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The Analysis of Long Run Growth Oriented Fiscal Policy

Erős Adrienn[*], University of Miskolc, Institute of Economic Theory, Miskolc, Hungary

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ABSTRACT *- One of the most debated questions of growth theory is whether or not government policies can be used to influence the long run growth rate of the economy. Neoclassical theory states economic policy actions can only have short run effects on the growth rate of the economy, but it can't change the long run perspectives for growth.*

Endogenous growth theory integrated (among several other factors) fiscal policy to the growth models, enabling it to influence long run growth performance. According to these theories some elements of the government budget have positive effects on the long run growth rate of the economy (productive expenditures, and budget balance), while others are neutral (non-distortionary taxation and unproductive expenditures), or have negative consequences for growth (distortionary taxation).

In my paper I summarize the theoretical and empirical literature of the relationship between fiscal policy and long run economic growth shortly. Then I continue my work with using the parameter estimates of a third generation study of developed countries (which considers the budget constraint as well) to evaluate the fiscal policy actions taken in Hungary and in Ireland, concentrating on the overall long run trends in the last one and a half decade. I will try to give explanation for the differences in the two countries' reactions to some of the similar fiscal policy changes mapped during my research.

KEY WORDS: *fiscal policy, economic growth, Hungary, Ireland*

Review of the research topic

The most important aim of economic policy is to ensure the highest level and most general welfare possible to the citizens of a country. There can be no other way to improve welfare over the long run but stimulating intense and sustainable economic growth. That is why the analysis of economic growth is a central question in the theory of economic policy, macro- and international economics.

„Even small differences in long-term growth rates when cumulated over a generation or more, have much greater consequences for standards of living than the kinds of short-term business fluctuations that have typically occupied most of the attention of macroeconomists. To put it another way, if we can learn about government policy options that have even small effects on the long-term growth rate, then we can contribute much more to improvements in standards of living than has been provided by the entire history of macroeconomic analysis of countercyclical policy and fine-tuning. Economic growth is the part of macroeconomics that really matters." [Barro – Sala-i-Martin (1995) 4-5 pp.]

[*] Tel: +36 / 46 / 565-111 / 18-71, mob: +36 / 20 / 34-27-486, fax: +36 / 46 / 565-194, e-mail: geteros@uni-miskolc.hu

The above cited words perplexed me, when I first read them. I found their message a bit exaggerated, showing the self-consciousness of the researcher, his preference of his own interest. Still they made me think about the question. The more I thought about their veracity, the more I had to admit they are right. I think the matter of long run economic growth is of major importance. It is a stressful and timely problem from Hungary's point of view, as after our accession to the European Union, convergence got into the focus of attention. Hungary's per capita GDP, based on purchasing power parities did not reach even half of that of 25 member European Union's average a decade ago (in 1997 it was only 49,5% of that, Eurostat), and even in this year, in 2007 it reaches only 64,5% of the EU average.

We are facing a long period of convergence, based on these data. It is a highly logical question to ask what we can do to improve the pace of economic growth. This question belongs to the field of economic policy (among others) as well. I chose to study the fiscal instruments' possible effects on long run economic growth in my research. I had three reasons to make this choice. On the one hand, the literature of economic growth theory focuses on fiscal policy's growth effects, while on the other hand monetary policy (as we hope) will be lost as a national policy instrument after accessing the Euro-zone. This means the only policy left at our disposal to influence economic activities (among them economic growth) will be fiscal policy. My third reason was that before this research I was concerned with taxation matters and international tax harmonization so fiscal policy was familiar to me. I chose Ireland as a reference country, because she proved in the last two decades with her outstanding economic performance that convergence is not just a dream, and that economic policy (if properly done) can contribute to the pace of economic growth.

Research background and methodology

During the empirical work (arising from the macroeconomic characteristics of the theme) I made my calculations based on data taken from different international statistical databases. The main (but not the only) source of the data I used was the SourceOECD on-line statistical database. In order to ensure comparability, I endeavoured to minimize the types of databases used. Because of the methodological differences sustained by Hungary till 1997 distinct data are not published for Hungary in international databases. So in the case of those variables I had to rely on the data of the KSH (Central Statistics Office of Hungary), and PM ÁPMSO - ÁHIR (Hungarian Finance Ministry's database).

In my empirical work I analysed the relevant fiscal variables by using SPSS 14.0 and EViews 4.1. software.

Empirical analysis

The question dealt with in the paper is whether there is correlation, and if yes, how strong it is, between the long run growth rate of the economy and fiscal policy. Arguments can often be heard that economic policy is almighty, and the state can do anything. Other experts tend to stress that the state should not involve in economic affairs and its influence on economy ought to be minimized. Others add that the major aim should be (if economy evolved in such a way that state's involvement in the economy, and mixed economy can be

considered as natural) the maintenance of budget balance and the confine of state's debt as a share of GDP.

According to neoclassical growth theory, long run economic growth can be contributed to two exogenous factors, technological progress and the growth rate of economically active population. This attitude leaves only limited, short run, temporary effect for fiscal policy on the growth rate of the economy even though it is capable of changing the achieved level of welfare permanently. Endogenous growth theory on the other hand states that fiscal policy can influence the long run growth rate of the economy as well. The most recent, third generation empirical studies based on the endogenous theory of growth use several groups of variables which can either contribute to the growth rate (like productive expenditure, budget balance), or be neutral to growth (like non-distortionary taxation and unproductive expenditure), or harm growth (like distortionary taxation). Those revenue sources and expenditure types, which have ambiguous growth effect, are called other revenues and other expenditure.

According to our hypothesis there is correlation among these fiscal variables and the long run growth rate of the economy, and these correlations meet the expectations concluded by surveying the relevant theoretical and empirical literature both in their strength and in their directions.

Based on the correlation and regression calculations made it can be concluded that the calculated results meet our expectations based on the survey of the theoretical and empirical literature in the case of most fiscal variables, even though there are some exceptions. Both the indicators used to measure the extent of the state as a share of GDP (the ratio of income centralisation and the ratio of redistribution) are negatively correlated with long run growth rate of the economy in both countries. This relationship is known as scale-effect in the literature of endogenous growth theory, and its existence can be confirmed in case of the analysed countries.

The ratio to GDP of distortionary taxation is negatively related with the growth rate of the economy in both countries, which tendency meets our expectations formed when surveying the theoretical and empirical literature of growth.

The share of non-distortionary taxation to GDP is not significantly correlated with growth based on Irish data, which trend coincides with our theoretical cognition. At the same time, Hungarian data show a reverse relationship, showing significant positive correlation between the two variables. The most probable reason for this is the increase in the share of non-distortionary taxation within the generally shrinking tax wedge, while decrease in the share of distortionary taxation is positively related with growth. The increase of the ratio of non-distortionary taxation to revenue enhances growth based on both countries' data, which result meets our expectations.

Productive expenditure as a share of GDP is not significantly related with the growth rate of the economy based on Irish data (this results meets our expectations), while according to Hungarian data the two variables correlate negatively. This contradicts the finding of theoretical and empirical literature, and the reason for it must lay in the parallel changes occurred in the structure and extension of the budget as a share of GDP. The ratio of public expenditure to GDP decreased by 8 percentage points during the period in question, while productive expenditure as a share of GDP fall back only by 2 percentage points, so their

share of all expenses rose by 2 percentage points. The decrease of productive expenditure's ratio to GDP must rather have been parallel in time to the rise of the growth rate than being the reason for it.

The share of unproductive expenditure in GDP is not significantly correlated with the long run growth rate of the economy in Ireland, in accordance with the predictions of the third generation studies. In Hungary significant negative relation can be found between the two variables. This suits the findings of certain second generation studies, showing negative relation between the extension of transfer programmes and the long run growth rate of the economy.

The ratio of budget balance to GDP relates positively with the long run growth rate of the economy according to all types of empirical studies. This statement can be confirmed both in the case of Hungary and Ireland, showing significant positive correlation between the two variables. Two measures were used to characterise the relationship between long run economic growth and state debt. Three and five year averages of state debt's share in GDP relate significantly negatively with growth in both countries. Three and five year average change in state debt is in significant negative correlation with the long run growth rate of the economy. These results meet our expectations formed when surveying the theoretical and empirical literature.

Our conjuncture is that Ireland forewent the previous leaded states. What can the enviable success of Ireland be attributed to? Several possible reasons, like aptitudes (geographical position, English mother tongue, a young population unmatched in developed countries) economic history (doubling of the EU funds, Single European Market), and economic development (globalisation, foreign direct investment, change in the importance of distance, revolution of the IT systems) are mentioned in literature. Many of the experts stress the importance of economic policy actions (tax system and industrial policy aiming to attract FDI, activities of enterprise agencies, reform of the system of education, partnership agreements securing a low wage level for a long period of time). We think additionally to what has been mentioned the role of certain political and cultural factors, economic and social sacrifices made for success are worth attention as well. Fast convergence is due to several factors.

According to our analysis a possible explanation of the "Irish economic miracle" can be conditional convergence. The two known forms of transition paths (delayed convergence, which occurs due to the elimination of barriers to growth and imitation based on adaptation of more developed, more productive technology) strengthened each-other, and three beneficial external factors' synergic effect (doubling of the EU Funds, European Single Market and a long boom of the US economy) made the convergence so fast and dynamic.

We can conclude convergence has happened in Ireland. Further strengthening of her economic position (foregoing the present leader states) requires her to take part in developing new technologies. The country is committed to this and R&D expenses have been increased seriously even in real terms. Irish enterprise agencies have noticed that their strategy needs to be reformed, as competition for international capital escalated and Ireland's traditional competitive advantages, low wages and low taxes are not unique in the EU anymore, and after the new member states in Eastern Europe accessed the Union. New strategic directions were appointed in 2004; the aim is to form new clusters in high value

added sectors and internationally tradable services. Most of the selected industries have antecedents in the country and the necessary regulations are being formed now. Based on these facts we can conclude that Ireland does not rest in her laurels but takes any steps she can in order to maintain her dynamic growth.

According to economic data Ireland's convergence is so successful that she has already foregone almost all her competitors with respect to per capita real GDP based on purchasing power parity (she has foregone most of her EU-member concurrent during 1997-1998, since 2001 only the performance of Norway, Luxembourg and the USA is higher than Ireland's). Convergence has been finished in Ireland, moreover, she has even foregone the previous leaders (those member states of the European Union whose economic performance was better than hers), and we have witnessed the rare phenomena of leapfrogging in Ireland's case.

As we have seen, the direction of the correlation between fiscal variables and the growth rate are the same in each variable's case in both countries. At the same time, according to our hypothesis the decrease of government sector as a share of GDP (and any other budgetary variables) can not be unrestricted; the pace of growth can not be dynamized by this endlessly. This conjecture of us is strengthened by the fact that underlying processes in the two analysed countries differ. During the analyses of the correlation between most of the fiscal variables and the long run growth rate of the economy we discovered an important statutory. We found a negative relation between the certain fiscal factors and the long run growth rate of the economy in both countries' case during correlation calculations, but when estimating regression equations we experienced that negative correlation is unambiguous based on Hungarian data, but to Irish data parabolic regression functions can be fitted in most cases (there are some exemptions like social security contributions, health and productive expenditure). In the case of all the other variables we can conclude that the right hand leg of the Irish parabolic function can be regarded as the continuation of the negative regression fitted to Hungarian data.

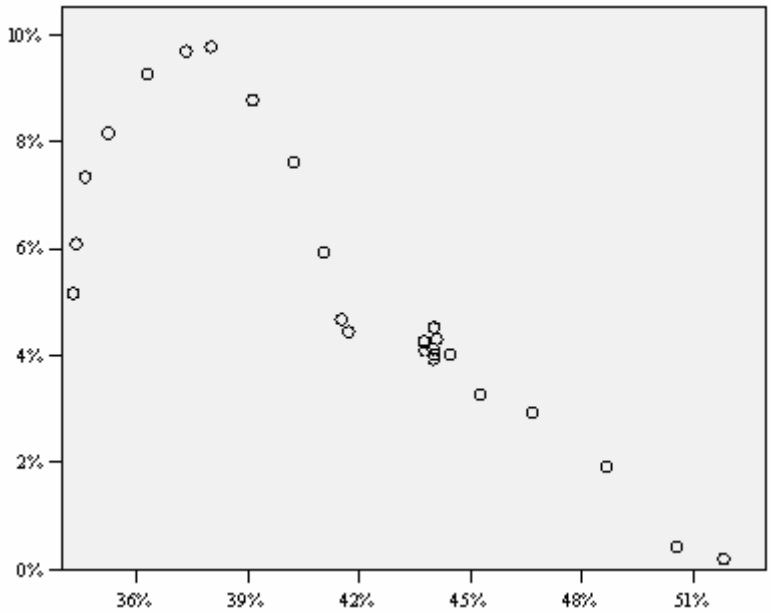
This finding can be originated in two reasons. On the one hand, Hungarian government's extension as a share of GDP is higher, than the Irish one. For example, the ratio of government expenses to GDP shrunken from 45,3% to 31,5% in Ireland during the period in question, while in Hungary it fall back from 63,44% to 47,4%, so it is still much higher, than the original level of Ireland used to be in 1990. Similar tendencies show in the other possible measure of government's extension, government revenues' share in GDP.

On the other hand, another possible explanation for the divergence in the behaviour of the two countries can be the different situation the two countries are in on their transition paths. Ireland stepped on a transition path around 1987. During the twenty years passed, convergence finished and even more, we witness the rare case of leapfrogging. Hungary is in quite a different situation after the changing of the Regime [Erdős (2003) 294 p.], she is on a transition path as well, but her path is very different from that of Ireland's and her lag from the leaders is still very large. The gap is closing from year to year, still, even in 2007 we only achieve 64,5% of the 25 member EU member states' average per capita GDP based on purchasing power parity. Hungary still has a long convergence period to go through. That is why we do not have to expect the tendencies to turn for a long period of time, which means

that the advices given by growth theory are worth considering in Hungary's case, based on Irelands recent past.

In our opinion Irish fiscal policy contributes to the slow pace of the necessary fallback in the growth rate at the end of the transition path. The existence of conditional convergence is strengthened by the fact that the pace of economic growth has been slowing in Ireland in the recent past. At the same time, we must consider that the present, relatively slower growth is still enviable to most developed countries. It can only be called slow after the outstandingly high growth rate experienced from 1987 to 2001. Convergence (as we have already discussed above) has been enhanced by several fiscal and non-fiscal measures in Ireland. Based on the above analysis we can unequivocally conclude that the radical reform of fiscal policy contributed to the evolution of "Irish economic miracle", or the "Celtic Tiger" phenomena.

Figure 1. Long run growth rate of the economy as a function of the share of government revenue to GDP in Hungary and in Ireland



Source: own representation
Source of data used: SourceOECD

Consistent shrinking of the government's extension as a share of GDP, maintenance of the budget balance and the decrease of the ratio of state debt to GDP (which the fast growth of GDP used as benchmark also contributed to, of course) eventuated the result anticipated by growth theory, and even contributes to the evolution of the still very favourable (even though slowing) pace of economic growth. We endeavoured to strengthen this result by using the parameter estimates of a third generation empirical study as well. The analysis performed by the model confirmed recent year's fiscal policy's beneficial effects on the growth rate of the economy. Our findings show that after the millennium, as the growth rate

started falling back in Ireland, fiscal policy contributed to the relatively slower decrease of the growth rate which is statutory at the end of the transition path.

Hungary is under pressure in forming her fiscal policy today, the most important task is (beyond growth aspects we are required to meet the Maastricht criteria as well) to restore the balance of the budget. Fiscal consolidation in Hungary started only about a year ago, so it would be quite early to evaluate the long run effects of these policy actions now.

Hungarian tax wedge can be considered as averagely high compared to other EU member states (Hungarian tax wedge is 39,2% of our GDP, while the average of the 25 EU member states is 40,7%). Even though compared to other recently accessed member states (their average is 35,2%) and to the Irish tax wedge (31,7%) it is quite high. [Eurostat, ISSN 4020-4298] This means we have enough space to shrink the share of tax revenue to GDP, which would be beneficial to growth according to our analysis. According to these findings, from a growth oriented point of view we should rather decrease government expenses in order to restore budget balance, than increase government revenues.

Opposite to the expansive trends of Irish fiscal policy in the 1970's, the change in fiscal policy's direction, a gradual shrinking of the budget's extension as a share of GDP, which started at the end of the 1980's contributed to the evolution of the „Celtic Tiger" phenomena. According to our hypothesis it is not enough to concentrate generally on the decrease of government activity's level as a share of GDP. Structure of the budget plays at least as an important role in forming growth performance.

To prove our assumption we used the parameter estimates of the already mentioned third generation endogenous Bleaney-Gemmel-Kneller model. The two countries we analyse represent too small a sample to calculate our own parameter-estimates based on them. But as both are developed countries (OECD member states) we found the study's results (based on OECD member states' sample) relevant for the countries in question. Authors of the study (out of the seven fiscal variables they included in their research) found significant effects of three fiscal variables on long run economic growth:

- The ratio of *distortionary taxation* to GDP, which they attributed negative growth effects to based on the original model of Barro's (1988);
- The ratio of *productive expenditure* to GDP, which turns up with positive growth effects (again, in accordance with the model of Barro), and
- The ratio of *budget balance* to GDP (which, again meeting our expectations formed when surveying theoretical and empirical literature) has a positive coefficient the regression equation.

These three relevant factors influence the complex effect of fiscal policy actions on the pace of economic growth with different weights, calculated in the third generation empirical study. When evaluating the long run growth effects of Irish and Hungarian fiscal policies by using the parameter-estimates of the Bleaney-Gemmel-Kneller model we concluded that productive expenditure plays a major role in shaping the overall growth effect of fiscal policy. This was the most obtrusive in the case of Ireland, where the decrease in the ratio of productive expenditure to GDP meant the main growth impulse since 2000 (since the pace of economic growth started slowing).

In Hungary, the dominant element in shaping the favourable long run growth effect of fiscal policy changes was the gradual decrease of the ratio of distortionary taxation to GDP.

At the same time we have to consider the increase in the ratio of productive expenditure to GDP in the second part of the time-period, after the years of the Bokros-package, which enhanced growth significantly. We calculated a neutral growth effect for the Bokros-Package by using parameter estimates of the third generation study. This can be attributed to the fact that the positive effect evolving from the improvement of budget balance and the decrease in the share of distortionary taxation to GDP was fully outweighed by the negative effect of the decrease in productive expenditure's share in GDP. The dominant element again (we have to stress, just like in the case of Ireland) was the decrease in the ratio of productive expenditure to GDP.

Altogether, we wished to demonstrate and strengthen with our analysis that adequately adopted fiscal policy actions are capable of enhancing the long run growth rate of the economy. Restoration of the budget balance and gradual (but not unlimited) shrinking of government's extension as a share of GDP are needed in order to achieve the aimed effect At the same time we must not forget the importance of the structure of revenues and expenditure. Reduction of the government expenditure should be done by decreasing unproductive expenditure (as those are neutral to growth). Productive expenditure (which enhances growth as we have stated above) should be maintained.

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