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THE ROLE OF THE AUTOMATIC STABILIZERS IN MODERN ECONOMY

Abstract

Automatic stabilizers as a factor of cyclical fluctuations stabilization attract economists' attention for several decades. This paper deals with the mechanisms through which automatic stabilizers influence economy and positive and negative effects on aggregate demand they can produce. It is common when discussing automatic stabilizers to put the accent on certain tax categories, such as personal income tax and corporate income tax, or some public expenditures, such as unemployment benefits and social protection. Given that, here only fiscal stabilizers will be discussed, although some nonfiscal categories also demonstrate stabilizing impact.

Keywords: *Personal income tax, Corporate income tax, Unemployment benefits, Social Protection, Income redistribution*

JEL Classification: H20, H29, H62

УЛОГА АУТОМАТСКИХ СТАБИЛИЗАТОРА У САВРЕМЕНОЈ ЕКОНОМИЈИ

Апстракт

Аутоматски стабилизатори као фактор стабилизације цикличних флуктуација привлаче пажњу економиста већ неколико деценија. Овај рад се бави механизмима путем којих аутоматски стабилизатори утичу на економска кретања и позитивним и негативним ефектима на агрегатну тражњу које они могу да произведу. Уобичајено је, када се расправља о аутоматским стабилизаторима, да се нагласак стави на одређене порезе, као што су порез на доходак физичких лица и порез на добит корпорација, или неке јавне расходе, као што су накнаде за незапосленост и социјална заштита. Сходно томе, у раду се разматрају само фискални стабилизатори, иако и неке нефискалне категорије такође остварују аутоматске стабилизационе ефекте.

Кључне речи: *Порез на доходак физичких лица, порез на добит корпорација, накнаде за незапосленост, редистрибуција дохотка*

Introduction

Automatic (also called built-in) stabilizers are those elements of fiscal policy that tend to mitigate output fluctuations without any explicit government action (Auerbach A., Feenberg D., 2000, p 37). It is important to be said that automatic stabilizers do not include solely fiscal categories (public revenues and expenditures), but also all the

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variables that automatically react countercyclically to changes in GDP. However, in literature usually taxes or public expenditures are examined as automatic stabilizers.

One of the main advantages of automatic stabilizers is the automatism in their functioning because no government action is required to alleviate output fluctuations. Also, they show effects in short run while discretionary government actions include some time lag. Many factors affect time lags, but it is generally thought that complexity of decision making process is the most important. First, it is necessary that creators of economic policy observe changes in economic trends. Then, government actions as a response to changes must be verified in parliament, and subsequently these actions require some time period to produce a desirable effect. However, by the time government actions begin to work, economic circumstances could be diametrically different, and in that moment a different fiscal policy may be required. If we assume that an economy enters recession, it seems to be justified that government decrease tax rates to boost aggregate demand. But, government must obtain enough statistical data to confirm that the economy is in recession, then to make legal changes which have to be approved in parliament, and finally the implemented decrease of tax rates has to show certain effects. By the time that happens, economy could enter different phase of economic cycle (for instance, to enter expansion phase), so the tax rate decrease would be counterproductive in those circumstances. Bearing in mind that, it seems more appropriate to create a well established system of automatic stabilizers than to rely solely on discretionary fiscal policy.

Effects of automatic stabilizers

In general, how do the automatic stabilizers function? The size of the effect of the automatic stabilizers depends on how responsive taxes and expenditures are to cyclical changes - one important, albeit not the sole, determinant of that is the progressivity of the tax system. The overall elasticity of the tax system is:

$$\varepsilon_T / \text{GDP} = \sum \varepsilon_{Bi} * \varepsilon_{\tau i} * \frac{T_i}{T}$$

where T is total tax collections, Ti is the collection from tax i, ε_{Bi} is the elasticity of tax base of tax i Bi with respect to cyclical changes in GDP, $\varepsilon_{\tau i}$ is the elasticity of tax i with respect to Bi (Follette G., Lutz B., 2010, p. 3). As it can be seen, important path of automatic stabilization is the traslation of income fluctuations to tax fluctuations. If the elasticity of tax base to cyclical changes in GDP and the elasticity of tax with respect to tax base are positive and noticeable, then the overall tax elasticity is satisfactory (greater than one is preferable) and the relative change in tax is greater than the relative change in income. This implies that the absolute change in disposable income (total income less tax) is smaller than the change in gross income, so the households or the firms are in better position than they would be if there were no automatic tax changes. However, this is not the end of the process, since it is necesarry this effect to be converted to change in consumption (or investments) that leads to rise of the aggregate demand. Only then, taxes (or public expenditures) alleviate cyclical fluctuations of GDP, because in the absence of taxes and public expenditures the size of fluctuations would be more pronounced. The previously described process can also be presented in the form of scheme:

1) cyclical fluctuations of gross income → tax automatically changes in the same way
2) income minus tax equals net income (change in net income is smaller than change in gross income)
3) alleviation of net income cyclical fluctuations → alleviation of consumption (or investment) cyclical fluctuations
4) consumption (investment) → aggregate demand ("cushioning effect" working in the opposite direction from the original fluctuations)

This set of relations depends on a number of factors, so it is very hard to estimate whether the automatic tax change would lead to a change in consumption or investments, as parts of aggregate demand.

Economists agree that the tax elasticity depends the most on the progressivity of taxes. In the case of cyclical fluctuations, a proportional tax would induce the same percentage change in net income as in gross income. A progressive tax with several marginal rates would, in aggregate, be anti-cyclical, in the sense that the average marginal tax rate would tend to fall when income falls and would tend to rise when income rises. This provides a greater cushioning effect of the shocks hitting gross income than a proportional tax (Devereux M., Fuest C., 2009, p. 429). It is important to mention that the share in total tax receipts is also an important factor of stabilization. If tax accounts for a large share of total tax receipts, then even if tax elasticity is not substantial (for example, sales taxes with only one tax rate), tax can still exhibit stabilizing effect, because the change in disposable income would still be smaller than the change in gross income, because of the magnitude of tax receipts collected. For example, the EU is an area characterized by a high tax burden. According to the 2009 data, total tax revenues account for 39.6% of gross domestic product at the Union level, which is more than 10 percent higher than in the United States (29.3%) and Japan (27.9 %). It does not mean that all individual EU member states have high tax burdens, because in some countries share of taxes in GDP is much lower than 39.6%, while in others the share is larger than 40% of GDP. However, the total tax revenue expressed as proportion of GDP in EU countries is generally high compared to other OECD countries (Hrustić H., 2012, p. 35). This is one of the reasons why empirical researches have generally shown that the automatic stabilizers work better in the EU countries than in the United States (but not in all member countries).

In the existing literature there is a consensus about the main channels through which automatic stabilizers act. First, there is the disposable income channel, emphasized especially in Keynesian models and that dominates much of the policy discussion around stabilizers. The argument is that if after-tax income is less volatile than pre-tax income, then consumption and investment will also be more stable. There are also more additional channels which are now thought to be equally important. The second channel works through marginal incentives, especially on labor supply. This channel works especially through the progressivity of the personal income tax. In recessions, households move to lower tax brackets, which increases the relative return to working, thus labour supply may increase. The progressive income tax therefore stabilizes labor supply by encouraging intertemporal substitution of labor from booms to recessions (McKay A., Reis R., 2013, p. 11). The third channel is redistribution. Both the progressive personal income tax and, especially, the transfer payments, imply a redistribution from higher-income to lower-income households. This may raise aggregate demand if those who receive the

funds have higher propensity to consume than those from whom the funds are taken, and through nominal rigidities this may raise output in recessions.

Maybe the most important question is how significant is the stabilizing effect in quantitative terms. For example, Debrun and Capoor (2010) have shown that fiscal stabilization operates mainly through automatic stabilizers. By contrast, fiscal policies systematically linked to cyclical conditions, pro- or counter-cyclical, do not appear to have a meaningful impact on output volatility. Fatas and Mihov (1999) examined the negative correlation between government size – expressed as a share of government spending in GDP - and output volatility. In the international sample, a government spending mitigates about 8% of GDP cyclical fluctuations. They also included the possibility of the reverse causality in the sense that more volatile economies have larger governments in order to insure them against additional risks. Also, they found that the personal income tax denotes the component of fiscal policy that has the most stabilizing impact. Dolls, Fuest and Peichl (2009) analyzed the effectiveness of the tax and transfer systems in the European Union and the US to act as an automatic stabilizer in the current economic crisis. They found that automatic stabilizers create a cushioning of disposable income that leads to a demand stabilization of 23 to 32 per cent in the EU (the effect is lower in Eastern and Southern Europe than in Northern and Central Europe) and 19 per cent in the US. McKay and Reis (2012) studied the US business cycle and found out that proportional taxes, such as consumption taxes, property taxes and corporate income taxes contribute little to stabilization. On the other hand, a progressive personal income tax can be very effective stabilizer, but at the same time leads to significantly lower average output (because progressive marginal tax rates are discouraging of work and savings on average). Follette and Lutz (2010) examine the response of the economy to the automatic stabilizers using the FRB/US model by comparing the response to aggregate demand shocks under two scenarios: with the automatic stabilizers in place and without the automatic stabilizers. The automatic stabilizers provide a moderate amount of buffering of aggregate demand shocks. They also included the time interval needed to stabilizers reach their full potential and conclude that they absorb about 10 percent of aggregate demand shocks after four quarters and 20 percent after eight quarters. Auerbach and Feenberg (2000) used the TAXSIM model to analyze the federal tax system's impact as an automatic stabilizer and estimates that individual federal taxes offset around 8 percent of initial shocks to GDP. Progressive income tax may help to stabilize output via its effect on the supply of labor, which may even be of similar magnitude to the more traditional path of stabilization through disposable income channel. Dolls, Fuest and Peichl (2010) claimed that the stabilization for high income groups is mainly driven by the income tax, while for low income groups whose tax payments are negligible, benefits play a central role.

The most important fiscal automatic stabilizers

In general, economists agree that indirect taxes do not include progressivity, e.g. sales taxes rates are proportional. Considering that, every taxpayer pays tax according to same tax rates, no matter what his economic strength is. Since sales tax rates are proportional, these taxes have slight stabilizing character, because they do not change relative proportion of total income that disposable income holds. Income taxes have higher output gap elasticities reflecting the progressive rate structure for personal income taxes and the close link to profitability for corporate income taxes (although there may be collection lags). Taxes on goods and services (particularly if consumption is less

volatile than income) and payroll taxes and social security contributions (particularly if capped at a nominal level) have lower elasticities (Baunsgaard T., Symansky S., 2009, p. 7). Here, only personal income tax and corporate income tax are considered since the majority of papers concerning automatic stabilizers deals with these two taxes. In addition, unemployment benefits are also considered, since there is a substantial literature concerning these expenditures as automatic stabilizers.

Personal income tax. Progressive taxes assume that fall in pretax personal income is followed with relatively greater fall in personal income tax revenue, so disposable income (equals total personal income minus tax) will most likely fall, but relatively lesser. If redistribution and partial insurance are important policy objectives then a steeply progressive income tax system might, on balance, be welfare improving (Kiesner T., Ziliak J., 2002, p. 593). On the other hand, increasing the progressivity of the personal income tax would in principle enhance the automatic stabilizers, but does not seem to be the best way to achieve this goal. Progressivity can be increased by raising the marginal tax rates, or by expanding income related benefits that act like a negative tax—such as the Earned Income Tax Credit in the U.S. or the Working Tax Credit in the U.K. Higher progressivity will reinforce both equity and stabilization objectives. However, increasing the marginal tax rates worsens the distortionary impact of taxes on labor supply and savings (Baunsgaard T., Symansky S., 2009, p 9). So, progressive income tax may smooth cyclical income fluctuations, i.e. income becomes more stable, but this may happen on the lower average income level.

Corporate income tax. The most obvious route by which shocks to GDP are offset through the corporation tax is by smoothing corporate investment. As with the impact of personal taxes, this involves two components. The first is the extent to which shocks to gross corporate income are translated into shocks to net corporate income, after corporation tax. The second is the extent to which shocks to net corporate income are translated into effects on capital expenditure (Devereux M., Fuest C., 2009, p. 430). Corporate income tax rates are usually not progressive (they differ from personal income tax in this aspect), so changes in pretax earnings lead to changes in the amount of tax liability to the same percentage. For a given income fluctuation, corporate taxes would change by a smaller percentage amount than would taxes on individual income. In other words, the elasticity of corporate income tax is smaller than of personal income tax. Also, the share of corporate income tax revenue in total tax revenue is smaller than the share that personal income taxes or consumption taxes account for. Moreover, the corporate tax revenue has a declining trend in most of the countries. On the other hand, corporate profits are more volatile than GDP, so corporate income taxes account for a larger share of tax fluctuations than the small share of receipts and low tax elasticity would suggest (Auerbach A., Feenberg D., 2000, p. 52). Based simply on the relative size of income fluctuations, the corporate income tax is a potentially important source of automatic stabilization.

As previously stated, corporate income is a category that fluctuates much more than individual's disposable income. Also, during bussiness cycle it could happen that bussiness turnover is only slightly decreased, while profit is significantly diminished or it could even become negative. In other words, profit fluctuations are more pronounced than turnover fluctuations. Moreover, if profit is negative, corporate income taxation cannot show stabilizing impact, because taxable profit does not exist, i.e. tax is equal zero. In this case the only way corporate income tax to work as built-in stabilizer is to carry back losses into previous tax periods. In this case company could reduce its taxable profit and tax liability in previous tax periods, and achieve a right for refund of overpaid tax, so after tax profit would rise. However, in tax law only possibility of

carrying forward losses to future tax periods is established, but this does not improve current cash flow of firms in short run. In practice, carry back is often limited by fear of abuse and reluctance to treat current tax payments as effectively contingent on future profitability. Nevertheless, allowing loss carrybackward does increase the automatic stabilizers. Where the capacity of the tax administration is sufficiently strong, it could be considered to provide loss carry-backward against the last 2–3 tax years, but possibly only on a temporary basis during recessions (Baunsgaard T., Symansky S., 2009, p. 11). Considering this, stabilizing effect of corporate income tax appears only in those firms that can not borrow but make a profit. Since share of firms that have a positive financial result is procyclical, while share of firms with credit constraints is countercyclical, it can not be concluded unambiguously what is the strength of corporate income tax as an automatic stabilizer (Buettner T., Fuest C., 2009, p. 3).

Unemployment benefits. As for public transfers, greatest stabilizing effect is achieved through unemployment benefits. Unemployment benefits are public expenditures that have a form of transfer, and are generally considered countercyclical instrument, which means that they rise during recessions and fall during upturns. This happens because uneployment increases in recession, government must function as a „safety net", so an army of new unemployed must be provided with unemployment benefits. Besides government is held responsible to help these individuals, there is also an economic justification of this government action. Increasing expenditures for unemployment benefits and various social protection measures also represents automatic countercyclical reaction to prevent recessionary fluctuations. Mechanisms of government expenditures are already defined, i.e. criteria that individual must fulfill to become beneficiary of unemployment benefits, cash transfers and so on, so they provide countercyclical dynamics without any discretionary government action. Unemployment benefits will rise in recession because number of unemployed persons is increasing, but they will be reduced during economic upturns, when economy is on or near full employment level. Also, social protection expenditures will increase in recession when number of persons below poverty line rises, but they will decrease in economic expansion. Some economists claim that marginal propensity to consume is higher when transfers function as automatic stabilizers compared to taxes. Higher propensity to consume in the case of transfers reflects a fact that most of transfer expenditures is aimed to low income households, that are most likely to be credit constrained and therefore follow desired pattern of increasing consumption behaviour, unlike from population of taxpayers as a whole (Follette G., Lutz B., 2010, p. 13). However, even unemployment benefits which are generally considered good stabilizers, are not perfect. Unemployment tends to lag the business cycle, so the fluctuations in output and benefits are not contemporaneous. This lag can also undercut the effectiveness of unemployment insurance as an automatic stabilizer of output shocks (Auerbach A., Feenberg D., 2000, p. 20).

Limitations of automatic stabilizers

To recapitulate, the automatic stabilization should smooth cyclical fluctuations of GDP and its components, not only in the case of recession (although it is most studied in such cases), but also in the case of expansion. It can not be expected that mechanism of government revenues and expenditure completely counteract cyclical changes, but in many cases the impact is significant. However, in many cases automatic stabilizers simply can not function.

Automatic stabilizers assume fully established tax and public expenditures system, with well designed tax law and tax procedures, but also rules of fiscal consolidation,

if necessary. Such regulation of taxation and public expenditures does not exist in developing countries, so automatic stabilizers are still underestimated, which is surprising since the need for this kind of action is greatest in these countries, because population of this countries suffered the most during economic crisis. However, to improve automatic stabilizers government must change tax structure, since in developing countries consumption taxes and social contributions are usually the most important taxes. This means that personal income taxes must have more progressive character and generate more revenue, which is very hard to enforce since in many developing countries due to administrative reasons proportional income taxation is in place. Corporate income taxation, on the other hand, in many developing countries generate negligible revenue, which is the trend that even many developed countries follow. So, if the government assess that the costs of introduction of suitable tax configuration surpass the benefits of automatic stabilization, then the decision not to change the existing taxation system seems to make sense.

Whether automatic stabilizers will influence aggregate demand depends on government capability to implement rules of fiscal consolidation. In a situation of a continuosly balanced budget, automatic stabilizers are ineffective, because budget surplus becomes procyclical and fluctuations gets even more pronounced. In order to fulfill balanced budget criterion, government should increase tax rates and decrease public expenditures during recession, when the budget result gets worse, but this counteracts stabilizing effect of taxes and expenditures. By doing so government in fact runs a procyclical fiscal policy, not a countercyclical. Although in most contemporary fiscal systems there are some explicit fiscal rules concerning targeted level of public debt/GDP ratio, there are also moderate long run deviations. Moderate budget deficits are allowed so automatic stabilizers could work, but only in environment of long run balanced budget, with a carefull use of discretionary fiscal policy (Andres J., Domenech R., 2003, p. 7).

The role of personal income taxes as automatic stabilizers may be important, but high marginal tax rates that may enhance automatic stabilization come at the cost of longer-run economic distortions. On the other hand, proportional taxes, like the sales tax, the property tax, and the corporate income tax have negligible effect on the volatility of economic aggregates, but do not affect the average output. Transfer payments, in turn, lower volatility and have a negligible effect on average output, but because they lower precautionary savings, they raise the variance of consumption substantially. This means that even though automatic stabilizers generally improve economic welfare also may cause economic distortions.

The stabilizing influence of income taxes depends on expectations of households and firms. If households accept shock as a short run event, with the assumption that the current consumption is based on some concept of permanent income, the consumption will not change significantly as a reaction to a shock. In this case the effect of income tax is minor. Households do not design their current consumption based only on current income, but mostly on projections of expected income in the future. In the case of firms, current decisions about investment expenditures and other input investments will be determined rather by cost of capital and future expectations of investment profitability, than by current cash flow that is determined by previous investments (Buettner T., Fuest C., 2009, p. 1). If agents recognize a short-term shock, assuming the current consumption or capital expenditures are based upon a concept of permanent income and future expectations of profitability, their consumption will not change significantly in response to the shock. In this case, the effect of automatic stabilizers on the current demand is weak. However, if agents expect that the crisis would last longer, it can be expected that

at the present time spend or invest more, because they expect that economic conditions would be much worse, in which case the effects of automatic stabilizers on demand can be significant.

Next important issue that affects efficiency of income taxes as automatic stabilizers is the liqudity of households and firms, i.e. ability to get a loan. If a household is not credit constrained and has easy acces to financial market, automatic stabilizers can not help to stimulate demand. In this case consumption of households depends very little on changes in disposable income, because they have access to other available sources of financing. In other words, if a household can get a credit, the link between current consumption and current income is weak, so disposable income stabilization can not be significant in stabilizing current consumption. However, if a household has a problem with liquidity and cannot borrow, i.e. it is credit constrained, then automatic stabilizers may be very efficient. For these reasons, the economists suggest that countercyclical measures implemented during recession always be aimed at low-income social groups, because their financial wealth and liquiduty are low, so they are forced to finance their entire consumption from current income. Also, if firms have satisfactory financial wealth and they can borrow on financial market, then current investment will be less dependent of after-tax profit available to be invested and in that case corporate income tax will not have stabilizing impact. However, if firms do not have possibility to borrow on financial market then changes in after-tax profit will be a significant factor to changes in investment. In this case, corporate income tax may have a significant stabilizing impact on investment demand fluctuations.

Economists agree that the automatic stabilizers do not function in the case of stagflation. In the conditions of the coexistence of inflation and stagnation of economic growth a growth of nominal income due to rising prices and wages occurs, but there is no growth in real income (real income can even decrease). In this situation, the overall growth of wages of employees is "eaten" by the increase in the inflation rate. In the case of a negative supply shock (e.g., an exogenous increase in oil prices), the nominal income growth occurs, so the actual tax payments increase as taxpayers move into higher tax brackets, which creates a reinforcing negative effect to real aggregate demand. The decrease in real income of individuals followed by the increase of the tax burden, has a negative effect on the aggregate demand level. In this case, taxes act as destabilizers. One way to prevent this adverse effect is indexation of tax brackets in certain time intervals for inflation rate, which ensures that taxpayers remain in the same income brackets even if there is an increase in nominal income without the growth of real income.

Conclusions

Certain taxes and public transfers have a stabilizing effect on net income, or after-tax earnings, and in this way can smooth cyclical fluctuations of consumption and investments. To what extent the taxes and transfers reduce net income fluctuations depends on many factors, such as the progressivity of the taxes, the elasticity of the tax base and so on. On the other hand, the stabilizing impact on the aggregate demand depends on a number of specific factors, which are located at the households and firms side. The effect of the automatic stabilizers on the net income may be accompanied by a more evident effect on aggregate demand, but this effect also may be significantly lower. Economists generally agree that when agents perceive long run shocks and are liquidity constrained current consumption or investments as parts of aggregate demand depends mostly on net income so automatic stabilizers may be important. On the other

hand, when agents perceive short run shocks and are not credit constrained or have significant financial wealth, current consumption and investments do not depend on the size of net income, so the automatic stabilization of net income may be accompanied by a negligible impact on aggregate demand. Also, in some cases, automatic stabilizers may be irrelevant, i.e., automatic stabilizers are not universally effective. In the case of stagflation or negative supply shock, automatic stabilizers may even have a destabilizing effect.

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