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SCIENCE

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IVANE JAVAKHISHVILI
TBILISI STATE UNIVERSITY



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LAFFER-KEYNESIAN SYNTHESIS AND MACROECONOMIC EQUILIBRIUM



IURI ANANIASHVILI

Professor at TSU Faculty of Economics and Business; Head of Department of Econometrics; Doctor of Economic Sciences; has published over 80 scientific works on mathematical modeling in economics, macroeconomics and microeconomics; Georgian State Prize Laureate in the fields of science and technology. Received recognition for the best report of the scientific forum at TSU dedicated to the memory of Ivane Javakishvili in 2014.



VLADIMIR PAPAVAL

Rector of Ivane Javakishvili Tbilisi State University (TSU); Professor at the Faculty of Economics and Business; Chief Research Fellow at the Paata Gushvili Institute of Economics. In 1994-2000 served as Minister of Economy of Georgia; in 2004-2008 Member of Parliament; in 2005-2006 Fullbright Researcher at the Central Asia – Caucasus Institute, Nietzsche School of Johns Hopkins University (Washington, USA). Authored over 300 publications on economic development, macroeconomics, post-communist economics, geoeconomics, as well as theoretical and applied issues of geopolitics. Professor Papava defended his Dissertation in 1982 at the Central Economics and Mathematics Institute of the USSR Academy of Sciences, and PhD dissertation at Tbilisi State University (1989) and Leningrad State University (1990).

In 2014, Nova Science Publishers issued a book entitled Laffer- Keynesian Synthesis and Macroeconomic Equilibrium by Georgian economists Iuri Ananiashvili, Professor at the TSU Faculty of Economics and Business and Head of the Department of Econometrics and Vladimir Papava, TSU Rector and Professor at the Faculty of Economics and Business. The book, consisting of four chapters, has been highly recommended by famous economists Farrokh K. Langdana, Professor at the Finance and Economics Department at Rutgers Business School; Louis H. Ederington, Professor at the University of Oklahoma, and Evgeny Balatsky, Chief Research Fellow at the Moscow Central Economics and Mathematics Institute. The book will help specialists and readers interested in general macroeconomic patterns to clarify the role of taxes in the process of economic development.

“We, the authors, have a good understanding that under modern conditions, successful research in economics is impossible without using the methods of quantitative analysis. Not only do such methods simplify abstract thinking, but they also provide an opportunity for experimentation. Unfortunately, unlike researchers in other fields such as physics and chemistry, we economists do not have the opportunity to experiment. Therefore, we frequently look to economic-

mathematical models for hypotheses and substantiation of our results. On their basis, we carry out various scenarios by using real or conditionally real data. This approach has played a significant role in obtaining and establishing the results described in the book.”

For decades, economists have been interested in what an acceptable tax burden for the economy should look like as well as what percentage of a created product's profit should be taken in taxes by the government

and how much should remain for the private sector in order to ensure as much efficient economic functioning as possible. If we look at world practice, we see that in some countries the share of taxes withdrawn by the government attains 50% of the GDP while in other countries, like in Georgia, it is half of this and amounting to 26-27%. Is this parameter desirable for this or that country? Should it be higher or lower? A great many models and works have been created to answer this

■ *For decades economists have been interested in what a tax burden acceptable for economics should look like, what part of a created product, what per cent should be taken by the government in taxes, and how much should remain for the private sector to ensure as much efficient economic functioning as possible. If we look at world practice, we see that in some countries a share of taxes withdrawn by the government attains 50% of GDP, while in other countries it is half, like in Georgia where it amounts to 26-27%. Is this parameter desirable for this or that country? Should it be higher or lower? A lot of models and works have been created to answer this question.*



question. Ananiashvili and Papava initially started their research to create and use original models. As Ananiashvili notes, however, the problem proved to be more difficult, multifaceted and interesting than was supposed by other economists. It became necessary to carry out complex research on the problem. This determined the structure and content of their abovementioned book.

As the authors of the research explain, there are two specific concepts in economic science – supply and demand. In terms of a country's economy, aggregate supply and aggregate demand determine the behaviour of economic subjects from two different angles. In particular, aggregate supply is the total supply of goods and services produced within an economy at a given overall price level in a given time period. Aggregate demand is the unity of expenses defrayed by households, firms, government and representatives of other countries for purchasing end-products and services produced in the country. The amount of this figure largely determines the level of economic activity – the greater expenses are, the more the country's economy is encouraged to produce more products, thereby increasing employment and accelerating economic growth.

There are many factors that can influence the amount of aggregate demand, including tax rates. Chapter 1 of the book looks at the correlation between taxes and aggregate demand. In modern macroeconomic theory,

this correlation is studied on the basis of the Keynesian theory and model which unambiguously defines the role of taxes. An increase in the tax burden has a negative effect while a decrease has a positive effect on aggregate demand because the key element defining aggregate expenditures – the amount of consumer household spending – decreases in the first case and increases in the second. However, in the opinion of Ananiashvili and Papava, a discussion of the correlation of taxes and aggregate demand only from this angle over-simplifies the actual situation. They believe that in a certain situation, an increase in taxes leads to increased aggregate demand and a decrease in taxes leads to a decreased aggregate demand. To substantiate this opinion, Georgian researchers, similar to the marginal propensity of households to consume which is well-known to economists, refer to the figure of marginal propensity for government purchases. By this latter reference, they refer to the expenses on the purchase of goods and services defrayed by the government from additional units of net taxes. Ananiashvili notes that unlike the marginal propensity to consume, the marginal propensity for purchase is regulated by the government. Proceeding from the economic situation, the government can either increase or decrease its value but, in any case, the parameter of the marginal propensity for government purchases should be kept within 0 and 1; that is, a natural demand.

He also notes that a zero marginal propensity to purchase does not mean that purchases are impossible because the government can make purchases not only from tax revenues but also by taking a loan or from non-tax revenues.

The authors note that the role of taxes with respect to aggregate demand can be explained differently according to the attitude between a household's marginal propensity to consume and the marginal propensity for government purchases. In particular, when the marginal propensity to consume exceeds the marginal propensity for government purchases, an increase in the tax burden decreases the joint marginal propensity of households and the government for expenditures and, accordingly, under other equal conditions (*ceteris paribus*) decreases aggregate demand which has negative effects on the economy. In the opposite case, when the marginal propensity for purchases exceeds the marginal propensity to consume, an increase in the tax burden causes an increase in the joint marginal propensity of households and the government which, under other equal conditions, fosters the growth of aggregate demand and, consequently, an equilibrium output. Finally, when these two parameters coincide, a change in the tax burden does not impact the joint marginal propensity for expenditure because the aggregate demand is indifferent to taxes.

This result shows that the effect of an



increase on the average tax rate and on taxes as a whole on aggregate demand is not unequivocally negative as it is customarily presented in canonical form in contemporary Keynesian economic textbooks. The government can purposefully use a tax increase to conduct a stimulating or inhibiting economic policy. When households do not sufficiently expend their disposable incomes, one of the ways to increase aggregate demand means an increase in taxes on the condition that additional incomes received by the government in this form will be used for purchases. Conversely, if households expend more than the government would expend from collected taxes, then it is definitely better to have lower taxes.

“As a rule, the government spends more than a household. It does not mean that an increase in taxes is always expedient for the economy. The question is that the permanent growth of taxes is accompanied by the growth of a share of the state sector in the economy and the transformation of the market structure into a socialist structure which is not desirable at all. Even if it were not so, besides aggregate demand, the economic status is equally determined by aggregate supply which also depends on the amount

of the tax burden and, under certain conditions, it reacts negatively on increasing this burden,” Ananiashvili explains.

Chapters 2 and 3 of the book are dedicated to a review and analysis of the American economist, one of the representatives of supply-side economics, Arthur Laffer's theory. This theory basically focuses on the attitude between the tax burden (the average tax rate) and business activity which is finally reflected in aggregate supply. According to the Laffer theory, taxes do not unequivocally affect aggregate supply and business interests. The direction of this effect depends on the ratio of positive and negative effects during changes of tax rates. Positive are those effects that promote economic activity and aggregate output growth at an increasing average tax rate and hampers it at a decreasing tax rate. Accordingly, negative effects reduce economic activity and aggregate output at an increasing average tax rate and, vice versa, increase them at a decreasing average tax rate. Laffer and his followers postulate that the increase in an average tax rate from zero to a definite point causes an increase in aggregate supply and from this point to 1 – causes a decrease in aggregate supply. It is especially important that in the interval

between 0 and 1, representing the range of permissible values of the average tax rate, there are, as a rule, two different values – the fiscal point of the first and second kind. In the case of fiscal points of the first kind, aggregate supply reaches its maximum; or, the aggregate output of the economy is equal to a potential level. The fiscal point of the second kind corresponds to the maximum tax revenues of the budget.

If we consider real the existence of fiscal points of the first and second kind, determining their particular values can largely promote the improvement of the country's economic policy. Therefore, a great part of the publications related to Laffer's theory contain attempts to determine such points for the economies of various countries. In their book, Ananiashvili and Papava make a conclusion based on analysing these publications according to which the multiplicity of models determining Laffer's fiscal points can be divided into two groups – transformation models and behavioural models. The value of the tax burden in transformation models has an impact on the efficiency of the utilisation of economic resources involved in production and decreases or increases it according to how burdensome the tax burden is. In other

■ *The result shows that the effect of an increase in the average tax rate and taxes as a whole on aggregate demand is not unequivocally negative, as it is customarily presented in canonical form in contemporary Keynesian economic textbooks. The government can purposefully use a tax increase to conduct a stimulating or inhibiting economic policy.*

words, the amount of the utilisation of the economic resources provided in transformation models, and under such conditions by defining the fiscal point of the first kind, we try to understand what tax rate is needed to achieve maximum output. Also, by defining the fiscal point of the second kind we try to understand what particular tax rate will ensure maximum tax revenues to the budget. The authors explain that such an approach is close to Laffer's theory but cannot fully answer it. The question is that the Laffer concept more widely discusses the role of the tax burden and supposes that its change, with its subsequent positive and negative stimuli, will affect not only the efficiency of resource utilisation, but also the amount of utilisation. This is a very important aspect and can be taken into consideration only through behavioural models.

The book pays special attention to the issues of the analysis and the practical use of the variant of the original behavioural model developed by the authors who note that two circumstances were taken into account when constructing the model. The first one is that, in any economy, the total output depends on the amount and quality of the existing economic resources (labour, capital, land and production capabilities) and on the level of technology for using these resources. These factors determine the economy's production technology capabilities which, if they are distributed in the best possible way and fully used, the maximum output is achieved which is also called the potential output level. The second circumstance is that no less a role in the economy is played by the institutional

environment whose creation is a function of the government. Depending on how ideal the institutional environment is, in conditions of the same production-technology capabilities, the amount of output will be different for any two economies or for any two periods of time. In the case of the best or ideal institutional environment, the actual and potential outputs are equal to each other. Along with many other moments, the current taxation system also plays an important role in the creation of the institutional environment. "We simplified the situation when constructing the model and allowed that just the taxation system is the key factor for the creation of the institutional environment and only it determines the behaviour of economic subjects. By this, we managed to interconnect potential output and the tax burden value, as a result of which we received the model that is completely in line with the Laffer concept," Ananiashvili notes.

Since there are no comprehensive statistical data available in Georgia to conduct a serious study, the authors turned to the statistical data that exist for the U.S. economy. "It appeared according to our calculations that the actual value of the tax burden in the U.S. economy during the period of 1970-2008 was about 1 percent less than the point under which the actual GDP value would be equal to the potential level. Another interesting circumstance is that it would have been necessary to almost double the existing tax burden to maximise the U.S. state budget's tax revenues which would have led to the reduction of its economy by 20%. This circumstance questions the expedience of such economic policy where the government gives priority to maximising tax revenues rather than encouraging economic activities," Ananiashvili says.

In the authors' opinion, the fourth chapter is the most important part of the book and its title was reflected in the name of the book. Papava stated: "If we analyse the existing literature, we will see that, regrettably, the role of taxes is studied unilaterally in modern economic theories. In particular, the Keynesian models and theory focus mostly on that mechanism by which taxes influence the economy through aggregate demand and the mechanism of influence through aggregate supply is almost neglected. The problem of taxes is also unilaterally discussed in the supply theory which focuses on the influence of tax rate(s) on aggregate supply. Naturally, it is possible to provide a detailed explanation of the role of taxes and overcome the unilateral nature of these theories through their synthesis. In the book, we offer one of the possible options for illustrating such a

synthesis. It is based on the model macro-economic equilibrium consisting of the functions of aggregate demand and aggregate supply. But, unlike the standard model where under other equal conditions the price level is considered as the key determinant of aggregate demand and aggregate supply, in our model the average tax rate represents that determinant. Such an approach enabled us to see the role of the average tax rate from a new angle."

Ananiashvili outlines several important points: "First, analysis has shown that we need to differentiate factual, equilibrium and optimal average tax rates." Equilibrium of the average tax rate ensures an economic equilibrium during which aggregate demand and aggregate supply are equal. During the optimal rate, full employment is created in the economy and the aggregate output is at the potential or maximum level. As a rule, these three values of tax rates rarely coincide with each other.

Second, the value of the average tax rate has a significant effect on the general economic situation but imposing optimal average tax rate by the government cannot increase the level of employment and initiate the transition of potential output to a relevant equilibrium. Under the Laffer-Keynesian synthesis, aggregate demand, along with taxation treatment, plays an important role in achieving full employment and increasing economic activity.

Third, when the government keeps the average tax rate in a stable position, then each new equilibrium price level has its own optimal tax rate and an appropriate change in aggregate demand leads to an approximation of the optimal rate to the equilibrium rate. So, an important conclusion can be made according to which the government should not try to regulate the economy through changing tax rates to any extent. When you "disturb" the economy by making changes to taxes, the results will be bad no matter what you wish might happen.

Finally, another important conclusion based on the Laffer-Keynesian synthesis model is this: The unity of the functions and the curves of aggregate supply and the budget's tax revenues may correspond with each value of the equilibrium tax rate. In other words, fiscal and production options of the Laffer curve do not represent sustainable constructions and can change according to economic situations, especially as a result of price changes which, in turn, are followed by significant changes of Laffer's fiscal points of the first and second kind.