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THE STABILISING ROLE OF VAT IN SHAPING REGIONAL BUSINESS CYCLES IN SELECTED CENTRAL EUROPEAN COUNTRIES

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Purpose: The aim of the paper is to present the role played by VAT in stabilising the economy. The study presents the formation of business cycles and the relationship between VAT revenue and GDP. A comparison is made of the course of economic fluctuations and changes in VAT revenues in selected Central European countries (part of the Visegrad Group - V4) over the period 2010-2020.

Methodology: The methodological basis of the research process and the empirical assessment of the regional business cycles of Poland, the Czech Republic, Slovakia and Hungary were preceded by theoretical analyses of business cycles. The study is based on 52 observations for each region studied. Data was obtained from the Eurostat database. Dynamic indicators reflecting changes in overall economic activity, i.e. quarterly GDP time series, were constructed. The obtained series were subjected to decomposition. Upper and lower turning points, resulting from the growth and decline phases of an economy, were identified. This made it possible to present complete business cycles and their subsequent evaluation in relation to the tax revenues, including VAT, achieved in these economies.

Findings: As a result of the research investigation, an assessment of the implemented fiscal stabilisation policies in selected European regions was carried out. Relationships between growth and decline phases in individual economies and the amount of budget revenues from VAT were determined. On this basis, an assessment was made as to whether the countercyclical stabilisation function is being realised. It was not possible to give an unambiguous answer because in some periods VAT had a stabilising function and in others it had a pro-cyclical effect. The most moderate stabilisation policy using VAT was pursued by Slovakia and Hungary. In Poland, VAT performed the stabilising function only episodically. In the Czech Republic, cyclical fluctuations were characterised by the highest amplitude of fluctuations and the VAT fulfilled the stabilising role in selected periods.

Originality/value: Evaluation of the implemented stabilisation policy on the impact of VAT on changes in economic activity in the V4 countries.

Keywords: cyclical fluctuations, VAT, counter-cyclical policy, V4 countries.

Category of the paper: Research paper.

1. Introduction

The impact of tax policy on economic stabilisation is widely discussed in the economic literature, particularly in the context of business cycles and fiscal policy. The impact of individual taxes on macroeconomic variables such as consumption, investment, aggregate demand or economic growth is constantly the subject of both theoretical and empirical analyses.

A relatively small number of studies address the issue of countercyclical policy in terms of the interplay between taxes and the mitigation of economic fluctuations. Also, few of the studies conducted to date undertake an analysis of the impact of a particular tax on changes in economic activity in a given area. In order to fill this gap, the author of the paper decided to make a presentation of the relationship and analysis between changes in economic activity and VAT revenues in selected European regions. The paper sets out to analyse whether VAT revenues, which dominate the budget revenues of individual countries, contribute to mitigating the cyclical fluctuations of these economies.

As one of the most important indirect taxes applied in many countries around the world (although its main purpose is to tax the value added at each stage of the production or distribution of goods and services), VAT, in the long term, can also act as an economic stabiliser (Claus, 2013). This tax, thanks to its flexibility in terms of rate changes and its automatic adaptation to economic conditions, can be useful in implementing stabilisation policies.

A comparative analysis method based on data extracted from the Eurostat database was used to assess the aforementioned phenomenon. A comparison was made between the development of economic fluctuations and the volume of VAT tax revenue. The study is based on 52 observations for each region studied. The countries of the Visegrad Group (V4) were taken as the regions: Poland, the Czech Republic, Slovakia, Hungary. These countries are united not only by their neighbourhood, but also by similar geopolitical and economic conditions.

The paper sets out to verify the hypothesis that VAT acts as an automatic stabiliser, mitigating excessive fluctuations in selected economies. The paper will first conduct a theoretical review in the field of fiscal stabilisation policy and how taxes affect economic prosperity. Then, the methodology of the study will be presented, together with a description of the different stages of the research procedure. In the following part of the paper, conclusions will be drawn regarding the formation of business cycles and a comparison of their course in relation to the formation of VAT revenues in selected Central European countries.

2. The essence of fiscal policy in stabilising modern economies

The state bodies responsible for collecting budget revenues and disbursing them are, in a market economy, next to the central bank, the second actor implementing stabilisation policy. State stabilisation policy is a set of measures taken to maintain economic equilibrium and minimise cyclical fluctuations. Its main objective is to ensure stable economic growth, prevent cyclical fluctuations and mitigate the effects of cyclical economic crises. Stabilisation policy is part of a broader macroeconomic policy and includes both fiscal policy and monetary policy. Fiscal policy, which includes taxation and fiscal spending policies, is inextricably linked to public finances and its impact on the economy can be multifaceted. In economic theory, the view is expressed that state fiscal policy, which consists of regulating the overall amount and proportion of state revenue and expenditure, can influence real processes in the economy, including its growth potential (Guerguil et al., 2017; Keita, Turcu, 2023). However, despite performing a variety of functions (including allocative or redistributive), fiscal policy is primarily a classic tool of stabilisation policy.

State authorities can consciously influence the business cycle by reducing the amplitude of medium-term cyclical fluctuations in the economy (Juja, 2011). Thus, one of the objectives of stabilisation policy is the implementation of countercyclical policy, which consists in the state authorities' efforts to reduce the amplitude and intensity of business cycle fluctuations (Barczyk, 2004; Calderón et al., 2016; Larch et al., 2021). Analysing the fiscal instruments lying on the revenue side of the state budget, it is indicated that tax revenues should increase in the growth phase of the economy (inhibiting the growth of consumer demand) and decrease in the decline phase. This course of action is expected to have a stimulating effect on changes in economic activity. In theory, consumption tax rates should be reduced during the low economic activity phase. This results in an inhibition of the decline in consumer demand during this period. In economies with chronic deficits, the theoretical postulates are usually not put into practice. This is due to the fact that consumption taxes are the main source of government revenue and are generally not reduced during either the downward or upward phases in the economy.

3. The impact of taxes on the economy in the light of economic theory

The mechanism of countercyclical effects of fiscal instruments on business cycle oscillations and their effects are interpreted differently in different theoretical streams.

From a Keynesian perspective, fiscal policy is crucial in shaping business cycles. Keynesians recognise that changes in tax rates have a direct impact on aggregate demand, which can affect the dynamics of economic growth in the short term (Keynes, 1936). According to

Keynes' theory, during an economic downturn, a reduction in taxes, especially for households and businesses, can increase disposable incomes of households and businesses and thus increase aggregate demand through consumption and invespublic tment and improve the economy (Auerbach, Feenberg, 2000; Blinder, 2006). Increased spending combined with tax cuts can provide a strong stimulus to the recovery of the economy.

According to neoclassical theory, the impact of tax policy on the economy is assumed to be limited and, in the long run, changes in taxes mainly affect the structural allocation of resources rather than short-term prosperity. According to this theory, tax changes affect business investment decisions, which in the long run can affect productivity growth and the potential growth rate of the economy (Friedman, 1962).

In contrast, real business cycle theory assumes that changes in tax policy have a marginal impact on business cycles, as external shocks such as technological change are the main source of economic fluctuations. However, fiscal policy can affect the rate at which the economy adapts to new conditions (Kydland, Prescott, 1982).

Until the mid-1970s, taxes were not used for anything other than purely fiscal purposes, as they did not perform functions such as income redistribution or resource reallocation. However, the above situation changed significantly in both Europe (welfare state programmes), Japan (industrial policy) and the United States, which, especially in the 1960s and 1970s, began to use fiscal policy for non-fiscal purposes to a significant and increasing extent (Wnorowski, 2008).

4. The role of VAT in counter-cyclical policy

Analysing the review of the literature on fiscal policy, it is also worth noting that the stabilisation function of fiscal policy developed on the basis of J.M. Keynes's theory - according to which, by influencing the structure and level of global demand, it is possible to affect the formation of real economic processes - allows countercyclical fiscal policy to be divided into active policy (related to discretionary actions of the state) and passive policy (related to the action of automatic economic stabilisers).

The basic types of active - targeted fiscal policy moves are (Winiarski, 2012):

- changes in tax rates,
- changes in spending on public works and investment,
- changes in the distribution of transfers from the state budget.

On the other hand, stabilisation policy measures operating automatically that are applied in economic practice can include:

- automatic stabilisers in the tax system (income and indirect taxes),
- automatic stabilisers in the social benefits system,
- subsidies in the agricultural sector.

Narrowing the considerations to the analysis of the impact of VAT on the economic cycle, it seems necessary to indicate its predictable (i.e. consistent with theoretical expectations) impact. When assessing the impact of VAT on the economic cycle, both micro- and macroeconomic aspects should be taken into account, as changes in the VAT rate or in the rules of its application can trigger reactions at different levels of the economy. This impact can manifest itself in several key areas, including consumption, investment, price levels and budget revenues.

In the area of consumption, VAT plays a key role. This tax, like excise duties, is levied on the source of taxation, i.e. on final consumers through marketing. The lower price and income elasticity of demand for consumer goods means that these taxes shape the real income of the lowest-income population to the highest degree. Bearing in mind that the mechanism of action of this group of taxes is automatic, indirect tax revenues should increase during good economic times (inhibiting the growth of consumer demand) and decrease during bad economic times (reducing the decline in consumer demand) (Barczyk, 2004). The mechanism of the impact of indirect taxes on economic prosperity is relatively simple. As a price-generating element (burdening the gross price), they stimulate (or relatively inhibit) demand from the public sector, businesses and households. The strength of the impact is greater for those unable to pass on the burden of taxation to final consumers. This is the case for VAT-exempt businesses and households in particular (Bostan, 2017; Walczak, Flejterski, 2008). By affecting the prices of goods and services, VAT causes prices to rise when the tax rate is higher. This has the effect of lowering consumer demand, so in times of economic weakness, when household incomes are lower, a VAT increase can further reduce purchasing power and lead to a further decline in consumption. In contrast, a reduction in the VAT rate can stimulate consumer demand, which has a positive impact on economic growth in the short term (Braz, 2009; Clemens, Roeger, 2022).

Changes in VAT rates may also affect businesses' investment decisions. A higher VAT rate may increase the cost of doing business, particularly for businesses that have a high reliance on importing goods or on services subject to VAT. In the event of a reduction in the VAT rate, businesses may benefit from cost reductions, which may encourage investment in further growth. On the other hand, uncertainty related to VAT policy (e.g. frequent changes in the rate) may negatively affect long-term investment decisions, as entrepreneurs will seek to avoid risks related to so-called fiscal unpredictability.

VAT also has an impact on changes in the price level in the economy. An increase in the VAT rate leads to an overall increase in prices, which can have a twofold effect on economic prosperity. On the one hand, an increase in VAT may reduce real consumer income, on the other hand, it may lead to an increase in government revenue, which can be used for public investment. However, there is a risk that an increase in VAT may lead to an inflationary spiral, especially when rising prices add up to higher production costs and increased wage pressures in the long run (OECD, 2016).

When analysing the aspect of VAT's impact on the economy, it is impossible to ignore its impact on fiscal sustainability. VAT is one of the main sources of government revenue in many countries. Increasing the VAT rate can help to improve public finances, especially in times of economic weakness when other sources of revenue, such as income taxes, may not be generating the expected revenue. Conversely, overburdening the public with VAT during an economic downturn can have the opposite effect - leading to a further downturn. It is therefore important that VAT policy changes are aligned with the business cycle to avoid exacerbating the negative effects of the recession.

In conclusion, it should be added that the long-term impact of VAT on the economy also depends on the reaction of financial markets. A reduction or increase in the VAT rate may affect perceived macroeconomic stability. This stability in turn influences investors' decisions and the stability of the domestic currency. An increase in the VAT rate may be taken as a signal of public finance problems, which may lead to an increase in the risk premium and a reduction in foreign investment. Conversely, reducing the VAT rate when inflation is high can be seen as a step to counter economic stagnation, which can improve financial market sentiment (IMF, 2017).

5. Stages of the research procedure

Preceding the empirical analyses, it should be noted that every business cycle consists of two essential elements: turning points and phases. Turning points are the starting points of phases. They make it possible to determine in time the starting and ending moments of the occurrence of phases, but they also make it possible to study other features of the oscillation. With regard to the functions they perform, turning points can be divided into two groups (Barczyk, Lubiński, 2009):

- lower turning points, marking the end of a period of low activity and the entry of the economy into an upturn,
- upper turning points, marking the end of the upswing and at the same time the beginning of the downturn.

Assuming that each business cycle is a certain time interval lying between two turning points that are identical in nature, it can be said by analogy that a phase of a cycle is a certain period occurring between successively different turning points (Stock, 1979). Accordingly, the business cycle is structured in two parts: an economic growth phase (located between the lower and upper turning points) and an economic decline phase (lying between the upper and lower turning points). The delineation of the different phases is determined by the definition adopted and the method used to separate the returns (Tichy, 1972).

Bearing in mind that economic processes run in cycles with a heterogeneous structure, the analysis of business cycle synchronisation involves comparing the individual components identified earlier. Due to the fact that economic reality is very complex, empirical trend determination is not an easy task. The main reason is the variability over time of long-term growth paths (Spychała, Spychała, 2024). It is necessary to decompose the series and extract the components of the cycle. For this purpose, appropriate statistical tests or filters are applied that allow the desired components to be separated according to: frequency, duration or amplitude of fluctuations. The application of filters, referred to as defiltering (filtering, decomposition of a series, trend extraction), also makes it possible to reduce non-stationary variables to stationary form and can therefore be considered as preparing the data for further analysis (Domańska, 2013).

In the group of indicators allowing for the isolation of turning points of business cycles and the analysis of their most important features, quarterly indices of GDP gross domestic product dynamics were adopted (where the corresponding quarter of the previous year = 100).

The first stage of data preparation for further procedures was the elimination of seasonal and random fluctuations, smoothing the chronological series with repeatedly selected moving averages using the TRAMO-SEATS procedure of desezoning. A series containing the combined effect of trend and cycle was adopted for further analysis. In order to isolate cyclical fluctuations, the concept of a growth cycle was used, which is based on the analysis of the dynamics of changes in the growth rates of a selected variable and the study of fluctuations of aggregate activity around a trend - the so-called deviation cycle (Spychała, 2020).

Assuming that the studied series contain a unit root, and thus are non-stationary (Kruszka, 2009), it was assumed that the cyclical component of a variable is the difference between its current value and the value of the trend (weighted average of past, current and future observations). Therefore, a stochastic trend was extracted in the form of a development trend using the Hodrick-Prescott filter. Thus, the fluctuations were separated into two components: the trend and the cyclical component.

In the empirical study of business cycle fluctuations, it was assumed that the indicator reflecting changes in overall economic activity would be the quarterly GDP time series downloaded from the Eurostat database (available for all surveyed regions on a quarterly basis). The indicators created are indexes of the dynamics in relation to the corresponding period (quarter) in the previous year. The use of these data in the analysis is due to the fact that the

GDP series highly characterise the most important aspects of the business cycle process (informing on both demand and market supply changes). In addition, they are estimated using internationally harmonised rules, so the indicators created can be considered fully comparable. In addition, the turning points determined on the basis of the constructed indicators are highly real, as GDP belongs to the group of simultaneous indicators (Spychała, 2020).

The study carried out is based on 52 observations for each region studied. The individual regions were taken to be the countries of the Visegrad Group (V4): Poland, the Czech Republic, Slovakia and Hungary. In the conducted analysis of the course of business cycles in selected economies in the period Q1 2000 - Q4 2022, practical assumptions were made about the deviation cycles. In view of this, the minimum phase length can be 3 quarters and the minimum cycle length can be 6 quarters. The turning points must alternate. It was also assumed that the quarter in which the bottom turning point occurs will be included in the downward phase, while the quarter in which the top turning point is identified will similarly belong to the upward phase. The temporal scope of the study was determined by the availability of as long as possible, comparable statistical data series, necessary for the construction of reliable models, enabling correct, error-free inference.

The next part of the research involved an analysis of the evolution of income budget streams, including VAT revenues. These data are necessary for the analysis of the relationship between the studied quantities. Assuming the above, variables were used for the empirical assessment of cyclical oscillations in the conditions of Central European economies:

- GDP (which is an indicator of cyclical fluctuations that synthetically reflects the development of the level of economic activity),
- VAT revenue (remaining in relation to GDP).

6. Results of the analyses

Analysing the course of economic fluctuations for the GDP series over the period Q1 2010 - Q4 2022, one can observe significant similarities in the changes in economic activity in the individual Visegrad countries (figure 1), which confirms the economic interdependence of the regions under study.



Figure 1. The progression of cyclical fluctuations for a time series of the GDP in the period of the first quarter of 2010 until the fourth quarter of 2022 for EU27 and the regions of V4.

Source: own compilation based on the research conducted.

The graphical diagram (figure 1) depicting the difference in the course of GDP changes allows a very generalised assessment of the degree of synchronisation of the cycles of the listed regions, nevertheless, some convergences can be noted. Certainly, the most noteworthy changes are those that fell in the approximate period from 2019 to 2021. All the regions surveyed recorded a significant decline in GDP growth. The outbreak of the Covid-19 pandemic and the initiation of restrictions on many areas of economic activity (Yasar, Elgin, 2024) were major contributors to the deepening crisis. The rebound and the start of an upward phase in the economies studied occurred at different times: The Czech Republic, Slovakia and Hungary accelerated growth as early as 2020, while Poland's economy did so in 2021. The most pronounced economic slump was in the Czech Republic in 2020. The periods in which convergent growth phases were recorded in all the surveyed economies were 2014 and 2015 (with a convergent period of decline at the turn of 2015 and 2016), followed by 2017 and the second half of 2022. The main differences in the shaped GDP trajectories for the surveyed regions concerned the intensity of fluctuations, with the Czech Republic being the most affected. On the other hand, the smoothest course of economic fluctuations (over the entire period under study) concerned Slovakia - the amplitude of its GDP fluctuations was characterised by the smallest differences.

Figure 2. presents the length of separated phases of economic fluctuations of the analysed regions and the period in which the individual phases fell in an alternating pattern (growth and decline phases). Eight phases were distinguished for the GDP time series for Poland (figure 2), and their sequence made it possible to distinguish three full business cycles (according to theoretical assumptions, a full business cycle begins with a growth phase and ends with

a downturn phase). The length of the identified business cycles ranged from 3 to 9 quarters. The first of the identified business cycles lasted from the second quarter of 2012 to the third quarter of 2013 and was a cycle in which the upward and downward phases were evenly distributed. The second identified cycle started in Q4 2013 and ended in Q2 2016 and was characterised by the dominance of the upward phase. On the other hand, the last - third - cycle, falling between Q3 2016 and Q3 2021, was characterised by the predominance of a downward period in the Polish economy. The prolonged downturn phase was certainly unaffected by the aforementioned Covid-19 pandemic. In Q4 2021, a turnaround took place, which with the growth phase started another - ongoing - business cycle. The economic acceleration initiated during this period may herald an exit from the post-pandemic and prolonged economic downturn for Poland.

For the period 2020-2022, 10 phases and 3 full business cycles were identified in the Czech Republic's economy, 8 phases and 2 full cycles in Slovakia and 11 phases and 4 full cycles in Hungary (figure 2).

The correct determination of the phases of economic growth or decline is of great cognitive importance. By identifying which phase a region is in at a given point in time, it is possible to indicate what is expected from a given potential stabiliser. Depending on the phase, according to the assumptions of countercyclical fiscal policy, it is possible to determine the expected direction of a given stabiliser (in the case of the expected direction of the impact of VAT).



Figure 2. The indication of the stages of slump and the stages of growth in the period between the first quarter of 2010 and the fourth quarter of 2022 for the regions of V4.

Source: own compilation based on the research conducted.

The second part of the analyses carried out (on total tax and VAT revenue to state budgets) shows that total tax revenue increased between 2010 and 2022. Despite the upward trend, some countries experienced temporary decreases in tax revenue, but these were temporary situations. One example, but also a current cause of such a situation in Poland, is the measures taken under the Polski Ład introduced in 2022. Invariably, VAT revenues are expected to increase, as a result of the effective sealing of the tax system (e.g. through: application of the split

payment mechanism, implementation of Slim VAT packages, as well as joint accounting of related entities) (Krawczyk-Sawicka, 2023).

The combined graphs (figure 3) show the share of total taxes and the share of VAT expressed as % of GDP (for easier comparison of economies using different currencies) from Q1 2010 to Q4 2022 in all V4 regions. Using a diagram, the difference in the share of taxes in the economies under study in relation to GDP is illustrated and the percentage of the share of these revenues accounted for by the VAT receipts analysed. By far the highest ratios apply to Hungary, which is the only one of the surveyed countries to have already exceeded the threshold of a 10 per cent share of VAT in Hungarian GDP in 2022. By far the highest ratios concern Hungary, which is the only country among those surveyed to have already exceeded the threshold of a 10 per cent share of VAT in Hungarian GDP in 2022. In contrast, the lowest averaged share of VAT as a proportion of GDP concerned Slovakia (with a share between 5.87 and 7.69 % of GDP in the period under review).



Figure 3. Share of total taxes and share of VAT as % of GDP in the period of the first quarter of 2010 until the fourth quarter of 2022 for the regions of V4.

Source: own compilation based on the research conducted.

Approximating the relationship between economic fluctuations and VAT revenues in the Polish economy (figure 4) in the period Q1 2010 - Q4 2022, it can be concluded that the direction of the interaction of these two variables in most of the analysed time interval was opposite. During periods of economic slowdown (in particular in 2011-2012 and 2018-2021)

when the longest downward phases in Poland were distinguished), VAT revenues were characterised by an upward trend. It can be presumed that the stabilising function of mitigating fluctuations with indirect VAT has unfortunately not been properly utilised. Analysing the fiscal instruments lying on the revenue side of the state budget, it is indicated that tax revenues should decrease in the downward phase in order to stimulate consumer demand. It is expected that such a course of action would have a stimulating effect on changes in economic activity. The policy pursued in such a way may be justified by the struggle of the state authorities against rising inflation, which was especially intensified after the outbreak of the war in Ukraine. From 2022 onwards, anti-inflationary shields were systematically introduced to combat the crisis and the prices of products and services, which were rising too fast. Reduced VAT rates in specific categories were then applied (including zero VAT on food). Further discs also appeared in 2023. The current VAT rates have been in force in Poland since 2010, at which time the government temporarily raised VAT from 22 to 23% and from 7% to 8%, currently these rates have not returned to their previous level.



Figure 4. Cyclical fluctuations of GDP time series and changes in VAT revenues from the first quarter of 2010 until the fourth quarter of 2022 for Poland.

Source: own compilation based on the research conducted.

In line with the counter-cyclical policy, the direction of the relationship between the examined variables was noticeable in the second half of 2015 and in 2017 - at that time, the upward phase of the cycle was accompanied by increased VAT receipts. However, when analysing the entire period under study, these were episodic in nature. In view of the above considerations, VAT does not play a significant stabilising role in the Polish economy. The repeatedly changing over time VAT revenues were the result of other actions (including as a result of the implemented discretionary policy towards specific economic conditions that occurred in the studied period).

In the Czech economy, on the other hand, we can observe a clear VAT stabilisation effect coinciding with the pandemic crisis (figure 5). After the slowdown of 2020, when the economy started to enter a growth path, VAT revenues from 2021 onwards started to increase clearly. The Czech Republic is an economy whose tax revenues are at a relatively stable level in relation to GDP (figure 3); moreover, a reduction in this ratio was noticeable in the post-crisis period in the second half of 2020 and in 2021. Properly implemented countercyclical policies also applied to the years: 2010, 2015 and 2017, when the economic acceleration was accompanied by a stimulation of consumer demand.



Figure 5. Cyclical fluctuations of GDP time series and changes in VAT revenues from the first quarter of 2010 until the fourth quarter of 2022 for Czech Republic.

Source: own compilation based on the research conducted.

It should be borne in mind that the standard VAT rate in the Czech Republic is at 21%. This is a moderate value compared to other EU countries and therefore the VAT revenue-to-GDP ratio is rather low compared to other European countries (Gawthorpe, 2020). The standard 21% VAT rate in the Czech Republic has remained unchanged to date, while the reduced rate has been reduced since the beginning of 2024 and currently stands at 12% (until 2023 there were two reduced VAT rates: 10 and 15%, one of which has been completely eliminated).

Looking at the evolution of changes in economic activity and changes in VAT revenue in Slovakia, one can see a dynamic course of fluctuations together with a smooth (without significant fluctuations) course of VAT revenue. Analysing the direction of changes in the examined variables (figure 6), it can be assessed that VAT revenues have been steadily increasing since 2013, regardless of changes in the economic situation. The slight increases in VAT revenue were mainly related to growth phases in the Slovak economy (which certainly played a stabilising role). This happened in the periods 2013-2015, second half of 2016 - second half of 2018 and second half of 2020 - first half of 2022. However, these were changes of a mild and moderate counter-cyclical nature, with the highest dynamics in the period 2011-

2013, beyond which VAT revenue increases were subject to slight fluctuations, but nevertheless consistently and gradually increasing.



Figure 6. Cyclical fluctuations of GDP time series and changes in VAT revenues from the first quarter of 2010 until the fourth quarter of 2022 for Slovakia.

Source: own compilation based on the research conducted.

Although Slovakia has seen a steady increase in the share of VAT revenue, of the economies analysed it is Slovakia that has the lowest averaged share of VAT in relation to GDP. To date, the main VAT rate in Slovakia is 20%, with some products and services subject to reduced rates of 10% and 0% for selected services (Cakoci, Červená, 2021; Dobrovič et al., 2021). However, by the authorities' decision of 18.10.2024, the standard VAT rate in Slovakia will increase from 20 to 23% from 1.01.2025. In addition, the reduced VAT rate will increase from 10 to 19%. A second reduced VAT rate of 5% will also apply.

Hungary, with a characteristically high standard VAT rate of 27% at the European level (it is the highest VAT rate in the EU countries), has, like Slovakia, pursued a policy of gradual and moderate increases in VAT revenue (Pavlin, Györke, 2024). The course of change in the evolution of the VAT share in relation to GDP did not fluctuate significantly over the period under review. The largest increase in VAT revenue in relation to GDP was in 2012. At that time, when Hungary entered a phase of economic growth, there was an increased dynamics of VAT revenue collection. These measures were definitely counter-cyclical in nature. However, from the beginning of 2013, the fluctuations in Hungary's economic activity were relatively mild until the outbreak of the Covid-19 pandemic and the global economic collapse. This period saw a further increase in the share of VAT as a proportion of GDP, which may also have stabilised Hungary's economy. However, during the period of relative economic stability and low amplitudes of cyclical fluctuations (i.e. the 2013-2020 period), Hungary's fiscal policy was also pursued in a moderate manner.



Figure 7. Cyclical fluctuations of GDP time series and changes in VAT revenues from the first quarter of 2010 until the fourth quarter of 2022 for Hungary.

Source: own compilation based on the research conducted.

As shown in Figure 7, from 2012 onwards, the direction of the impact of the variables studied, although moderate, was in line with theoretical assumptions and VAT revenues increased during periods of better prosperity and decreased during periods of slowdown. However, there were negligible fluctuations in budget revenue. It can be assumed that in the Hungarian economy the overriding role of VAT is primarily to feed the state budget.

7. Discussion and final conclusions

Concluding the theoretical considerations and comparative studies carried out in this article on the relationship between changes in economic activity (measured in GDP) and changes in the share of VAT revenue to state budgets in Poland and other Visegrad Group countries, it can be noted that the impact of VAT on economic prosperity is complex. This impact depends on many factors, such as the size of the rate change, the structure of the economy, the level of confidence in public institutions or the general state of the economy. Theoretically, consumption tax rates should be reduced during a phase of low economic activity (thus inhibiting the decline in consumer demand during this period). A rational VAT policy can be an effective tool to stabilise the economy, especially during periods of economic downturn, whereas an inappropriate application of the policy can exacerbate the downturn phase of an economy. It is important that VAT decisions are made taking into account the business cycle and other aspects of fiscal policy. Studies conducted indicate that VAT policy has a significant impact on economic growth rates. For example, in the short term, a reduction in VAT can increase consumption, which contributes to a higher rate of economic growth. However, in the longer term, the effects are much more complex. Reducing VAT can contribute to increasing budget deficits, which in the long term can reduce confidence in the sustainability of public finances and reduce investment by the countries concerned. On the other hand, increasing VAT receipts may increase government revenues, but may also have the effect of reducing the level of economic activity, which in the long run may lead to lower economic growth rates (Gali, Perotti, 2003). If the budget deficit is a notorious phenomenon in an economy, governments usually cannot afford to reduce tax rates despite the economic downturn. In view of this, a budget deficit usually means higher taxes in the future. Raising taxes, on the other hand, means that the costs of reducing imbalances in public finances are shared by millions of taxpayers.

VAT is a significant and growing source of revenue among the surveyed economies. Over the period under study, this importance has increased slowly but steadily. At the same time, the relative importance of VAT in the tax structure has become more variable across countries. This means that some countries rely more on VAT and others less. Of the economies surveyed, Hungary is the country that relies the most precisely on VAT as the main stream for the state budget.

VAT is the most important consumption tax in all European Union countries. In 2022, the European Union's revenue from consumption taxes accounted for around 11% of GDP and over 27% of total revenue, slightly declining compared to 2021. In terms of VAT, the EU system is based on the EU VAT Directive, which is a harmonised legal framework to which national VAT rules must conform across the EU. The approach to reduced rates is also coordinated at EU level. The reform of VAT rates came into force in 2022 (Council Directive (EU) 2022/542). This directive amended the VAT Directive 2006/112/EC and provides EU Member States with more flexibility in setting reduced VAT rates. Reduced rates and exemptions are important levers of VAT policy. Reductions and exemptions aim to achieve distributional objectives and encourage the consumption of certain goods and services (Annual Report on Taxation, 2024).

The paper sets out to verify the hypothesis that VAT performs an automatic stabilising function, mitigating excessive fluctuations in selected economies. As a result of the research procedure carried out, it is impossible to give a clear answer to the question whether the policies implemented by the countries studied using VAT are countercyclical policies (and VAT has a stabilising function). This is not possible because in the selected economies, VAT had a stabilising function in some periods and a pro-cyclical effect in other periods. The most moderate stabilisation policies using VAT were pursued by Slovakia and Hungary, and the direction of the impact of GDP and VAT revenues were countercyclical in the vast majority of the research period. In the Czech Republic, cyclical fluctuations were characterised

by the highest amplitude of fluctuations and VAT fulfilled the role of a stabiliser in selected periods. In Poland, on the other hand, VAT fulfilled the stabilising function only episodically.

Despite the different conclusions obtained for individual economies or for individual periods, it can certainly be recognised that the impact of VAT does not operate in a vacuum and that other factors also contribute to the economic stabilisation process. Nevertheless, taxes do have a significant impact on the shaping of the economic situation. Their proper regulation at appropriate points in the business cycle can support economic recovery or help stabilise the economy during downturns. It is important that tax policy is tailored to current economic conditions and the budgetary needs of the state.

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