საქართველოს მეცნიერებათა ეროვნული აკადემიის მოამბე, ტ. 3, №1, 2009
BULLETIN OF THE GEORGIAN NATIONAL ACADEMY OF SCIENCES, vol. 3, no. 1, 2009

Economics

Alternatives of the Laffer Curve with "Hysteresis"

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ABSTRACT. The "corrections" to the Laffer Curve are based on a factor of time. High importance is the question – in which direction the average aggregate tax is changing: upward or downward, when the Laffer Effect always appears a couple of years later. Alternatives of the Laffer Curve are constructed in the article.

Key words: *Laffer Curve, Laffer Effect, Balatski-Papava Curve, Vishnevski-Lipnitski-Papava Curve.*

The "corrections" to the Laffer Curve are based on a factor of time, in particular, of that time interval which is necessary for the Laffer Effect to be disclosed.

Most recent studies have shown that whenever the time factor is taken into account, of no less importance is the question – in which direction the Average Aggregate Tax (AAT) is changing: upward [1] or downward [2]. Let us review each of these scenarios separately [3, 4].

Balatski proposes a concept of "post-effect" the key implication of which is that at a certain point, a further increase in AAT brings about the cutting of budget's tax revenues only after a couple of years [1: 8]. Dagaev, in turn, uses a concept of tax "hysteresis" (which in Greek means "deferment") [5: 65]. To the extent that the Laffer Effect always appears a couple of years later, a more precise phrase would be *the Laffer Effect with Tax "Hysteresis,"* or *the Laffer Effect with "after-effects,"* or *the Laffer Effect with "post-effects."*

Because of a need to take into account the time factor, a so-called fiscal curve, in which this effect should be reflected, should not be expressed by "tax revenues and AAT" coordinates, as is the case in connection with the Laffer Curve, but rather, as is proposed by Balatski, by those of "tax revenues and time" [1: 9]. We believe though that the best option would be a three-dimensional fiscal curve presented by the following three coordinates: AAT (t), tax revenues (T), and time (τ).

Before we offer a graphical illustration of the said fiscal "hysteresis" on a fiscal curve, let us consider the scenario where the AAT is changing upward. Bearing this in mind, let us project the said three-dimensional space (see Fig. 1).

Let us consider the time interval $[0, \tau_2]$ during which AAT goes up from 0 to 1. As is shown in Fig. 1, in case of the interval $[0, \tau_1]$, an increase in AAT (t) results in the growth of tax revenues, which reach their climax (T_{max}) at the point of t_{max}; A and C are relevant points on the fiscal and tax curves respectively. It is during the transition from A to B on the fiscal curve that Laffer Effect with the tax "hysteresis" appears, provided the AAT is going upwards; specifically, even at a very insignificant increase in t_{max} of AAT, the tax revenues will start falling only after θ years, i.e. as of the year $(\tau_1 + \theta)$. In other words, A of the fiscal curve corresponds to C and D of the tax curve; at the same time, the latter (i.e. D) matches B of the fiscal curve.

Consequently, if AAT is equal to t_{max}, in the year τ_1 tax revenues will reach their maximum value T_{max}, whereas in the year $(\tau_1 + \theta)$ they will be reduced to T_1. The split of the fiscal curve at the points A and B is the very reflection of the Laffer Effect with the tax "hysteresis." Please note that in case of a further increase in AAT, after its "passing" the Laffer Effect with tax "hysteresis" (which on the tax curve is illustrated by a move from D to E), during the interval (t_{max}, t_0) tax revenues will be dropping.

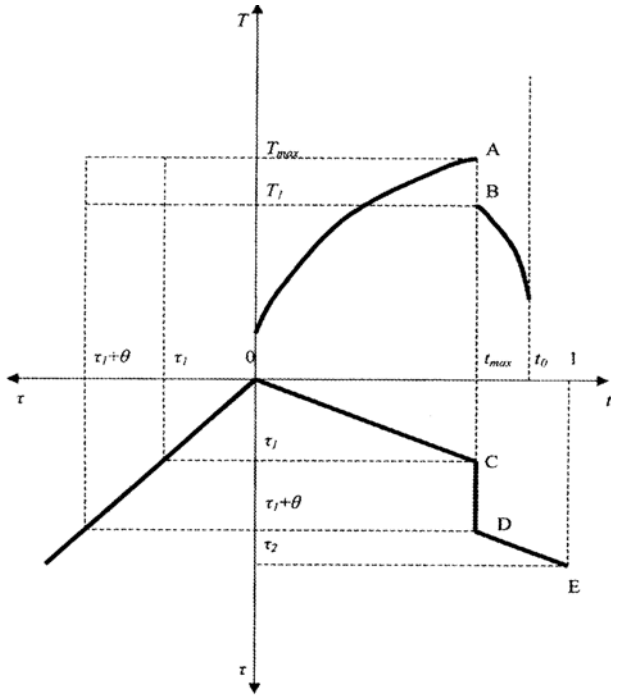

Fig. 1. Balatski-Papava Curve

It is noteworthy that on the fiscal curve we are considering here (Fig. 1), the Laffer Effect looks significantly modified, which fact, as was noted above, is a result from the effect of tax "hysteresis." Furthermore, the Laffer Point is missing and the fiscal curve itself, displayed in Fig. 1, hardly could be referred to as the Laffer Curve. To the extent that the fiscal curve on Fig. 1 is a reflection of Balatski's research efforts, it would be fairer to call it the *Fiscal Curve According to the Balatski Version*, or sipmly the *Balatski-Papava Curve*, and t_{max} point (for the purposes of this curve), at which the effect of tax "hysteresis" appears, the *Balatski-Papava Point* [3, 4].

The Laffer Effect with tax "hysteresis", as is shown by Vishnevski and Lipnitski, reveals itself – in a somewhat modified shape though – in the case where the AAT is changing downwards [2: 113-114]. Like in the case of Fig. 1, let us draw a graphical picture of the fiscal curve, where during the time interval [0, τ_2] the AAT goes to 0 down from 1 (see Fig. 2).

According to Fig. 2, during the time interval [0, τ_1], a reduced AAT rate (t) causes an increase in budgetary tax revenues up to t_{max}, which revenues, having approached the T_1 level (which corresponds to A on the fiscal curve), drop immediately to the T_2 level (which corresponds to B on the fiscal curve) and stay there for the subsequent years (θ). Consequently, A and B of the fiscal curve match D of the tax curve. In the year (τ_1 + θ), however, provided the AAT rate is the same, amounting to t_{max}, because of the effects of tax "hysteresis," tax revenues will "jump" to their maximum value, T_{max} (which corresponds to C of the fiscal curve and E of the tax curve). On the fiscal curve, to the extent that the AAT rate is falling, the effect of tax "hysteresis" appears during the transition from A to C, "through" B. If that process of falling goes on, after the year (τ_1 + θ) the tax revenues will be dropping too.

Like in the case of the Balatski Curve, again because of tax "hysteresis", the Laffer Effect looks modified on this fiscal curve too (see Fig. 2). Again, the Laffer Point is missing, for which reason one cannot call this curve Laffer's. To the extent that the fiscal curve in Fig. 2 is a reflection of research efforts of Vishnevski and Lipnitski, it would be fairer to call it the *Fiscal Curve According to the Vishnevski-Lipnitski Version*, or sipmly the *Vishnevski-Lipnitski-Papava Curve*, and t_{max} point (for the purposes of this curve), at which the effect of tax "hysteresis" appears, the *Vishnevski-Lipnitski-Papava Point* [3, 4].

The fact that both the Laffer Point and the Laffer Curve are missing does not mean that in every event of a reduced AAT rate one has to expect that a tax "hysteresis" will show up; for example, if originally the AAT rate had been in the interval (t_{max}, t_0) and later it was cut so much that all of a sudden it was found in the interval (t_1, t_{max}), the tax revenues will grow almost "immediately" as they will be no less than T_1.

The main problem related to the practical use of the Laffer Effect is that one should not make a mistake while identifying the economy's location at such section of the Vishnevski-Lipnitski-Papava Curve which corresponds to

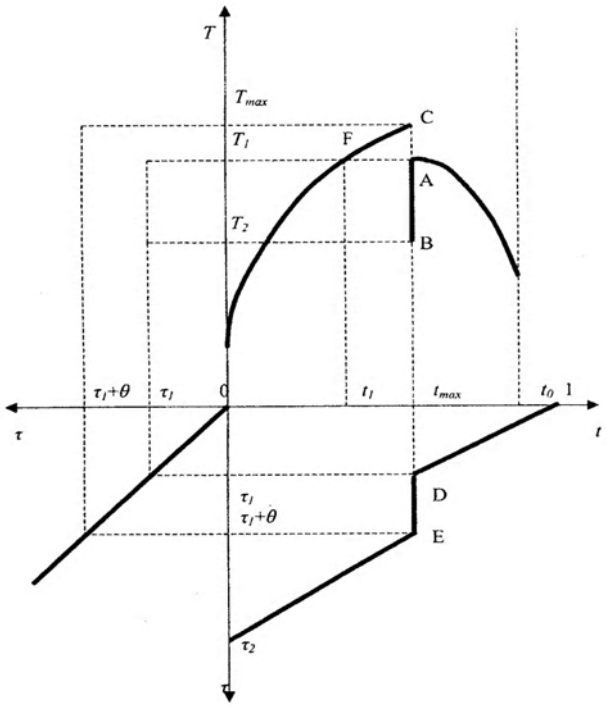

Fig. 2. Vishnevski-Lipnitski-Papava Curve

the interval (t_{max}, t_0); and further, one should not make a mistake while considering to what extent an AAT rate should be cut so that to avoid an exit from the interval (t_1, t_{max}) frame, which would mean to be between C and F on the Vishnevski-Lipnitski-Papava Curve (see Fig. 2).

It happens quite often that discussions about selecting proper fiscal policies for specific countries get into difficulty because it is extremely hard to identify the exact location of economy on the Balatski-Papava and Vishnevski-Lipnitski-Papava curves.

ეკონომიკა

ლაფერის მრუდის ალტერნატივები "ჰისტერეზისით"

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აკადემიის წევრი, პ. გუგუშვილის ეკონომიკის ინსტიტუტი, თბილისი

ლაფერის მრუდის ტიპის მეტ-ნაკლებად რეალისტური ფისკალური მრუდის ასაგებად დროის იმ მონაკვეთის გათვალისწინებაა აუცილებელი, რომელიც ლაფერის ეფექტის გამოვლენას ესაჭიროება. ამ მიმართულებით ჩატარებული გამოკვლევები ცხადყოფს, რომ დროის ფაქტორის გათვალისწინებისას დიდი მნიშვნელობა იმას აქვს, თუ გასაშუალოებული ერთობლივი გადასახადის განაკვეთი რა მიმართულებით იცვლება – იზრდება თუ მცირდება.

ე. ბალაცკის შემოაქვს "შემდგომქმედების" ეფექტის ცნება, რომლის თანახმადაც გასაშუალოებული ერთობლივი გადასახადის განაკვეთის გარკვეული სიდიდის შემდგომ მატებას, ბიუჯეტში საგადასახადო შემოსავლების კლება მხოლოდ რამოდენიმე წლის შემდეგ მოჰყვება. ა. დაგაევი ამ ეფექტის აღსანიშნავად ტერმინ – საგადასახადო "ჰისტერეზისს" იყენებს.

დროის ფაქტორის გათვალისწინების მიზნით ფისკალური მრუდი, რომელზეც აღნიშნული ეფექტი აისახება, უნდა აიგოს კოორდინატებში: "გასაშუალოებული ერთობლივი გადასახადის განაკვეთი – საგადასახადო შემოსავლები – დრო".

ფისკალურ მრუდზე საგადასახადო "ჰისტერეზისის" აღნიშნული ეფექტის გრაფიკული გამოსახვის მიზნით ცალ-ცალკე განვიხილავთ შემთხვევებს, როცა გასაშუალოებული ერთობლივი გადასახადის განაკვეთი იზრდება, და როცა ის მცირდება.

ამა თუ იმ ქვეყნის ფისკალური პოლიტიკის შემუშავების ყველაზე დიდი სირთულე მისი ეკონომიკის ბალაცკი-პაპავასა და ვიშნევსკი-ლიპნიცკი-პაპავას მრუდებზე სწორი "ადგილსამყოფელის" განსაზღვრაში მდგომარეობს.

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Received December, 2008