a result of the fiscal stimulus. This is in line with Rachel ja Summers (2019) who find that a public pension and social security system providing services and income for the elderly decreases households' life-cycle and precautionary saving since the existence of tax-funded services decreases both the need and disposable income available for saving. In fact, Finnish households have less incentives for voluntary pension saving than households in e.g. the US or Germany because of a mandatory earnings-related pensions system funded by tax-like contributions (Mäki-Fränti 2022) that has no upper limit (in euros) for paid out pensions[7]. Mäki-Fränti (2022) further documents that both the income and consumption of the Finnish households peak when the household heads are in the age of 40-50 years, turning then to a gradual decline, and that households continue to save even after retirement age, instead of dissolving their savings. With population aging the income share of the elderly with their higher saving rate will keep rising and so will the aggregate saving rate of the economy (Mäki-Fränti 2022). We

Figure 10: Public debt ratio and population aging in Finland, 1972-2022



therefore take the results as evidence of the life-cycle pattern of consumption and saving being a channel through which aging changes the effectiveness of fiscal policy. Our analysis offers an explanation to the weakening output effects

[7]For a comparison of countries' pension ceilings, see e.g. https://www.etk.fi/en/work-and-pensions-abroad/international-comparisons/pension-ceilings/

of fiscal shocks in recessions found by Honda and Miyamoto (2021).

While Honda and Miyamoto (2021) conclude that a larger fiscal stimulus is needed to support aggregate demand during a recession, figure 10 illustrates why this is not a viable solution for Finland. As Finland is getting older, its public sector is also becoming more indebted. Instead, our analysis implies that better targeted fiscal measures can improve the effectiveness of fiscal stimulus in an aging economy.

5 Conclusions

Population aging poses a challenge to fiscal policy. Not only does the share of age-related public spending increase leaving less resources for fiscal stimulus, but also the effectiveness of fiscal stimulus seems to weaken. In many European countries with generous public pension systems and old-age services, such as Finland, it is the retired who save well beyond retirement. A bigger share of the elderly population with a higher propensity to save is one potential reason for the weaking of fiscal policy effectiveness.

The topic is highly relevant both academically and for practical policy making in aging economies, and more country-based evidence is needed for plausible policy recommendations. This paper contributes to the literature by analyzing the above described mechanism with a Bayesian VAR model and Finnish data.

The literature on fiscal multipliers has so far payed relatively little attention to the various government spending categories. We provide evidence supporting the view that the composition of public spending matters for the effectiveness of fiscal stimulus. This is particularly imporant for policy making in an aging economy where the share of age-related public spending increases with aging and public debt is already elevated. Targeting fiscal measures becomes more important than ever.

Our results suggest that increasing social transfers targeted mostly to the elderly boosts the economy less than increasing consumption expenditure that financially benefits the working aged population. This is due to the different saving and consumption behavior of the population benefitting from the fiscal impulse. We therefore conclude that targeting fiscal measures can improve the effectiveness of fiscal stimulus in an aging economy.

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