TRANSITIONAL ECONOMICS

CROWDING OUT VS CROWDING IN EFFECTS IN TRANSITIONAL COUNTRIES

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ABSTRACT: In general, transitional countries have the higher level of factor of production unemployment, significantly under the level of full employment. According to the economic theory and historical experiences of today developed countries, the appropriate economic policy for transitional countries should be Keynesianism, where the fiscal policy, i.e. public expenditure policy has the key role.

The public expenditure efficiency, as the instrument of economic policy is determined by two effects: crowding out and crowding in effects. If the public expenditure has the positive influence on private expenditure (personal expenditure and private investments), it is the case of crowding in effect. But, if the public expenditure has negative influence on private expenditure, it is the case of crowding out effect.

The subject of this paper is the analysis of the determinants of public expenditure effects in the case of transitional countries. The paper gives the theoretical analysis of crowding out and crowding in effects which depend of public expenditure structure, sources of financing and existing economic situation. After that, it will be explained by the empirical analysis of possible public expenditure effects in electric-power system in Bosnia and Herzegovina.

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Introduction

Small transitional countries are very limited in autonomous monetary policy conducting (i.e. exchange rate and interest rate manipulating) because of many reasons (high openness, money illusion absence, high degree of money substitution, flight of capital etc.). That’s why the fiscal policy and its instruments are more important and applicable for economic growth encouragement and unemployment decrement in transitional countries.

The fiscal policy effectiveness depends on:
- Certain fiscal policy measure that is applied and
- Business cycle phase.

The fiscal policy can influence against recession trends through the public expenditure increment (public investments or higher employment in public sector) and tax rates decrement. But, the effectiveness of individual fiscal policy instruments are
significantly different. For example, the tax rate change requires the adoption of new tax law. So, the changing of the tax rate is rarely used because of its administrative nature and high reactions in production and from public consumers. Besides that, the tax rate decrement has smaller influence on multiplicative national income growth than the public expenditure increment, because the disposable income increment (after the tax rate decrement) doesn't go in higher transaction demand as a whole (as it is a case in public expenditure increment), but only in one part and the rest is saving increment. In that sense, Paul Krugman (The Nobel Prize-winner in 2008.) as well as the majority of Neo-Keynesian economists argue that economic encouragement should be in the form of expenditure, not in the form of tax deduction (excluding the poorest inhabitants), because the one part of tax deduction will be saved but not consumed.

The particular parts of public expenditure (the public sector financing, public investments and transfer payments) have very different effects. The changes in the size and the structure of public expenditure can have different influence on economic growth. This influence depends on two effects:
- crowding out and
- crowding in effect.

In the conditions of unemployment, the higher public expenditure encourages aggregate demand in short term, but the public investments increase the capital endowments and potential GDP in long term.

Crowding out and crowding in effects of public expenditure

The public expenditure can have positive and negative influence on private sector. If the public expenditure has negative or restrictive influence on private consumption, especially on investments, it is the case of crowding out effect. But, if the public expenditure has positive or stimulating influence on private consumption (personal consumption and investments), than it is the case of crowding in effect.

These two extreme cases are liquidity trap where the fiscal policy has the highest efficiency without crowding out effects, and classical case where the fiscal policy is completely ineffective because the crowding out is full. These two extreme cases of expansive fiscal policy are presented on the Figure 1.

The classical case of full crowding out effect is described in classical and neo-classical theories of economic policy (e.g. Monetarism, Rational Expectations). The essential assumption in these theories is the situation of full employment or potential production. That's why the classical and neoclassical economists consider that government investments are ineffective, because the increment of the public expenditure will increase the interest rate and there will be crowding out of the private investments, and consequently the national income and employment will remain unchanged (Figure 1b.).

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1 Spending multiplier (also known as fiscal multiplier or simply the multiplier) represents the multiple by which GDP increases or decreases in response to an increase and decrease in government expenditures and investment. It is the reciprocal of the marginal propensity to save (MPS); Spending Multiplier = 1 / MPS = 1 / (1-MPC); MPS - marginal propensity to save and MPC - marginal propensity to consume. Higher the MPS, lower the multiplier, and lower the MPS, higher the multiplier. The tax multiplier is smaller (in absolute value) than the spending multiplier because some fraction of a tax increase represents income that gets saved, which does not add to aggregate demand or GDP. Tax multiplier = -MPC / MPS = 1 / (1-MPC).

2 Skidelsky, R., 2011, Keynes: The Return of the Master, Algoritam, Zagreb, p.73.
The classical case, where the increment of public expenditure has the full crowding out effect on private expenditure, can also be described by production-possibility frontier PPF (Figure 2). If the economy is in the situation of allocative and productive efficiencies (for example, point A on PPF curve), than the public expenditure increment has to cause the private expenditure decrement, because it is necessary to relocate the certain amount of factors of production from the private to the public sector (point B).

The opposite case, the situation of the classical case, is the liquidity trap or Keynesian trap, which is described in Keynesian economic policy (Figure 1a.). The essential precondition in Keynesian theory is very high unemployment level. In that case, the government investments will have very strong multiplicative influence on national
income and employment growth, without the increment of the interest rates. Consequently, it will increase private consumption and especially private investments. This is known as the *crowding in* effect.

**The determinants of public expenditure effects**

In practise, economy situation is most often somewhere between the two extreme situations, between the full employment or potential production (classical case) and deep recession or depression (Keynesian case). That's why, both public expenditure effects (crowding out and crowding in) exist simultaneously, at the same time. The sum of these two effects determines whether the public expenditure increment will increase or decrease the economic growth and employment. The main factors which determine the power of crowding out and crowding in effects are:

- The business cycle phase of certain economy, e.g. the difference between potential and real gross domestic product;
- The interest rate level;
- The public expenditure structure and
- The source of public expenditure financing.

Budget deficit, as the measure of economic policy, has the highest efficiency in the situation of deep recession, where unemployment is high and interest rate is low because of the absence of the transaction demand. In such situation, high unemployment will provide high multiplicative public expenditure effect on national income growth and low interest rate will enable high elasticity of speculative demand for money (case of horizontal LM curve). Budget deficit will increase the interest rate because of the increment of transaction demand for money, and consequently, small interest rate increment will decrease the speculative demand (because of high elasticity or horizontal LM curve) and enable enough additional money for transaction demand, e.g. for business transactions financing created by national income multiplication.

In the opposite conditions, when the unemployment is low, near the potential production, and the interest rate is high, the same amount of budget deficit will have small influence on national income growth and speculative demand of money will have low elasticity (vertical LM curve). In such conditions, relatively high interest rate increment can’t create enough additional money for transaction demand financing and multiplicative effects on national income growth will be small because of the high employment of the factors of production. Generally, transitional countries are disposable with relatively higher amount of unemployed factor of productions and developed countries in relation to the developed countries which are based near the level of full employment. The essential precondition for crowding in effect domination under the crowding out effect is unused production capacity (unemployed labour force, unused capital infrastructure etc.). Therefore, the public expenditure increment will create significant multiplicative national income increment in transitional countries, because of relatively higher level of unemployment of the factors of production. Then, the national income increment will increase the purchasing power and encourage the private investments growth (crowding in effect). At the same time, budget deficit increment will have very small influence on interest rate growth because of high elasticity of speculative demand for money (horizontal LM curve). In the case of transitional countries, the national income is the key variable which determinates private investing. The interest rate has significantly smaller influence. The national income increment has higher influence on private investments increment than the interest rate increment has to the influence on private investments decrement. So, the net result of simultaneous influence of national
income and interest rate on private investments is positive, in the case of transitional countries.

**Figure 3. The crowding in effect dominates under the crowding out effect**

The conclusion is that public expenditure increment (the shift of IS curve to the right, Figure 3a) creates much higher crowding in effect (Figure 3b) than the crowding out effect (Figure 3c) of private investment in transitional countries.

Higher national income (as the consequence of public investments or budget deficit) creates higher savings, because the propensity of saving is also higher at the higher national income levels. It means that public expenditure and public debt increment doesn’t have to downsize the disposable saving amount as a source for private sector financing. Even within the conditions of high unemployment, it is possible that public investments and national income growth creates more and more disposable saving amount for state and private sector indebtedness. It is necessary to point out that budget deficit and public investments can encourage private investments only in short run, because in long term, near the situation of full employment, the crowding out effect dominates above the crowding in effect.
In the case of developed countries, which catch up the potential production and full employment level, the public expenditure increment has small influence on multiplicative national income growth. So, in the situation of full employment, the public expenditure increment will create higher interest rate levels because of low speculative demand for money. That’s why the crowding out effect will dominate above the crowding in effect and fiscal policy (public expenditure increment) will be ineffective.

The public expenditure structure has the key importance in the analysis of public expenditure effects (crowding in and crowding out) in transitional countries. The public expenditure structure is divided into two parts:
- Productive (investments and public sector) and
- Non-productive expenditure (transfers)

The public investments (e.g. infrastructure building) are the instruments of economic policy which have high effectiveness and crowding in effects on private expenditure in the conditions of high unemployment in transitional countries. In the conditions of high or full employment in developed countries, public investments don’t have crowding in effects because those influences are already used.¹

The public expenditure increment in the form of additional employment in public sector (e.g. state administration) can encourage the economic activity only in short term, but in long term it can become the limited factor of economic development because of physical production absence and tax revenue decrement.

Finally, transfer payments (for example social assistance, retirement ...), as the component of public expenditure, can create only crowding out effects with a full absence of crowding in effects, both in transitional and developed countries, because

¹ For example, according to the certain researching on the example of 39 countries during the period of 1975-1984, the public expenditure increment in developed countries creates crowding out effects, except in the case of investments in education. In the case of transitional countries, the highest crowding in effects were created by investments in transport and communications. See Ahmed and Miller (1999).
transfer payments don't create the national income increment. So, the public expenditure in transitional countries should be change in a way of public investments increment (because of crowding in effects) in long term, public sector decrement or increment but only in short term and non-productive transfers decrement (because of crowding out effect).

The state investments, as the most effective part of productive public expenditure in transitional countries with high level of unemployed factor of productions, are especially significant in infrastructure sector which is complementary for majority of other economic activities and necessary for its development.

On the example of Bosnia and Herzegovina, we can point out:

- Traffic infrastructure building: traffic roads, railway, airports, ...;
- Electric power industry: hydroelectric power plants, thermal power plants, oil pipeline, ...

These two sectors (traffic infrastructure and electric power industry) are complementary and essential to all the other branches of the economy (industry, agriculture, tourism ...). The electric power industry consists of generation, transmission, distribution and sale of electric power to the general public (firms, inhabitants ...). Therefore, the traffic infrastructure is the fundamental precondition for the well-functioning of economic activities (production and distribution of goods) and for enabling the mobility of people. The electric power production and its export is recognized as the key strategy for BandH accelerated economic development because of its relatively huge amount of unused natural resources and comparative advantages in electric power production. The capacity for electric power production and its distribution determines the economic situation in each country and it can be a base for regional cooperation between net producers and net consumers of electricity. BandH is the country with stable and perspective electric power sector whose production is higher than domestic consumption. BandH is the leading country in electric power export in the region of Western Balkans, with relatively high possibilities for electricity production and export increment in the region. The electricity has the highest share in BandH export, and the main export destinations are Croatia, Serbia and Montenegro.¹

BandH owns relatively the biggest stocks of coal, iron ore, bauxite, forest and water in the region of Western Balkans. The majority of electric power production in BandH is dominantly concentrated in thermal power plants and hydroelectric power plants what is as expected in accordance with the wealth of coal mines and the wealth of water in Bosnia and Herzegovina.

The energy-power consumption, according to the current intensity, contributes about 20% in GDP of Bosnia and Herzegovina. The hydroelectric-power production makes over 62% of all electric-power consumption. The theoretical potential of Bosnia and Herzegovina in hydropower production amounts 8,000 MW, while the technical potential amounts 6,800 MW and economic potential is 5,800 MW. Currently installed capacity amounts 2,052 MW (53% of total energy production). This indicates

¹ The international trade in electricity has the largest surplus in the structure of B&H foreign trade. During the 2014, B&H Power Company exported electricity in the value of 308.6 million and imported electricity in amount of 89.1 million KM. During the 2013, due to the very favourable weather conditions, B&H reached a record export of electricity in amount of KM 471.9 million, whilst importing the amount of 120.5 million KM. In 2012, electricity export was in amount of KM 150.1 mil and import reached 140.2 million, while in 2011 the export of electricity was worth KM 368.3 mil, and import was in amount of KM 116.9 mil. Source: Ministry of Foreign Trade and Economic Relations.
the importance and high underutilization of the hydropower potential in Bosnia and Herzegovina. Also, Bosnia and Herzegovina has great potential in the thermal energy production because of its significant reserves of brown coal, lignite and peat (the amount is estimated to over 6 billion tons). So, Bosnia and Herzegovina has the greatest potential for energy production from renewable sources (wind, solar, biomass and geothermal energy) in the Balkans, which are also 30% higher than the EU average. On the other side, Bosnia and Herzegovina imports gas and oil.

Investments in the electricity sector are necessary if we want to achieve economic growth, development and employment. The capital project needs are over KM 7 billion till the 2030, and the vital interests of the electric activity in BandH, are building the Block 7 Tuzla and the construction of Block 8 of TE Kakanj.

### Table 1. Investments in the power sector

<table>
<thead>
<tr>
<th></th>
<th>Power MW</th>
<th>Energy GWh</th>
<th>Investment mil. KM</th>
</tr>
</thead>
<tbody>
<tr>
<td>TE Tuzla - Block 7</td>
<td>450</td>
<td>2535</td>
<td>1500</td>
</tr>
<tr>
<td>HE Vranduk</td>
<td>20</td>
<td>96</td>
<td>124</td>
</tr>
<tr>
<td>HE on Neretvica</td>
<td>26</td>
<td>102</td>
<td>88</td>
</tr>
<tr>
<td>VE Podveležje</td>
<td>46</td>
<td>93</td>
<td>125</td>
</tr>
<tr>
<td>TE Kakanj – Block 8</td>
<td>300</td>
<td>1690</td>
<td>1035</td>
</tr>
<tr>
<td>In total</td>
<td>842</td>
<td>4516</td>
<td>2872</td>
</tr>
</tbody>
</table>

Source: Grabovica (2012).

In this way, the long-term investments into energy-power sector will create many other positive crowding in effects (the increment of production possibilities, security of electricity supply, lower electricity prices for other producers and inhabitants, the growth of export and budget revenue, job creation, etc.).

Finally, the relationship between the crowding in and crowding out effect in public spending depends on the form of the budget deficit financing. Public spending can be financed in three ways:

- by primary issue;
- by tax increment;
- by borrowing.

Countries which apply the currency board system (e.g. Bosnia and Herzegovina) cannot finance the budget deficit by primary source, because it is prohibited by the Currency Board rules. In other countries, budget deficit can be financed through the primary source of money, but it can cause monetary instability (inflation) because the primary money through the process of deposit derivation multiplies in a much larger share of deposit money. In addition, monetary policy in the severe recession has lower efficiency compared to the instruments of fiscal policy.

The tax rate increment, as the second way of financing the budget deficit, reduces disposable income DI and increases the costs of an investment that creates the crowding out effect of private consumption (C and I).

In the case of transitional countries, the borrowing of money funds can be a better way of financing the budget deficit than the tax rate increment. The residents of the country in recession with the significant amount of unemployed factors of production (which is the usual macroeconomic situation of transition countries) hold relatively

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1 EU imposes an obligation on the agreed minimum share of production in the amount of 20% of renewable energy sources in the overall energy balance of the country.
larger amount of money in the form of cash as an asset (speculative demand), and relatively small part is used for transactional demand due to insufficient consumption and investment. In such situation, according to the Keynesian statement, the state may borrow funds to finance public spending and public investments, without reducing the amount of money for the private sector borrowing, so there will not necessarily be an increase in interest rates and there is no crowding out of private consumption (C and I). In contrast, in conditions of full employment, when the speculative demand for money is at its minimum level, and the transaction demand for money dominates (that is a prerequisite of monetarists), additional government borrowing for financing public spending would reduce the amount of money available for the private sector (households and firms) and it would lead to increasing of the interest rates. That would lead to crowding out of private consumption of households and firms.

This could be applicable on the example of the electricity sector in Bosnia and Herzegovina. There are three electric power firms that generate electricity and they are independent in the construction of new power plants and responsible for supplying customers in the area they cover. All three companies (Public Enterprise Electric Utility of Bosnia and Herzegovina, Public Enterprise Electric Utility HZHB and Power Utility of the Republic of Srpska) are in majority of state ownership of entities (the Federation of BandH Entity and the Republic of Srpska Entity).

The construction and financing of new energy facilities (hydroelectric power plants, thermal power plants, wind power and solar power plants etc.) should be done on the principles of project financing. It means that the investor or the power utilities will finance the construction of electric power facilities by taking loans and repay them from cash flow of the project itself. The project financing refers to a long-term projects whose revenues in the future are predicted on the basis of analysis, credit debts are up to 20 years, and the share of own capital is about 30 percent. Hence, it is a form of public-private partnerships. Domestic power utilities do not have the financial resources for planned capital projects by 2030, in amount of over 7 billion KM. So they will have to borrow the funds. Issuance of long-term corporate bonds guaranteed by the power companies, with interest rates higher than those achieved in the bank, is the way we can provide the necessary funds for investment. Two things should be emphasized. First of all, the power utilities in BandH are public companies with majority state ownership and they achieve the greatest profits. Due to this, these companies have the highest creditworthiness and they provide security for investors who are buying their bonds. The additional security for investors will be provided if government guarantees for bonds, i.e. the highest priority, as it is the case in repayment of external debt. Secondly, the funds for the construction of electricity facilities should be taken more at domestic than on the international financial markets. If the domestic development is based on domestic accumulation, there is a contribution to the development of the domestic financial sector and it generally intensifies crowding in effects. The total savings of all the sectors in BandH is around

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1 According to the Law on borrowing, debt and guarantees of Bosnia and Herzegovina (Article 42, Article 43, Article 44), the external debt obligations are absolute and unconditional priority in the Budget of the state institutions and international obligations. At the beginning of each month, the first money that is paid into the budget automatically is switching to a special account to collect a sufficient amount to repay current repayment of external debt, and only after allocation of money for foreign debt, local government can distribute the rest of budget revenues in accordance with their own priorities (salaries, investment, social benefits ...).
50% of GDP. The population of BandH has the high level of savings and the growing trend (even during the recession years) which shows confidence in the banking sector and the currency board system.

Besides that, there are significant funds outside the banking sector, in the informal economy, population and economy (estimated to be over 5 billion KM). Unused funds in public companies, funds in unregistered (informal) economy and resources of speculative demand for money as an asset, can be mobilized and very useful in the construction of power facilities.

Crowding in effects and the increase in private investments will be conducted only if the business environment in Bosnia and Herzegovina is going to improve. According to the analysis of Business World Bank, Bosnia and Herzegovina is ranked at 107th place among the 189 countries in the world and is estimated as the worst place in Europe for business. Even the Ukraine (currently in war) is ranked better than Bosnia and Herzegovina on that list (World Bank, 2015).

**Conclusion**

The theory of economic policy and the current economic situation in Bosnia and Herzegovina provides the basis for the conclusion that Keynesian policy and the economic role of the state through initiation of the investment should be the key actuator of economic development in Bosnia and Herzegovina. The suggestion that the public spending has low efficiency due to the crowding out effect of private consumption is not realistic in the case of transition countries. The relatively high level of unemployment and speculative demand for money are the characteristics of transition countries which cause that the budget deficit does not necessarily have to increase interest rates, discourage the investors and slow the economic growth. Just the opposite, an increase in income due to the state investments increases purchasing power, savings and it encourages private investments because the availability of unemployed factors of production is high and there is multiplied economic growth. The crowding in effect dominates over the crowding out effect in the short term, within the conditions of unused savings and unemployed factors of production.

But, in the long-term, there is the reverse process, the crowding out effect dominates over the crowding in effect because of less private savings and full employment achieving. BandH has comparative advantages in the power sector that is complementary to the rest of the economy. So, investing through a budget deficit in the electricity sector can achieve significant crowding in effects of private investment without crowding out effects, due to the high levels of unemployed labour force, domestic savings and other unused real and financial resources.

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1 The total household savings have had continued growth and it follows (in millions KM): 9120.8 (2014), 8363.9 (2013), 7655.2 (2012), 7051.3 (2011), 6489.44 (2010), 5662.13 (2009), 5206.42 (2008), ... Besides that, the deposits and legal persons are over 5 billion. So, the total deposits of all sectors amounts to more than 15 billion KM or more than 50% of GDP at the end of 2014. Source: Central Bank of B&H.
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