

FISCAL IMPULSE – COMPONENT OF THE STRATEGY FOR R&D INVESTMENTS STIMULATION IN PERSPECTIVE OF BOOSTING THE COMPETITIVENESS OF EUROPEAN UNION

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Abstract

Fiscal policy began to be used actively in promoting and developing Research&Development (R&D) investments for some time, in European Union (EU) and elsewhere, but, for Romania, as member of EU for nearly 10 years now, this matter is one of sensible importance – not in the least, because EU itself (and as the state-like entity it stands for today) makes good use of fiscal policy in achieving the above-mentioned aim, and also because EU demands a continuous increase of R&D investments from every member state. From this perspective, emitting the right fiscal impulse is of paramount importance – especially if it is done the right way.

Keywords: *fiscal impulse, research&development, investment*

JEL Classification: E62, H21

Content

The end of 20th century (AD), respectively beginning of 21st century recorded, respectively *still* records what can be denoted as the second, respectively the third industrial revolution: first, *information society*, then – i.e., in present day – *knowledge society*.

Given the fact denying or, *in extremis*, opposing these revolutions does *not* seem to turn into an efficient, or even desirable (economic) strategy it is rather clear solution to the need of *adapting* to these revolutions – as first step – is, inclusively for Romanian society/economy, building up these two societies *inside* Romania: we can develop (in our case) these societies in Romania as well, in order to *use* them, in our profit.

As far as long term (macro) economic strategies go, the challenge is designing and using a strategy for achieving the goal of (continuous) growth of investments in research and development (R&D) – also, in the long term. From this point of view, since Romania is, today (2016) as well, a member state of European Union, it must obtain, as quantities are concerned, not only a high level of goods and services produced by real economy (e.g. PIB increase = economic growth), but also a high(er) level of knowledge. But, the latter is based on engaging in research and development activities and projects – from which it becomes obvious a rise in quantity of knowledge must be preceded by a rise in quantity *and quality* of R&D.

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These investments are, of course, *per se*, an economic phenomenon, which means using fiscal policy for propping up such investments' trends is, basically – and from a theoretical perspective –, a sound approach. This, however, doesn't mean the *practice* of R&D investment has at its core simple mechanisms – or that it begets clear and unequivocal *results*.

This is world practice – and not only European Union practice, which comprises, as one might aptly presume, Romanian one. But, due to the fact the strategy for stimulating R&D investment (in perspective of competitiveness rise as recorded for European Union) we analyze in this study has to do, for the most part, with phenomenon of R&D investment *in Romania*, it is necessary, to begin with, to outline a fitting perspective for all computations and comparisons below; and for this, it is needed to describe present circumstances in what R&D investment in Romania is concerned.

According to Eurostat (2016) data¹, Romanian economy expenses related to research and development were defrayed up to following levels:

I) *Total* research and development expenses – 0.48% of GDP²;

II) Research and development expenses defrayed *in public sector* – 0.16% of GDP.

This values can and must be compared to those recorded for the other states comprising European Union, with useful results for this analysis.

One of the most important result is the evidence that, as far as European Union states are concerned, value of *total* research and development expenses, or, in other words, relative value of R&D expenditure (i.e. ratio in total GDP) records a minimum value of 0.44% and a maximum value of 3.25%, whilst the value of research and development expenses defrayed *in public sector*, that is relative value (again, ratio in total GDP) of public expenditure concerning R&D tax *incentives* sometimes is non-existent, respectively, when it does exist (e.g. when it is not a null one), it doesn't drop below 0.0002%.

The following table comprises values for all EU states concerned:

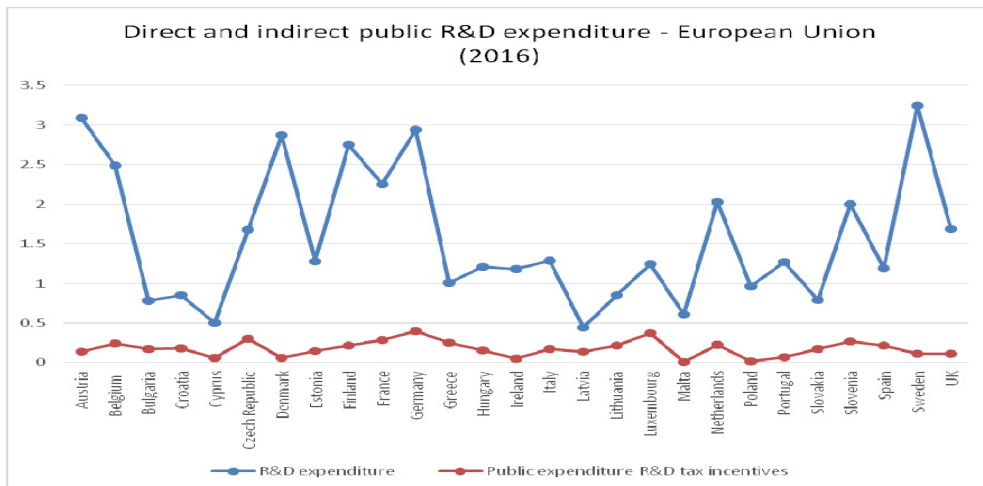
Country	R&D expenditure (% GDP)	Public expenditure R&D tax incentives (% GDP)
Austria	3.09	0.14
Belgium	2.49	0.24
Bulgaria	0.78	0.17
Croatia	0.85	0.18
Cyprus	0.5	0.06
Czech Republic	1.68	0.30
Denmark	2.87	0.06
Estonia	1.28	0.15
Finland	2.75	0.22
France	2.25	0.29

¹ <http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&language=en&pcode=tsc00001&plugin=1>.

² It must be observed even if there aren't, at this moment, any published date as to public spending (e.g. *budgetary* spending) involved in using fiscal enticements for research and development, there is, at least, a drafted *plan* for accomplishing *annual evaluations* as regards recording such data.

Country	R&D expenditure (% GDP)	Public expenditure R&D tax incentives (% GDP)
Germany	2.94	0.40
Greece	1.01	0.25
Hungary	1.21	0.16
Ireland	1.18	0.05
Italy	1.29	0.17
Latvia	0.44	0.14
Lithuania	0.85	0.22
Luxembourg	1.24	0.37
Malta	0.61	0.01
Netherlands	2.03	0.23
Poland	0.97	0.02
Portugal	1.27	0.07
Slovakia	0.79	0.17
Slovenia	2.00	0.27
Spain	1.19	0.22
Sweden	3.25	0.11
UK	1.69	0.11

A graphical illustration of all these numbers is obtained through following figure:



Source: authors' processing of data from *A Study on R&D Tax Incentives. Annex: Country fiches (FINAL REPORT)*, European Commission, The Hague, November 14, 2016

The rise, in absolute and relative (e.g. ratio in total GDP) terms, of these expenses – which one might assume at the very least *tends to* equate with measurable stimulation of investment in research and development in an economy, in fact in *any* economy (inclusively, that is, in Romanian economy) – is, if the condition stated above is fulfilled, an explicit goal of every strategy concerning stimulation of R&D investment (in *every* economy), for whose Romanian materialization, so to speak, a number of dedicated bills were passed, starting with year 2008.

This being said, firms which work in R&D field are legally supported, even today (2016), with *fiscal enticements* applicable to gross profit, which mainly consist of following two deductions:

- (A) a supplementary deduction, of up to 50%, of expenses thereinto eligible (this supplementary deduction is applied quarterly or yearly, according to firms' needs);
- (B) employ of accelerated depreciation method for equipments and tools used in research and development.

To all this there is one more possibility, that of obtaining specific structural *community* (e.g. paid for by European Union) funds, for which Romanian state would offer co-financing.

All these fiscal tools, specifically designed so as to make it easy for Romania's economy (which, and this is worth underlying, exists, from 2007, *also* as member of European Union) to obtain a (sensible) growth of knowledge quantity (inclusively through an increase in R&D investment) imply sensible financial efforts – at least as far as quantitative component of fiscal enticements goes –, and this is especially true for the period after 2007, for Romania, and for whole of EU, for some time now.

European Union, if it doesn't have, *yet*, a unitary strategy – i.e. applicable to *all* EU states, whilst taking into account social, cultural and economic specifics of each state – for stimulating efforts set towards accomplishing research and development has, at least, *a tendency* to finance R&D investment – tendency based on following principles:

- I. accessing/drawing down of private investments – e.g. *from outside* European Union – for research and development;
- II. stimulation of private investments (from inside EU) for research and development;
- III. employing qualified *labor force* in research of development³.

On the other hand, using fiscal policy for financing R&D investment in whole of European Union, at least in short term, through an emission of a fitting fiscal stimulus (i.e., of the nature of fiscal enticements as those described above) is less exercised, on average – which does *not* mean such tools should be less used. This is not resulting from the very nature of fiscal enticements *per se*, but because:

- (1) *investing* in research and development may not turn out *proportionally* as a rise in quantity of knowledge recorded for the economy and society of the state in which such investment takes place – at microeconomic level;
- (2) opportunity cost of *public* spending – i.e. at macroeconomic level – generated by defrayment of the cost of (fiscal) enticements set up for R&D development can be unsustainable, or disproportionately high, if measured against 'quantity' obtained research and development (e.g. against value of *innovation index*⁴).

³ Between 2005 and 2013, firms located in European Union recorded a growth of 18.2% in employees' numbers – predominantly as regards companies embarking in research and development activities.

⁴ In this paper, size of this index is computed according to methodology used by Bloomberg (2014), respectively OECD, Main Science and Technology Indicators Database.

Emission of a fiscal stimulus, at least in a state which is member of European Union, does not guarantee, *ipso facto*, a favorable result will be forthcoming – even if this stimulus was designed as a part of a strategy conceived for stimulating R&D investment, with the ultimate aim of increasing competitiveness for a certain (market) economy (inclusively that of European Union). This happens because, *inter alia*, any firm located *outside* Romania is perfectly capable of:

- 1) investing financial funds for whatever research and development one of its subsidiaries carries out, so that, afterwards, to be able to
- 2) declare to Romanian fiscal administration an oversized value of those financial funds, in order to
- 3) pay in Romania a (much) smaller tax, ***the return*** of this fiscal evasion *strategy* being transferred oversees – *to* the parent company and in its exclusive own benefit.

As to the strategic advance proper of using fiscal enticements to prop up R&D dynamics, we do take notice of the fact present literature observes such fiscal tools have *a* value – in other words, on one hand, 1€ yielded by commercial fructification of research and development results is worth *more* for economic growth than 1€ of foregone tax revenue⁵, and, on the other hand, fiscal enticements designed for research and development animate, so to speak, innovation phenomenon⁶.

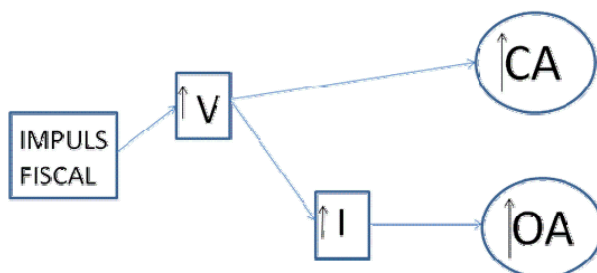
The economic and financial mechanism put into motion by a fiscal impulse will not *necessarily* bear an increment in knowledge, or in the ‘quantity’ of technical and scientific innovations. In first place – this very statement is basically a fact, not an opinion –, fiscal policy is *not*, and cannot be in any conceivable future, a substitute for economic development (and growth) – especially this being the case for sensible investments of (important) financial funds in real economy, not in the least in what R&D activities are concerned.

Fiscal stimulus is specifically designed to spur on the investment phenomenon in an economy to the extent in which, as aftermath of its emission, taxpayers will be able to command some extra revenues, yielded by their trade in a direct or indirect manner – in this case, due to expenses in decline –, revenues which they *can* invest. This, actually, produces a rise in aggregate demand (viz. demand of *whole* economy), the matching rise in aggregate *supply* being but the output of such economic phenomenon as rise of investment amplitude.

The graphical representation of this economic mechanism is following figure (where V stands for taxpayers’ revenues, I size of investment, CA – aggregate demand and OA – aggregate supply)

⁵ See Lokshin and Mohnen (2012), respectively Mulkay and Mairesse (2013).

⁶ I.e., Czarnitzki et al. (2011) and Ernst and Spengel (2011).



Fiscal enticements for research and development, from this perspective, we consider could act in a more efficient manner in Romania if they would be granted, as Austria's practice proves it *can* be done properly, not for research activities proper, but for the *profits* yielded by commercial exploitation of these sort of activities: as it happens, for profits gained from (commercial) patent exploitation.

A reason for adopting such measures is the fact firms' *incomes* – this being empiric fact herein – *were*, at least, taxed, *globally*, starting with year 1990, in an upturn, even when (as it *did* happen – in Romania) profit (corporation) tax quota was reduced – even if one does *not* takes into account all deductions made available for computing value of their dues, *research and development deductions* included. Consequently, and more often than not, Romanian firms chose, so to speak, tax adaptation over 'mundane' development (e.g. investments), putting R&D investment on a very lower point of their priorities list.

Thus, a very important particular of this study, maybe the most important of them all is analysis of long-term perspectives offered by *public* financing system of *private* R&D investment. What the literature reveals in case of this topic is the proof ***it can be accomplished differently***, other than by making explicit – and, maybe, intensive – use of fiscal policy, in order to attain final goal which, in this case, in obtaining a rise in knowledge quantity.

Such examples are possible to identify both inside European Union and outside it. Germany's innovation index, for example, according to Bloomberg (2014) methodology for computing size of innovation index (maximal size = 100) ⁷, is as high as (approximately) 87; it must be taken into account, if this value is anything to go by, the fact Germany's *public* expenditure for R&D tax incentives equals 0% GDP. Against this (possible) European benchmark, U.S.A. spends *publicly* 0.20% GDP for R&D tax incentives, its innovation index being recorded in the same time frame to be as high as 91.

Against this backdrop, Austria is arguably the state which succeeded an optimal, that is optimal-as-average, performance, given that, on one hand, its public cost as to financing its R&D tax incentives amounts to 0.50% GDP, whilst its value of innovation index stands at level of 80.

Conclusions

The main conclusion of this paper it fiscal stimulus can successfully be a fine component of the strategy for stimulation of R&D investment, but this is true only *if* following conditions are fulfilled:

⁷ Cf. www.bloomberg.com/visual-data/best-and-worst/most-innovative-in-the-world-2014-economies.

- (I) assuring *long term* stability for fiscal policy – and especially for all fiscal enticements prepared for boosting up research and development activities, so as to allow companies to build themselves – and for themselves – a *long term* R&D strategy;
- (II) designing and applying a coherent fiscal policy, which does not need to ‘alleviate’ any drop in profit (corporation) tax quota with a direct or indirect rise of fiscal pressure as concerns firms;
- (III) consolidation of fiscal discipline *and* diminishing of tax evasion, in order to shut out the possibility public spending a state charges itself with for sustaining of R&D investment will not turn, against that state’s will, into a ‘gift’ offered to another state – or to other states and, last but not least,
- (IV) fiscal stimulation, not only of research and development activities *and* innovation-related operations, but also of actions taken for commercial exploitation of these activities/operations.

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