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# Theoretical Foundations of the Laffer Curve

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**ABSTRACT. The Laffer Curve is the most evident illustration of the key postulations of the supply-side economics. Presently, almost all modern economics textbooks are evidently critical of the Laffer Curve. Despite this, there are a number of most recent works aimed at studying mathematical and empirical implications of the Laffer Curve. It must be underlined that originally the Laffer Curve was formulated in a macroeconomic context, for which reason it is not applicable to individual taxes, but rather to a certain average aggregate tax. The combining of the Laffer Curve approach with the Keynesian approach cutting of taxes, leads to a form of Laffer-Keynesian synthesis.** *© 2008 Bull. Georg. Natl. Acad. Sci.*

***Key words:*** *Laffer Curve, taxes, supply-side economics, Keynesian approach.*

One of the most disputable problems of the modern economic theory is that of the tax burden's impact on economic activity of people, as well as national budgetary revenues.

More than four decades have elapsed since the time when an American economist, Arthur Laffer, proposed a curve (later named after him) which described dependence of the national budget tax revenues on an Average Aggregate Tax (AAT) and according to which initially, with an increase in the AAT, tax revenues grow too; however, having reached a certain point (called a Laffer Point) at which the tax revenues reach their maximum value, they start falling. Such dependence, also known as a Laffer Effect, in some works is referred to as Laffer's Law [1].

The Laffer Curve is the most evident illustration of the key postulations of the supply-side economics [2]. Obviously, "attractiveness" of the idea on which the Laffer Curve was based, as well as simplicity of presentation, influenced Ronald Reagan (who is said to have experienced the effects of the Laffer Curve in real life (see [3, p.166]), a candidate for presidency at the time, so much that it became a basis of the economic policy (later called Reaganomics) which the US administration pursued after his winning the presidential election. Irrespective of skeptical attitudes of many prominent economists of the time towards the Laffer Curve itself, as well as the US position on it, clear simplicity of the graphically illustrated dependence of tax revenues on the AAT was gradually gaining in popularity. Later the theory of supply-side economics not only did become a subject of research on the part of the IMF experts [4], but one time it was recognized as a part of the IMF programs (see, for example, [5]).

Presently, almost all modern economics textbooks are evidently critical of the Laffer Curve, as well as the effects of Reaganomics (see [3, ch. 8; 6, ch. 17, 31; 7, ch. 19; 8, ch. 16, 18]). Despite this, there are a number of most recent works aimed at studying mathematical (for example, [1]) and empirical (for example, [9]) implications of the Laffer Curve.

According to E. Balatski, the works devoted to the research of the Laffer Curve can be divided into two major groups and, accordingly, be classified as theoretical and practical research groups ([10, p. 33]). The first group consists of works aimed at modeling fiscal and production processes and providing theoretical reasoning for parabolic curve and availability of the Laffer

Points (for example, [11-14]); the other group comprises reflections on the location of the Laffer Points in different national contexts (for example, [10, 15-19]).

The idea underlying the Laffer Curve is very simple: it is assumed that where the AAT amounts either to 0% ($t$=0), or to 100% ($t$=1), tax revenues of national budget amount to zero; however, at a certain point between 0% and 100%, where the AAT, or $t_{max}$ is located, the revenues reach their maximum value $T_{max}$. A graphical illustration of the Laffer Curve is shown in Fig. 1.

According to E. Balatski, both the idea and the graphical presentation of the Laffer Curve are based on the following purely artificial postulations:

1) A dogmatic assertion (which, in fact, is just a logical supposition) that at a certain point between 0% and 100% the AAT ensures a maximum amount of tax revenues [20, p. 39]; however, as is shown below, further research may shed more light on the rightness of this assertion;

2) A hypothetical reflection on certain marginal situations, as the immediate implication of zero-rate taxes is that there is no government at all (because there would be no funds to maintain the government); furthermore, a supposition that as soon as the government succeeds in collecting all revenues in their entirety, production output will start falling and the government will no longer get anything may be disproved by a long experience of command economy; from this point one can come to a conclusion that the Laffer Curve does not "cover" the whole interval [0, 1], but rather a shorter section of it (0, $t_0$), where $0.5< t_0<1$ [16, p. 93]; with this correction the Laffer Curve will look like it is presented in Fig. 2;

3) A mechanical implication, stemming from an original macroeconomic statement of problem, that all taxes are proportional, as a result of which more sophisticated fiscal systems (of both progressive and regressive taxation), which can be encountered quite often in practice, "can not fit" an aggregated framework of the Laffer Curve [20, pp. 39-40];

4) A supposition that there is an economy without inflation, as the Laffer Curve describes tax revenues in their nominal value; as a result, under the conditions of the Oliver-Tanzi effect which causes the growth of tax revenues, as well as the shrinking of tax base because of a relatively high inflation rate (i.e. in the environment of inflation), it becomes necessary to recalculate tax revenues in real terms; however, this may question the very existence of the Laffer Curve, as such [20, pp. 40-42].

It is no surprise that in view of the above-stated, as well as the results got by other researchers, Balatski comes to a conclusion that the Laffer Curve is nothing but a beautiful hypothesis which, on the whole, has not been proved by anything [21, p. 9]. Despite this, many researchers presume the existence of the Laffer Curve as something given *a priori* [22-26].

A number of works are designed to determine a level of "dependence" of specific taxes on the Laffer Curve. Specifically, it is demonstrated that what this curve describes best is dependence of tax revenues on the VAT rate ([12, 15]); however, one has to note that applicability of the Laffer Curve to some categories of taxes is quite questionable [16-17].

In fact, since the very invention of the Laffer Curve the question of using it with the purpose of setting an optimal profit tax rate was posed; however, as a result of the most recent theoretical studies, it was established that this curve was not usable for describing changes in the profit tax rate and that any rise in this rate would be followed by a rise in budgetary revenues as well ([12, pp. 139-140]).

It must be underlined that originally the Laffer Curve was formulated in a macroeconomic context, for which reason it is not applicable to individual taxes, but rather to a certain AAT [20, p. 39]. Quite often, instead of the latter, they use the concept of "tax burden" which is described as a ratio of actual tax revenues of the national budget to a country's gross domestic product (GDP) [10, pp. 33-34].

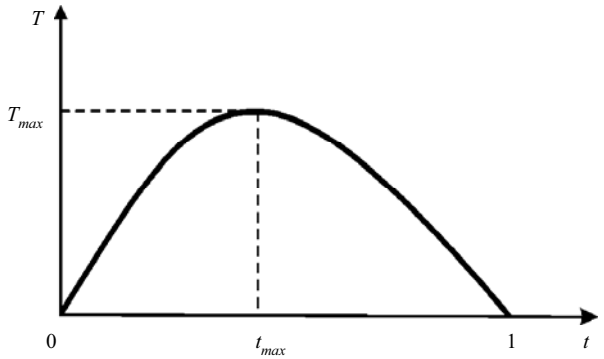

Fig. 1. Laffer Curve.

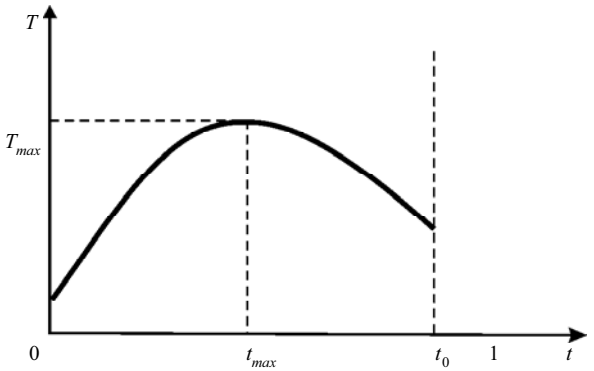

Fig. 2. Laffer Curve under Undetermined Marginal Conditions.

We believe that this method of estimation of tax burden is quite disputable, as it does not cover, on the one hand, all those potential tax revenues which, for a number of reasons, never go to the national budget, including the heavy weight of tax burden, and, on the other hand, that part of the GDP which for the same reasons is produced by "shadow economy"; in other words, this index, which is designed to measure tax burden, does not cover the losses of both the national budget and the GDP and the reason for that is its heavy weight.

As was noted above, graphically the Laffer Curve is described as a "ratio of tax rate – to tax revenues". As to the idea on which the curve is based, it covers not only fiscal, but also production-related aspects of changes in the AAT. In particular, according to the proponents of the supply-side economics, a decrease in the AAT down from a relatively high point facilitates the growth in both the labor supply and investments, which in turn, brings about the growth of the GDP and, in the long run, the expansion of the tax base. As E. Balatski points out, the concept of the Laffer Curve rests on a belief that there is a certain dependence of tax base (in other words, of the GDP) on the AAT, analogous with the dependence of tax revenues on the same AAT; in other words, by the Laffer Curve one may describe simultaneously fiscal and production-related aspects (effects) of any changes in the AAT [20, p. 39].

On the basis of this assumption, Balatski offers to split the entire concept of the Laffer Point into two types: the first type encompasses the cases where the GDP accomplishes its maximum value; and the second type where the climax is reached by the national budget's tax revenues [16]. In addition, if we try to draw up the Laffer Curve on the basis of the above-mentioned tax burden, we will see that the Laffer Point of the first type will be shorter than that of the second type (it will be to the left side of the abscissa axis); in other words, the maximum amount of the GDP can be reached at a lower value of tax burden which can enable maximum tax revenues to the national budget. This means that during the interval between the two Laffer Points an increase in tax revenues may be effected even under the conditions of relative drop of production output (or reduction of the GDP) [10].

This result is in perfect harmony with the works of A. Dagaev, who asserts that whenever the Laffer Curve is used to describe the dependence of investments on the AAT, it is demonstrated that the value of the latter at which the maximum amount of investments is reached is lower than the other one which ensures the maximum amount of collected taxes [24, 27]; consequently, during the period between these two values of the AAT, the decrease in investments will not disable increases in tax revenues.

As one can see, the Laffer Curve is related to a number of disputable questions as to conceptual and even graphical aspects. Irrespective of skeptical attitudes towards both the Laffer Curve itself and its theoretical foundations on the part of some modern prominent economists (for example, [28, pp. 157-158; 29, pp. 47-51]), there are a number of applied developments, primarily in respect of post-Communist economies, which witness to existence of the Laffer Effects in the real world (for example, [10, 19]). Although this fact cannot be used as an incontrovertible evidence of the verity of the whole curve, it does confirm that under certain circumstances there is interdependence between the growth of both tax revenues of the national budget and the GDP, on the one hand, and the reduction of a relatively high AAT, on the other hand.

The reduction of tax rates not only stimulates an expansion of supply, but it also creates an indispensable condition for stimulating demand; this results from the fact that lower taxes result in increased disposable income which can then be spent on consumer goods and investments. True, according to the Keynesian approach, in order to stimulate demand attention must be paid to government expenditure, but this approach does not exclude reducing taxes in order to stimulate demand. However, this indirect way of stimulating demand is usually less popular in the Keynesian theory.

The combining of the Laffer Curve approach with the Keynesian approach cutting of taxes, leads to a form of *Laffer-Keynesian synthesis* [25-26], which can help us to better understand the process of simultaneous promoting of both – supply and demand.

*ეკონომიკა*

# ლაფერის მრუდის თეორიული საფუძვლები

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ეკონომიკური მეცნიერებისა და ეკონომიკური პოლიტიკის ერთ-ერთ ყველაზე უფრო მწვავე თემას წარმოადგენს მოსახლეობის ეკონომიკურ აქტიურობასა და სახელმწიფო ბიუჯეტში საგადასახადო შემოსავლების მობილიზებაზე საგადასახადო ტვირთის ზეგავლენის პრობლემა.

მეოთხედ საუკუნეზე მეტი გავიდა მას შემდეგ, რაც ამერიკელმა ეკონომისტმა არტურ ლაფერმა პირველად დახაზა მრუდი, რომელიც ბიუჯეტში საგადასახადო შემოსავლებზე გასაშუალოებული ერთობლივი გადასახადის განაკვეთის ზეგავლენას ასახავს. დღეისათვის თითქმის ყველა ეკონომისტისა თუ პოლიტიკოსისათვის კარგადაა ცნობილი, რომ აღნიშნული მრუდის თანახმად, გასაშუალოებული ერთობლივი გადასახადის განაკვეთის ზრდის კვალობაზე ბიუჯეტში მობილიზებული საგადასახადო შემოსავლებიც იზრდება, მაგრამ რაღაც წერტილის შემდეგ (რომელიც ცნობილია ლაფერის წერტილის სახელწოდებით), რომელზეც ეს შემოსავლები თავის მაქსიმალურ მნიშვნელობას აღწევს, ამ განაკვეთის შემდგომი ზრდა უკვე საგადასახადო შემოსავლების კლებას იწვევს. გასაშუალოებული ერთობლივი გადასახადის განაკვეთსა და ბიუჯეტში საგადასახადო შემოსავლებს შორის არსებული ეს კავშირი ლაფერის ეფექტის სახელწოდებითაა ცნობილი.

ლაფერის მრუდი მიწოდების ეკონომიკური თეორიის ძირითადი დებულებების ილუსტრაციის ერთ-ერთ საუკეთესო საშუალებადაა აღიარებული.

დადგენილია, რომ ლაფერის მრუდი ხელოვნურ პოსტულატებს ემყარება. აქვე აუცილებელია ხაზგასმით აღინიშნოს, რომ ლაფერის მრუდი თავიდანვე მაკროეკონომიკურ ჭრილში იქნა ჩამოყალიბებული, რის გამოც ის გადასახადების არა ცალკეულ სახეობათა, არამედ გასაშუალოებული ერთობლივი გადასახადის მიმართ შეიძლება იქნეს გამოყენებული.

საყურადღებოა, რომ გადასახადების შემცირება არა მარტო მიწოდების, არამედ მოთხოვნის ზრდასაც უწყობს ხელს. ეს უკანასკნელი კი შესწავლილია კეინზის ეკონომიკურ თეორიაში. აქედან გამომდინარე, დღის წესრიგში დგება ლაფერ-კეინზიანური სინთეზის სიღრმისეული შესწავლის ამოცანა.

## REFERENCES

1. *R. Guesnerie* (1998), A Contribution to the Pure Theory of Taxation, Cambridge.
2. *V. A. Canto, D. H. Joiness, A. B. Laffer* (1983), Foundations of Supply-Side Economics: Theory and Evidence, New York.
3. N. G. Mankiw (1998), Principles of Economics. Fort Worth.
4. *V. P. Gandhi, L. P. Ebrill, G. A. Mackenzie & others* (1987), Supply-Side Tax Policy. It's Relevance to Developing Countries, Washington, DC.
5. *A. F. Moustapha* (1992), Supply-Oriented Adjustment Policies. In: J. M. Davis (ed.), Macroeconomic Adjustment: Policy Instruments and Issues, Washington, DC, pp. 77-90.
6. *P. A. Samuelson, W. D. Nordhaus* (1995), Economics, New York.
7. *C. R. McConnell, S. L. Brue* (1990), Economics: Principles, Problems, and Policies, New York.
8. *R. Dornbusch, S. Fischer* (1990), Macroeconomics, New York.
9. *J. Slemrod* (1996), On the High-Income Laffer Curve. In: J. Slemrod (ed.), Tax Progressivity and Income Inequality, Cambridge, pp. 177-210.

10. *Е.В.Балацкий* (2000), Проблемы прогнозирования, **5**: 32-45.
11. *Л.Е.Соколовский* (1989), Экономика и математические методы, **25**, 4: 623-632.
12. *С.Мовшович, Л.Соколовский* (1994), Выпуск, налоги и кривая Лаффера: Экономика и математические методы, **30**, 3: 129-141.
13. *В.В.Капитоненко* (1994), В кн.: Экономика и технология, Москва, с.57-71.
14. *В.Аркин, А.Сластников, Е. Шевцова* (1999), Налоговое стимулирование инвестиционных процессов, Москва.
15. *С.В.Гусаков, С.В.Жак* (1995), Экономика и математические методы, **31**, 4: 131-138.
16. *Е.В.Балацкий* (1997), Мировая экономика и международные отношения, **11**: 31-43.
17. *Е.В.Балацкий* (1997), Мировая экономика и международные отношения, **12**: 85-94.
18. *Е.В.Балацкий* (1999), Мировая экономика и международные отношения, **3**: 31-42.
19. *В.Вишнецкий, Д.Липницкий* (2000), Вопросы экономики, **2**: 107-116.
20. *Е.В.Балацкий* (1997), Мировая экономика и международные отношения, **1**: 32-44.
21. *Е.В.Балацкий* (2000), Экономика и математические методы, **36**, 1: 3-16.
22. *С.В.Алексашенко, Д.А.Киселев, П.М.Теплухин, Е.Г.Язин* (1989), Экономика и математические методы, **25**, 3: 389-395.
23. *Л.Е.Соколовский* (1992), Экономика и математические методы, **28**, 4: 583-588.
24. *А.А.Дагаев* (2001), Мировая экономика и международные отношения, **1**: 65-68.
25. *V. Papava* (1996), Communist Economies & Economic Transformation, **8**, 8: 251-267.
26. *V. Papava* (1999), In: P.G. Hare (ed.), Systemic Change in Post-Communist Economies. Selected Papers from the Fifth World Congress of Central and East European Studies, Warsaw, 1995. London, pp. 266-292.
27. *А.А.Дагаев* (1995), Экономист, **10**: 60-66.
28. *P. Krugman* (1994), Peddling Prosperity: Economic Sense and Nonsense in the Age of Diminished Expectations. New York.
29. *P. Krugman* (1998), The Accidental Theorist: and Other Dispatches from the Dismal Science. New York.

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