Muhammed Veysel Kaya and Seda Bayrakdar (eds.)

Social and Economic Studies within the Framework of Emerging Global Developments Volume 3

This book is the third volume of *Social and Economic Studies within the Framework of Emerging Global Developments* which includes empirical and theoretical original chapters written by researchers from different countries and universities. The target audience of this book is researchers, students and academics interested in social and economic studies.

The Editors

Muhammed Veysel Kaya is a professor at Ankara Haci Bayram Veli University, Turkiye. He teaches macroeconomics and central banking in postgraduate and PhD programmes. His research interests include macroeconomics, banking, monetary policy and economic growth.

Seda Bayrakdar is a associate professor at Kirikkale University, Turkiye. She teaches macroeconomics, analysis of macroeconomic indicators and economic systems in undergraduate, graduate and doctoral programmes. Her research interests include labor market, public expenditures, monetary and fiscal policies and economic growth.

ISBN 978-3-631-90121-2

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9783631901212_cvr_eu.indd All Pages 05-Aug-23 11:56:57

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PETER LANG
Lausanne – Berlin – Bruxelles – Chennai – New York – Oxford

Library of Congress Cataloging-in-Publication Data
A CIP catalog record for this book has been applied for at the
Library of Congress.

Bibliographic information published by the
Deutsche Nationalbibliothek.
The German National Library lists this publication in the German National
Bibliography; detailed bibliographic data is available on the Internet
at http://dnb.d-nb.de.

Cover illustration:
© gorodenkoff

ISBN 978-3-631-90121-2 (Print)
E-ISBN 978-3-631-90442-8 (E-PDF)
E-ISBN 978-3-631-90443-5 (E-PUB)
10.3726/b20968

Published by Peter Lang GmbH, Berlin, Deutschland

info@peterlang.com - www.peterlang.com

This publication has been peer reviewed.

Prof. Dr. Muhammed Veysel Kaya
Assoc. Prof. Seda Bayrakdar

Foreword

This book is the third series of the "Social and Economic Studies within the Framework of Emerging Global Developments." Second volume includes empirical and theoretical original papers written by researchers from different countries and universities. The target audience of this book is researchers, students and academics interested in business, economics and social sciences.

Challoumis examines the liability of the tax system. The analysis of the impact of liability on the tax system in combination with the impact factor of tax revenues is used from the Q.E. method. *Ribba* investigates the possible presence of fiscal dominance, that is, an explicit or implicit cooperation between federal government and central bank with monetary policy in a subordinate position. *Dat and Long* indicates the correlation between the established stock markets, such as the US and China, and the Vietnam stock market is altered during the COVID-19 pandemic. *Ghoneim* analysis, COVID-19 impact on "Decent Work and Economic Growth" goal in Africa through providing descriptive statistics of the situation before and after 2020. The paper highlighted unemployment changes after the pandemic as well as the highly affected sectors and groups in terms of job opportunities creation.

Alfoul investigates, the utility of natural language processing (NPL) and artificial intelligence (AI) in the context of improving research achievement in economics and finance. The research takes a case-study approach, using ChatGPT to illustrate an NLP tool with promising potential in the academic world. *Marcel, Diana and Yevheniy* examines socioeconomic indicators of Euroscepticism at the regional level in Slovakia and they differentiate three groups of regions: (1) weak regions (the Bratislava region exclusively), (2) moderate "transitive" regions, and (3) stable regions. *Ahmadov* examines in the form of group interviews to identify barriers that SMEs perceive on the adaptation and implementation of innovation for circular practices, and secondly, analyses the result of the survey that involved 190 companies operating in the Estonian computer, electric, chemical and metal industry. *Guzman, Tarapuez and Parra* try to identify the drivers of the future, recognize the scenario for nature tourism to the year 2035 in the context of the PCCC and propose strategies to achieve it. *Tsertseil* analysis of the activities of small and medium-sized businesses in the manufacturing sector of the Lipetsk region. *Ordov, Tsertseil and Zatsarnaya* identify the prerequisites for the successful development of the carbon units market in Russia as one of the tools for minimizing carbon emissions into the environment. *Dec and Wysocki* explores the issue of ecologically sound investments in Polish cities, which are part of the ongoing implementation of sustainable development goals, in the context of an increasingly noticeable limitation of financial resources available for these types of undertakings. *Rosyadi and Fitriadi* exhibits to remind and concentrate on the network in building SMEs. *Anunciacao and Petiz* exhibits to carried out through the focus group analysis aiming to reflect and consolidate the main dimensions and strategic subdimensions relevant to public local management authorities. The results show the importance of a collective vision of different stakeholders, and the process of change must be properly thought-out and prepared. *Anunciacao and Giroto* analysis, 20 years after its creation, the benefits of this legal change and the effects on the management of hospital institutions.

Anunciacao, Goncalves and Martins try to verify how the adoption of this tool requires a governance perspective on data/ information and information systems and what impacts it may have on the *modus operandi* of the largest cement companies in Portugal. *Anunciacao* et al. identify the main dimensions that should be considered in the scope of production management and to frame the critical factors in the management of equipment maintenance, in an industry 4.0 context. *Anunciacao* et al. analysis the information in the pandemic context management. *Koutroukis, Vlados and Chatzinikolaou* explore the implications of the COVID-19 pandemic on human resource management (HRM) and labor relations, specifically focusing on the role of social dialogue in the post-crisis era. *Birknerova and Zbihlejova* investigates the competencies of managers in the field of business. *Ross and Titov* describes the current and predicted trends in healthcare and leadership, connecting those to the authors' previous research and proposing an updated version of healthcare leadership competency model that will take into account the described trends and challenges. *Shoh* investigates to provide a scientific solution to a number of problems in achieving sustainable economic growth in the world. *Cercel* examines the competitive rural economy in the emerging countries of the European Union. *Nascimento and Correia* discuss the major changes that occurred in the higher education agents, including the expectations placed on their practices, teaching methodologies shifts, and pedagogical requirements needs, also shaped by the acceleration of education's digitalization. *Lesinskis* et al. explores the literature review on entrepreneurial intention and its influencing factors in a context of behavioral norms and regions, as well as on the peculiarities of the perception of generation Z in the age of digitalization. The empirical part of the article reflects, analyses, and discusses the results of the experimental research, where training sessions for the youth of generation Z in the countries of Central and Eastern Europe and Southern Europe were conducted. *Massari and Roversi* examines the potential of the traditional educational model that developed in time in the heart of Mediterranean culture and which has been implemented in the Paideia Campus Living Lab in Pollica (Southern Italy). *Antenoscu* analysis Romania's tourism in the period of the COVID-19 pandemic, in order to quantify the gaps compared to the highest performance achieved in 2019 and in what measure tourism started to resilience and recover. *Waqas* et al. investigates the effect of the global economic crisis on household food insecurity and coping strategies in Pakistan. The study shows that the quantity of coping does not matter for food security and identifies some prominent strategies to soften the effect of crises. *Hamburg and O Brien* examines that how digital entrepreneurship can support those from underrepresented and marginalized groups to engage in entrepreneurial activity. *Cho* investigates the relationship between economic inequality and a contraction in a supply of credit. Even though borrowers are willing to pay higher interest rates of loans, the lender may not offer loans simply by raising interest rates.

Contents

Antonio Ribba

Fiscal Dominance in the US Economy Since the Great Recession

1. Introduction

In this chapter we want to investigate the presence of fiscal dominance in the US economy in the last 15 years, that is, since the Great Recession. In the context of the present study fiscal dominance can be characterized as an economic regime in which the central bank cannot conduct a completely independent monetary policy, finalized to price stability and smoothing of business cycle fluctuations, in light of concerns about the sustainability of public debt.

Indeed, in response to the deep recession triggered by the financial crisis that hit the United States and the world economy in 2008, President Obama signed the American Recovery and Reinvestment Act in February 2009, a sizable stimulus package estimated to be around 800 billion dollars. In more recent years, the COVID-19 pandemic exerted a significant and negative impact on the US economy. In response to the crisis the government provided further strong fiscal stimuli. For example, the American Rescue Plan Act, signed by President Biden in March 2021, was a 1.9 billion fiscal package.

Thus, as a result of two deep recessions experienced in the past 15 years and fiscal packages enacted in response, US public debt as a percentage of GDP peaked at 129 % in 2020.

Bordo and Levy (2021) have recently investigated the relation between enlarged fiscal deficits and inflation over two centuries. As far as the post-World War II era is concerned, the authors find that the Great Inflation in the 1960s and the 1970s is largely explained by the influence exerted by fiscal deficits on monetary policy.

Sargent and Wallace (1981) introduced the separate notions of monetary dominance and fiscal dominance, where the latter identifies a regime in which monetary policy is forced to accommodate fiscal policy in order to ensure solvency.

In the spirit of Sargent and Wallace, Martin (2020) has recently argued that if government sets debt, then the independence of the central bank becomes irrelevant.

Important studies in this area of research are, among others, Leeper (1991), Sims (2011) and Cochrane (2019). These authors develop the so-called Fiscal Theory of Price Level (FTPL). As stressed by Bordo and Levy (2021), the conclusion that fiscal deficits may exert inflationary effects is similar to the results presented in Sargent and Wallace (1981). Nevertheless, in the case of FTPL, the effects of fiscal policy on the price level do not necessarily require an increase in money supply.

Chen et al. (2022) investigate the strategic interaction between fiscal and monetary policy in the USA from 1955 to 2008. One of the main findings of the research is that fiscal targeting rules can mitigate the adverse effects of high debt on inflation.

Hodge et al. (2022) study the interaction between monetary and fiscal policy during the pandemic, by using a New Keynesian DSGE. Instead, as far as the Euro Area is concerned, Cavallo et al. (2018) investigate the dynamic effects exerted by an increase in government spending on output and inflation when the central bank implements an accommodative monetary policy (see also Dallari & Ribba, 2020).

In the present study we investigate the possible presence of fiscal dominance in a simple bivariate VAR model framework. In particular, we study the interaction between debt-to-GDP ratio and monetary base over the sample period 2008–2022. We find that an increase in the debt-to-GDP ratio causes an increase in the monetary base. Moreover, we also find evidence of unidirectional Granger causality running from debt to monetary base. These results seem to support the conclusion that the historical period under investigation may be characterized as a regime of fiscal dominance.

The rest of the chapter is organized as follows. In section 2 we test for Granger causality and find that there is evidence of unidirectional Granger causation running from debt-to-GDP ratio to monetary base in the US economy in the last 15 years. In section 3 we show the dynamic responses of the two variables to an increase in the debt-to-GDP ratio. The main finding is that there is a significant response of monetary base to public debt that lasts for around three years. In this section we also undertake a historical decomposition analysis, which allows us to separate the contribution of the orthogonal shocks to deviations of variables, in this case monetary base, from the forecasted path. The historical decomposition reveals that the influence of fiscal policy on monetary policy emerges more clearly from 2018 onward. Section 4 concludes.

2. The Interaction Between Debt-to-GDP Ratio and Monetary Base Over the Period 2008–2022

We start with a simple figure, showing the joint evolution of public debt and monetary base in the last 15 years in the US economy. Both series are taken from FRED at the St. Louis FED Web site. We use quarterly data.

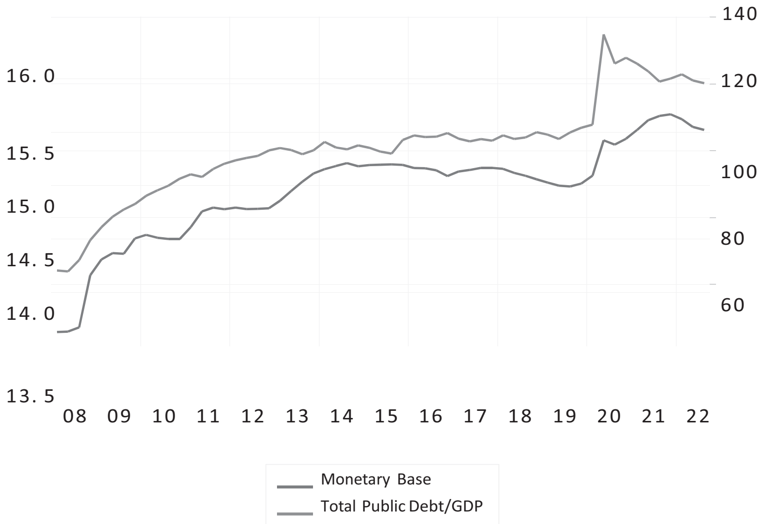

Figure 1. Evolution of Public Debt-to-GDP ratio and Monetary Base in the United States over the sample period 2008:1—2022:3

Values of total debt-to-GDP ratio are reported on the right-hand vertical axis, while on the left-hand vertical axis the (log) monetary base values are reported. Clearly, there is a strong co-movement between the two series and a significant increase in both total debt and monetary base is detected after 2008, as a consequence of The Great Recession, and after 2019, as a consequence of the COVID-19 pandemic. However, it would be important to establish possible causal relations characterizing their joint dynamics. Indeed, both government and central bank adopted expansionary policies in response to the strong adverse shocks that have hit the economic system. These policies have proved useful in mitigating recessions and it would be in principle possible that fiscal dominance has not materialized. For example, and with regard to the Euro Area, Isabel Schnabel (2020) argues that in recent years the European Central Bank has undertaken aggressive expansionary policies pursuing the sole objective of price stability. In other words, according to Isabel Schnabel, the high level of public debt in the Eurozone has not exerted any influence on the conduct of monetary policy by the European Central Bank.

In Table 1 Granger causality tests are reported. There is strong evidence of unidirectional Granger causation: total debt Granger causes monetary base over the sample period under investigation. Instead, the null hypothesis of no Granger causality from monetary base to public debt is not rejected by data.

Table 1. Granger causality tests

Null Hypothesis	Obs	Chi-sq	Prob.
Public Debt does not Granger cause Monetary Base	57	9.914	0.007
Monetary Base does not Granger cause Public Debt	57	0.849	0.654

Notes: Sample 2008:1—2022:3; Lags 2.

3. The Response of the Monetary Base to an Increase in the Debt-to-GDP Ratio

We estimate a bivariate VAR model, including the debt-to-GDP ratio and the log of monetary base. The reduced-form, VAR model of order two, is given by:

$$X_t = \mu + A_1 X_{t-1} + A_2 X_{t-2} + e_t \quad (1)$$

μ is a vector of constant terms and e_t is the 2×1 vector of error terms, such that $E(e_t) = 0$

and $E(e_t e'_t) = \Sigma_e$. X_t is a 2×1 vector of macroeconomic variables, including the debt-to-GDP ratio and the log of monetary base.

It is worth stressing that if the variables are $I(1)$ and then behave as difference-stationary processes, and moreover exhibit long-run equilibrium relations, that is, the variables are cointegrated, the specification of the VAR model in levels is appropriate (see, e.g., Sims et al., 1990).

The reduced-form moving average representation of system (1) is given by:

$$X_t = \rho + C(L) e_t \quad (2)$$

Where L is the lag operator and $C(0) = I$.

Let us recall that in the previous section we have detected unidirectional Granger causality, since the debt-to-GDP ratio Granger causes the monetary base while the reverse causality does not hold. Thus, we recover orthogonal disturbances by imposing the following recursive structure:

$$X_t = \rho + B(L)\eta_t \tag{3}$$

Where $B(L) = C(L)P$ and $\eta_t = P^{-1}e_t$. The 2 × 1 vector η_t contains orthonormal disturbances, that is, $E(\eta_t \eta'_t) = I$ and P is such that $PP' = \Sigma_e$, where P is the Cholesky factor, that is, is the unique lower triangular matrix such that PP′ gives a factorization of the covariance matrix of error terms. Therefore, we impose a causal structure with the debt-to-GDP ratio ordered first in the causal ordering.

Figure 2 reports the dynamic responses of public debt and monetary base to unexpected increases in the two variables. Monetary base shows a significant increase in response to a positive public debt shock. This dynamic effect on monetary base lasts for around three years and thereafter becomes statistically non-significant. Conversely, a monetary base shock does not exert significant effect on public debt, more precisely on debt-to-GDP ratio, at all horizons.

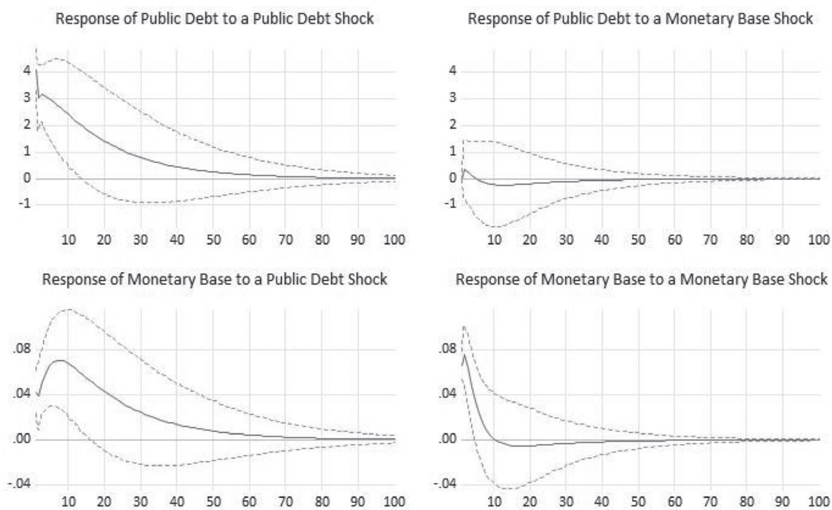

Figure 2. Responses of public debt and monetary base to the two orthogonal shocks

On the whole, we interpret these results as pointing to evidence of fiscal dominance in the sample period under consideration.

Figure 3 reports the contribution of the two shocks to deviations of monetary base from its forecasted path (cf. Canova, 2007, chap. 4). It is worth noting that the contribution of debt shocks to deviations of monetary base from the forecasted path becomes particularly significant after 2018. Therefore, it seems that the emergence of a significant fiscal influence on monetary policy is mainly related to reactions to the COVID-19 pandemic.

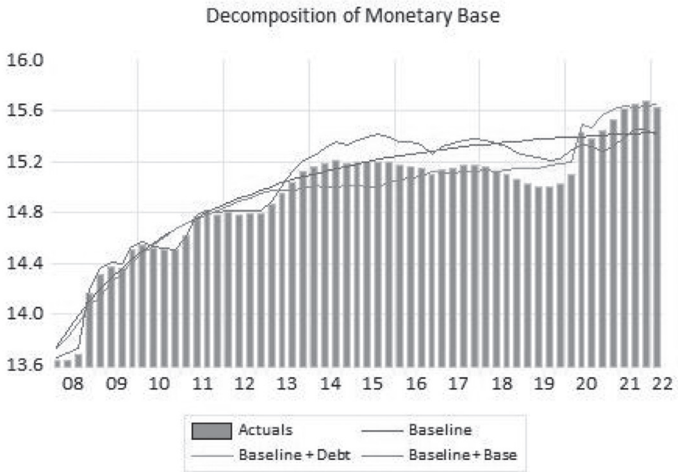

Figure 3. Contribution of public debt shocks and monetary base shocks to deviations from the baseline forecasted path of monetary base

Summing up the main findings of this section: our (relatively) simple analysis, based on a bivariate VAR model with causal structure, shows that the presence of fiscal dominance may have materialized in the US economy over the past 15 years, that is, since the global financial crisis. In other words, one cannot rule out the possibility that the central bank has followed the government and its fiscal policy, by ensuring fiscal solvency.

A further finding concerns the evidence of a central bank following the government's fiscal policy, especially in response to the crisis triggered by the COVID-19 pandemic. Instead, evidence of fiscal dominance is weaker in the first part of the sample, that is, in response to the global financial crisis.

4. Conclusion

In this chapter we have shown that there is some evidence of fiscal dominance in the USA over the period 2008–2022, since we find that an increase in public debt causes a positive response of monetary base. Another interesting result shown in the present study concerns the relative importance of shocks to public debt in explaining movements in the monetary base from 2018 onward. This last result seems to stress the important interaction between fiscal policy and monetary policy in response to the COVID-19 pandemic crisis.

In a very recent paper, Bianchi and Melosi (2022) have argued that an environment of stable and low inflation requires a stabilization of public debt and a consistent fiscal framework. In particular, they find that the fiscal response to the COVID pandemic has caused an increase in the inflation rate.

Indeed, in response to the two deep economic crisis that have affected the US economy in the last 15 years, there was a combination of expansionary fiscal policy and expansionary monetary policy. Sizable fiscal packages were, respectively, signed by Obama in 2009 and Biden in 2021. On the other hand, unconventional monetary policies, that is, quantitative easing and forward policy guidance, were adopted by the Federal Reserve after the financial crisis of 2007–2009 (see, e.g., Bernanke, 2020). Moreover, such aggressive expansionary monetary policy has also played an important role in response to the COVID-19 pandemic.

There are some important policy implications related to the findings of the present research. In fact, if the unprecedented level of public debt can actually condition the conduct of monetary policy, and according to the results presented in this paper it seems so, then a possible macroeconomic outcome will be the coexistence, at least in the coming years, between high public debt and an inflation rate higher than the targets usually set by the central bank. Another possible implication could be an increase in the volatility of the inflation rate.

One might conclude that, after all, an annual inflation rate say of 3 % or 4 % would not imply a drastic change in the macroeconomic scenario. Nevertheless, in this case, any new higher target should be clearly communicated by the central bank, in order to keep inflation expectations well anchored.

To the best of my knowledge, this is one of the first studies aiming to investigate the existence of fiscal dominance in the US economy, from the Great Recession to the COVID-19 pandemic. Therefore, and quite obviously, more research is needed to corroborate the findings presented in this paper for the US economy.

Possible extensions of this research might concern other countries and economic areas. For example, as far as the interaction of fiscal and monetary policy in the Eurozone is concerned, Buti and Messori (2022) suggest that an aggregate fiscal stance and fiscal capacity at the Euro Area level could counterbalance the ECB's role and thus avoid the risk of fiscal dominance. Indeed, it is well known that in the Eurozone a similar combination of aggressive fiscal policy and unconventional monetary policies has represented the policy response to the COVID pandemic. Furthermore, from 2019 onward, the European fiscal rules for the conduct of national fiscal policies have been suspended. Thus, one is naturally led to wonder whether in recent years a regime of fiscal dominance has also materialized in the Eurozone. This could, in fact, be the subject of future empirical investigations.

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