INFLUENCE OF FISCAL POLICY DYNAMICS ON OUTPUT MANAGEMENT

Ph.D. Lecturer Predescu Antoniu
Universitatea Spiru Haret, Facultatea de Contabilitate şi Finanţe Râmnicu Vâlcea
gen3pavo@yahoo.com
Ph.D. Lecturer Popescu Maria-Loredana
Universitatea Spiru Haret, Facultatea de Contabilitate şi Finanţe Râmnicu Vâlcea
popesculrdn@yahoo.com

Abstract

Dynamics of fiscal policy, more specific rise in fiscal pressure, increase which can be obtained either through enforcing one or more taxes, or by augmenting at least a *tax, has a powerful impact on output management – visible, in the first place, in the realm of output size.*

But, not only output size will vary, after an increase in fiscal pressure, at least because output management is dealing with more than issue of producing a certain quantity of products, material or not, goods and/or services. Products are made for selling, *but selling is impossible but* through *price and* with *a price; price is an essential economic variable, both in microeconomic and macroeconomic spheres.*

Thus, on one side rise in fiscal pressure determines, at least in short term, and, of course, if *producers pay, or even support, a tax, be it newly enforced or (newly) augmented, a rise of prices for sold products, and, on the other side, this results in a variation in output size, e.g. a reduced output volume, but, though, not in a linear trend.*

The dynamics, in this case of economic mechanism whose yield is a reduced volume of goods and/or services, in not linear, because essential are, too, the characteristics *of products, from which effects of demand price elasticity and offer price elasticity influence significantly, in this framework, output management.*

Key words: fiscal pressure, taxes, price, output, elasticity

JEL Classification: H21, H25, O23

1. Introduction

Regardless of level at which computations of indexes used to quantify influence of fiscal policy on output management, as regards real economy, are undertaken, both at this level, and at producer level (given the fact real economy is 'just' a sum of all producers, in a given geographical area), output management must quantify in an adequate manner the impact of fiscal policy dynamics on each and every economic activity.

In economic literature, research carried out in this direction confirmed, at any rate, the fact fiscal policy, *if* and inasmuch as it produces an increased fiscal pressure, will cause output volume to decrease – in principle, and, preferably for economic growth, of course, (only) in short term –, on one side, and a rise in prices, on the other side, this, as it should be, according to impact of price increase on sales (e.g. on demand and offer).

Related to impact of fiscal policy on input management, a firm's manager, on one side, and those who put together fiscal policy, on the other side, must apply, effectively and systematically, as a part of management decision, optimum of activity, the basic criteria, as it is known – and as 'ground zero' –, being the (indispensable – also as 'ground zero') equality of marginal revenue and marginal cost.

2. Content

According to various circumstances, both at microeconomic and at macroeconomic level, optimization criteria can be analyzed taking into account the impact fiscal policy has on output costs and, implicitly, on marginal revenue.

Although fiscal policy acts indirectly on output, in principle, at least, that influence, nonetheless, affects the very *nucleus* (so to speak) of the economic mechanism – in a market economy – that is the equilibrium of *status quo* around which economic mechanism of the producer, respective of an economy, is built.

It is known economic activities can last, and develop, in long term, only if marginal revenue is *at least equal* to marginal cost. Marginal income – defined as income obtained using all resources mastered by firm with the purpose of yielding output – **cannot** increase, from day to day, while, following taxation (i.e. using of a tax, either newly enforced or augmented), it will surely rise, in a sufficiently short period, marginal *cost*.

Therefore, the impetus produced by fiscal policy to real economy will reduce efficiency of economic activities, inasmuch as to develop so as to yield an economic efficiency inferior to the optimum level.

This tax, or taxation, effect, named *efficiency loss of the tax* (*deadweight loss of the tax*), allows us to state this economic and financial principle: if fiscal policy does not support prerequisites needed for increasing taxpayers' incomes, in the long term, it will act, instead, as a brake for economic growth phenomenon [4].

A new tax, or a recently raised one, will alter, from a strategic point of view, behavior of both individuals and firms, from whose incomes a state will tap, directly or indirectly, a certain ratio, so as to make up for its own needs.

The rationale of producers' behavior is selling the yield of their activity, while the others – namely common consumers (which represent, ultimately, essential human component of producers' economic mechanism and national wealth) – cannot exist if they don't buy what producers' 'camp' offers for selling. Price, interface of all buying and selling acts through which economic growth becomes useful, being absorbed by real economy pays, in a proper sense of the word, a newly enforced tax, or its surplus.

This is nothing else but net (financial) impact of enforcing/augmenting a tax (or, more taxes, whose impacts would be convergent), namely tax value, or the amount of money state authorities collect through establishing taxes, levied on taxpayers' incomes.

As a result, gross impact is price paid by consumers – price which we shall label, therefrom, as *demand imposed price* (P_D) –, which will be supported through fiscal policy impact on companies' revenues, due to the fact they will *pay* tax to the state as a result of price increase (they will pay an amount equal to a ratio of price). Due to this perspective, price, the price cashed by producers – the same price ! – can be labeled as *offer imposed price* (P_O).

For producers, the price – whose value rose, being added value of average supported tax *per* output, so to speak – collected *in practical terms* is of a size smaller than (nominal) price, being deducted, from the latter, price ratio the state collects as tax (*per* product sold, in other words *per* price), which we denote as ΔP_O; for consumers, the price they actually pay is higher, being that to it producers add the respective very price ratio – which, in this case, we label as ΔP_C.

Thus, tax value – *per* unit of *sold* product –, as "residuary" of every transaction is equal to (P stands for initial price value – of a product or, respectively, of all goods and services produced by real economy) [2]:

$$I_{mp} = P_C - P_O = (P + \Delta P_C) - (P - \Delta P_O) = \Delta P_C + \Delta P_O \qquad (1)$$

Incomes obtained by producers out of output selling, amount of money the consumers earmark for buying products and which is subject to taxation can be considered as being a sum of two components [1]:

(1) 'net' profit *per* unit ($\cong$ price), that is retail price;
(2) tax, supported/paid *through* collecting/paying price.

This latter component, both for producers and for consumers, is quantified in a similar manner: this is value of output, expressed in monetary units (€, $, sqq.), in other words whatever is collected/paid due to selling/buying of goods and/or services output consists of.

Thus, in order to compute total value of *paid* tax, this index (I_{mp}) is quantified using the following formula:

$$I_{mpT} = Q_1 \times \Delta P_C + Q_1 \times \Delta P_O = Q_1 \times (\Delta P_C + \Delta P_O) \qquad (2),$$

where Q_1 is output value *after* tax enforcement (or enforcement of taxes), or tax augmentation (respectively, augmentation of taxes).

If indexes of demand elasticity and offer elasticity are inserted in the above formula, it is possible to 'maximize utility' of P_{eimp} calculus. For this purpose, we use usual formula of demand elasticity, namely [3]:

$$\eta_C = \frac{\dfrac{\Delta Q}{Q}}{\dfrac{\Delta P}{P}}, \text{recte } \eta_C = \frac{\dfrac{\Delta Q}{Q}}{\dfrac{\Delta P_C}{P_C}} = \frac{\dfrac{\Delta Q}{Q}}{\dfrac{\Delta P_C}{P}} = \frac{\Delta Q}{\Delta P_C} \cdot \frac{P}{Q} \qquad (3).$$

Similarly, formula of offer elasticity is the following:

$$\eta_O = \frac{\Delta Q}{\Delta P_O} \cdot \frac{P}{Q} \qquad (4).$$

$$\Rightarrow \begin{cases} \Delta P_C = \dfrac{\Delta Q}{\eta_C} \cdot \dfrac{P}{Q} \\[2ex] \Delta P_O = \dfrac{\Delta Q}{\eta_O} \cdot \dfrac{P}{Q} \end{cases} \qquad (5).$$

Thus:

$$I_{mp} = \Delta P_C + \Delta P_O = \frac{\Delta Q}{\eta_C} \cdot \frac{P}{Q} + \frac{\Delta Q}{\eta_O} \cdot \frac{P}{Q} = \frac{\Delta Q \cdot P \cdot \eta_O + \Delta Q \cdot P \cdot \eta_C}{\eta_C \cdot \eta_O \cdot Q} = \frac{P \cdot \Delta Q \cdot (\eta_C + \eta_O)}{\eta_C \cdot \eta_O \cdot Q} \qquad (6)$$

$$\Rightarrow \Delta Q = \frac{I_{mp} \cdot Q \cdot \eta_C \cdot \eta_O}{P \cdot (\eta_C + \eta_O)} \qquad (7).$$

Formula expressed above is relevant from more than one point of view. Firstly, output management – whether at producer's level, and even more so at level of *economic growth management* – must contain, clearly, if and where it does not contain *yet*, simultaneous analysis of output/economic growth dynamics, respective of price dynamics (or, as regards real economy, all prices of goods and services it produced).

But, there is more to it: levels of both price elasticity of demand and price elasticity of supply – at least for *a* product – are essential in order to quantify value of decrease in output as result of enforcing a new tax, or augmenting an existing one. In fact, the formula used in this paper is a mathematical 'picture' of all these *visible* dynamics: it is so, due to the fact it states a fiscal policy dynamics akin to the type analyzed here cannot materialize but in a decrease in output (among other important effects), regardless of it being producer's or **economic growth**.

In fact, more than holding a simple arithmetic relevance, price elasticity of demand and, respectively, of supply prove, if need be, a fact often overlooked in an average analysis of fiscal policy impact (e.g. as regards taxes for which firms act as payers – and, in practice, *not* as persons bearing their effects) on real economy – and/or on firms: fiscal policy impact is influenced *also* by a factor, in effect extra-economic, 'objective' – or even *objective* –, and almost completely, if not 100%, impossible to alter, or pass over, that is the (e.g. physical) characteristics of products – precisely, regarding more goods rather than services.

Price elasticity of demand, on one side, and price elasticity of supply, on the other side are indexes used to compute resultant of two forces, if one can denote those in this manner, namely goods' characteristics and (psychological) 'replication' of consumers to efforts carried out in order to correlate, or at least to try and correlate those characteristics with their own needs. It can be observed, from the first moment, already, that fiscal policy impact, when consumers must bear consumption taxes, is, simultaneously:

  I.   outside producer's control;
  II.   (more or less) outside consumer's control.

If the firm – or the economy – needs an economic climate in order to grow in the long, as management prerequisite, impact of such a fiscal evolution can be very heavy. In order to illustrate this, an example is more than welcomed, that is an example about how to quantify the index central to this paper when a price increase is recorded for a product whose price increase distorts each and every corner of real economy – gasoline (exactly unleaded gasoline).

As regards unleaded gasoline, values of price elasticity of demand (η_C) and price elasticity of supply (η_O), respectively, in the long term – this being our (*sound*) example –, are the following [5]:

- $\eta_C = 0,70$;

- $\eta_O = 0,24$.

In these conditions, value of index quantifying size of decrease in output (of unleaded gasoline) can be quantified starting from this point:

$$\Delta Q = 0,178 \cdot \frac{I_{mp} \cdot Q}{P}. \qquad (8)$$

This result is clear in itself, and so its implications – for unleaded gasoline, but also for any other product, in general: price elasticity of demand and price elasticity of supply are economic phenomena due to which, *automatically*, a decrease in output will be, for output management, respective either for firm management, or for management of real economy, bearable or not so bearable, or even severe, depending on 'objective' characteristics of the respective products.

One, and especially a manager, has to take into account, therefore, the fact not all is controllable by managers, no matter what is their economic level.

3. Conclusions

The economic and mathematic index used by us in order to circumscribe size of decrease in (goods or services) output, as a result of what might be called 'intensive use' of fiscal policy, due to efficiency loss of the tax, is surely useful for optimizing management decision making.

What should not be forgotten is the fact fiscal policy, through impulses it sends in economy, has capacity of reducing efficiency of economic processes, at microeconomic level and macroeconomic level – or 'only' output, and, as a consequence, price, size. This fact can be easily observed especially in impact a product, for example – that is, for *emphasis* – essential both for producers and for consumers, in short for real economy as a whole.

Of course, there is more than that: at least in some cases, output management – finally, we must underline this, either firm management or running of an economy – is only capable of **upholding** what is receives from outside; and, a firm or an economy, in fact, receives, in short term or in long term, only consumer reaction to 'importance dynamics' of a price as aftermath of a price change – i.e. price increase.

This conclusion should not be understood, in our opinion, as some sort of capitulation; in the contrary, loss management – *inter alia*, a component of output management, point we should study in a future paper –, carried out using the knowledge of (maximum) *potential* losses, knowledge obtainable through the use of the index used in this paper to compute size of decrease in (goods and/or services) output, is, almost, *the* optimal solution.

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