Conditions and limitations for growth in construction industry: The empirical evidence from Belarus

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The aim of this study is to determine the main factors influencing construction industry taking into consideration the Thirlwall’s balance of payments constraint. Belarusian experience has demonstrated that a small open economy has a very limited ability to stimulate economic growth by investing in the construction of housing, social facilities and infrastructure. Such investments lead to trade imbalance and growth of foreign debt because construction industry in a small open economy generates imports. Only those construction projects that contribute to the increase in exports should be priority.

Keywords: Construction industry, economic stimulation, Thirlwall’s balance of payments constraint.

INTRODUCTION

Belarusian economy since 2015 has fallen to recession for the first time in last 20 years. Average GDP growth during the period of 1996 – 2008 was 5 – 12 per cent, then it was reduced to 1 – 5 per cent and finally to negative value.

The main exogenous factor that affect today’s recession is considerable decrease in exports that could be associated with the crisis in Russia and Ukraine as in the main trading partners of Belarus. Domestic value added embodied in gross exports contributes to nearly half of Belarusian GDP, and these two key trade partners bought about half of Belarusian export products. The economy of Ukraine decreased by 28% in 2014 and by 31% more in 2015 (in current US dollars, current exchange rate). Russia's GDP fell by 3.7% in 2015 or by 37% in current US dollars, current exchange rate. Moreover, primary processing products as food, petroleum products, and chemical products predominate in the structure of manufacturing and exports. While prices on world commodity markets were high, producing and exports of such products were beneficial. The decline in world prices directly affected the Belarusian producers.

Under the conditions of decrease in exports it is possible to stimulate economic growth by expanding domestic demand. In world practice, this kind of economic policy is widely used among well-developed countries and called quantitative easing. Theoretically it is also possible to increase gross capital formation, by investments in construction. Increase in construction works will both stimulate supply and demand for related products used in construction industry, such as building materials and transport services.

Meanwhile, such a practice of economic stimulation Belarus has held previously trying to support high rates of growth during the periods of exports decline at the expense of investments into building of real estate and a social infrastructure. Growth of investments into building, as a rule, led to destabilization of the balance of payments and growth of an external debt, and also other negative effects, including high inflation. Finally the Belarus practice has shown that growth of construction industry cannot be a source of the balanced economic growth.

The purpose of given article is search of conditions and restrictions for growth in construction industry in a small open economy on an example of economy of Belarus. Presumably, the given industry in a small open economy can be successfully developed only at exports growth, but cannot be examined as a source of growth through increasing domestic demand at exports decline. Possible
negative effects of such a model of growth will be examined. As development of construction industry depends on investments and gross capital formation, in a broad sense it is possible to raise the question: what are restrictions on growth of the Belarusian economy at the expense of investments?

Literature review

Over the decades, Belarus remains the leader among the CIS countries and the countries of Central and Eastern Europe in terms of the ratio of gross capital formation to GDP. In some years, this ratio reached over 40 per cent, approaching the maximum values that are specific to modern China (Figure 1).

Such a model of development, when the main driver of economic growth is not consumption, but investments, complies with the Keynesian economic theory, particularly the Harrod-Domar model, which has been used successfully in the United States and Europe after the World War the Second. Currently, this model of economic development used by China, which is due to activation of construction output compensates for the slowdown in economic growth, which arose as a result of decline in exports after 2014.

Nowadays, economic output by real-estate brokers surged 8.8 percent from a year earlier, while construction activities jumped 7.3 percent in China. A housing recovery fueled by cheap credit has supported growth this year even as headwinds loom for developers with bloated inventories (Bloomberg News, 2016).

Over 30 years the high growth in China has been primarily driven by the high growth in investment. Yet, that interpretation still needs to answer the question why investment in China is so high? Because of cheap investment-related resources including financial resources provided by the state-owned commercial banking system. The loan interest rate in China in research period (1991 - 2009) was about 3.63 per cent in real term, while in USA it was about 5.33 (Gang, 2013).

However, the investment opportunities of the Chinese economy as well as the degree of its diversification are not comparable with the conditions of Belarus. As any open less developed economy, Belarusian economy could not grow faster than its equilibrium balance of payment grows (Kolesnikova, Luchenok, 2015). Such a limitation known as the Thirlwall balance of payments constrained growth model, which postulates that the balance of payments position of a country is the main constraint on economic growth, because it imposes a limit on demand to which supply can adapt (Ghani, 2006). Later evidence for Thirlwall's law was found for Argentina, Brazil, South Korea, Malaysia, and the Philippines (Gouvea, 2010).

Construction industry stimulation in Belarus does not generates exports but increases domestic output. An increase in domestic output, by increasing imports, can lead to a deficit in the balance of payments, which may require either a fall in demand or a real exchange rate depreciation in order to ensure the sustainability of the external deficit. Hence, an unsustainable external deficit sooner or later requires a correction, which puts a brake on further output growth (Bajo-Rubio, 2014).

All these negative effects appeared in Belarus after domestic output stimulation. But the most serious constraint for Belarusian economy is foreign debt growth, which reached to 70% of GDP in 2017. Based on (Elliott, Rhodd, 1999, p. 1148) results, economic growth is not only constrained by export and capital flows, but additionally is adversely affected by debt service payments which rob the economy of much needed resources to promote economic growth.

Therefore, the Thirlwall's balance of payments constraint (Thirlwall, 2003) could be a good methodology in studying the role of construction industry in a small open economy.

The contribution of construction industry to Belarusian economy

Construction industry contributes about 10 per cent to the
GDP of the Republic of Belarus, creating demand for products of related industries such as the manufacturing of building materials, mining of non-energy mineral resources, transport services. Growth in construction output and improvement of its technical equipment for many years remained one of the most important priorities of social and economic development of Belarus, contributing to the achievement of the following goals:

- provision of urban population by cheap and comfortable housing that improves the quality of life by achieving increasing social standards, as well as encourage the introduction of new construction technologies and building materials (Resolution of the Council of Ministers of the Republic of Belarus No. 1589, 2010). The largest volumes of housing construction carried out in Minsk and regional centers, commissioning of residential buildings increased from 392 square meters per 1,000 inhabitants in 2005 to 699 square meters in 2010. A big part of housing was built at the expense of lending to households at the preferential interest rate which was lower than inflation rate;

- construction of individual housing in rural areas, contributing to the influx of workforce for agriculture, the revival and development of small towns and rural settlements. The State Programme of Rural Renewal and Development was implemented in Belarus from 2005 to 2010, as a result, a lot of rural communities have received the status of agro-towns by construction of modern individual housing, as well as the construction of social infrastructure (Presidential Decree No. 150, 2005). The total cost of the program, financed mainly from the budget, amounted to approximately the equivalent of 4.6 billion current US dollars; construction of sports and cultural facilities in Minsk,

- regional centers, big district centers of Belarus, intended for leisure activities of citizens, as well as hosting international sporting and cultural events;

- modernization of infrastructure, in particular the reconstruction of a network of high-speed highways linking Minsk with all regional centers. The planned volume of investments, including foreign investments and loans, amounted to equivalent of 12 billion of current US dollars (Resolution of the Council of Ministers of the Republic Belarus No. 468, 2006) This event not only improves the quality of transport services, but also contributes to the development of the country’s transit potential, as exports of transportation services is one of the main Belarusian export articles.

Finally, in the period from 2006 to 2014 construction industry was considered as one of the drivers of economic growth, allowing together with the solution of social problems provide employment and create added value. However, construction volumes have shrunk in recent years, and this decline has the objective reasons.

The share of construction and installation work in the total volume of investments in Belarus has increased from 40 per cent in 2006 to 54 per cent in 2015, so, no doubt, the construction industry was one of the most important drivers of economic growth in the period. This conclusion also follows from a comparison of changes in the gross capital formation to GDP ratio to the index of contract works in construction (Figure 2).

The peak of investments in fixed capital and volumes of construction works occurred in the period from 2008 to 2013 that can be regarded as a way of economic growth.
stimulation in the face of declining foreign demand for Belarusian exports due to the global economic crisis.

The turning point of the trend occurred in 2014, when the construction of sports and cultural facilities in Belarus suspended, and investments in new equipment and profitable export oriented projects became a priority (Belarus has terminated the construction of sports and cultural facilities, 2014).

**Dynamics of the main economic parameters in Belarus**

According to the Thirlwall's balance of payments constraint we should suppose that increase in construction works and gross capital formation in general in specific conditions may disturb balanced economic growth that result in trade imbalance, growth of foreign debt and financial system destabilization. Such effects were observed in Belarus during the period from 2008 to 2014.

After the global financial crisis in 2009 the volume of exports fell, but Belarus has sought to maintain high rates of economic growth. To do this, in the period from 2009 to 2011 investments increased, including by emission. Refinancing rate varied in the range of 10-15%, which is comparable to the inflation rate, and the money supply grew (Figure 3).

As a result, the volume of imports exceeded exports. Since 2006 and until 2011 there was a gradual increase in the imbalance of the current account (Figure 4).

The gross foreign debt of all sectors of economy hit by 2011 55% of GDP. The result was the "currency crisis" in

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**Figure 3:** Monetary policy before 2014

**Figure 4:** Current account and trade balance
2011, when over 6 months the US dollar to ruble exchange rate rose by 2 times. After the beginning of a currency crisis in 2011, the interest rates have risen sharply.

After the end of 2014 the volume of money supply was more less stable: refinancing rate exceeded inflation and money supply M2 stopped growing. In January 2014 the National Bank has said it will not carry out an easing of monetary policy, but on the contrary, will toughen it (Delovaya Gazeta, 2014).

Such an approach was supported by the Government. The balanced economic growth considered a major priority in the Program of activities of the Government of the Republic of Belarus in the 2016 - 2020. Balanced means the absence of trade imbalances, and imbalances in the financial sector. The Program indicated that the tightening monetary policy in 2015 resulted in the balance of payments improvement, stability in the foreign exchange market and inflation lowering (Resolution of the Council of Ministers of the Republic of BelarusNo 274,2016).

At the end of 2015, the National Bank has moved from the three-currency soft peg to a floating exchange rate. Since January 2016 the Belarusian Ruble exchange rate has not reduced against the US dollar, and inflation is slowing. The gross foreign debt of all sectors of economy has stopped to grow since 2015 (Figure 5).

Thus, there was stabilization of the financial market of Belarus in 2016, including inflation slowing less than 1% per month, the cessation of depreciation of the exchange rate of Ruble, the cessation of growth of money supply, a decline in interest rates and foreign debt.

A relatively tight monetary policy of the National Bank finds support among experts. The experts of CASE-Belarus warn against a possible easing of monetary policy, which could lead to the loss of macroeconomic stability, as well as against preferential lending to domestic companies (Akulich,2016).

The study made by the National Academy of Sciences shows: crises in the Belarusian economy in 2011 took place as a result of its imbalance caused by active stimulation of growth. However, bringing the economy to a state of equilibrium and elimination of imbalances does not help accelerate its growth (Kolesnikova ,2015).

Switch to tight monetary policy and to the priority of balanced economic growth in 2016 immediately affected construction industry.During the period of growth construction industry suffered a deficit of qualified personnel and the average salary in the industry exceed average salaries throughout the economy by 20-25 per cent. But situation has changed in 2016 as evidenced by the following facts:

Salaries in the construction industry became almost equal to the average throughout the economy
The number of employees who retired at 36% exceeded the number of newly hired
Volume of construction works in 2016 decreased by 19.4% over previous year
The gross capital formation to GDP ratio decreased below 25% in 2016, which is close to its value in European countries.

Factors influencing the volume of construction works

We used simple correlation analysis to find the main macroeconomic parameters that can boost or slow down construction industry. As the researched criterion the volume of construction works was chosen, as the other criteria that could influence the volume of construction works we used the following (see Table 1):

- Money supply M2 and M3
- Interest rate
- Change in foreign debt
- Changes in exports.

We have received correlation matrix (Table 2) where correlations between CW and other listed parameters been evaluated.

The closest relations the researched criterion has with

![Figure 5: Gross foreign debt of all sectors of economy, mil USD.](http://www.nbrb.by/statistics/ExternalDebt/)
**Table 1.** Data for correlation analysis

<table>
<thead>
<tr>
<th>Year</th>
<th>Money supply M2, per cent to the previous period</th>
<th>Money supply M3, per cent to the previous period</th>
<th>Interest (refinancing) rate, per cent</th>
<th>Volume of construction works, per cent to the previous period</th>
<th>Change in foreign debt, per cent to the previous period</th>
<th>Change in exports, per cent to the previous period</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>137.5</td>
<td>143.0</td>
<td>10.3</td>
<td>121.1</td>
<td>121.3</td>
<td>134.9</td>
</tr>
<tr>
<td>2009</td>
<td>97.5</td>
<td>122.1</td>
<td>13.9</td>
<td>104.6</td>
<td>145.6</td>
<td>67.1</td>
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<tr>
<td>2010</td>
<td>127.6</td>
<td>125.7</td>
<td>11.8</td>
<td>112.9</td>
<td>128.7</td>
<td>120.5</td>
</tr>
<tr>
<td>2011</td>
<td>141.6</td>
<td>163.9</td>
<td>21.5</td>
<td>106.7</td>
<td>119.8</td>
<td>158.8</td>
</tr>
<tr>
<td>2012</td>
<td>166.4</td>
<td>194.4</td>
<td>34.5</td>
<td>91.4</td>
<td>99.2</td>
<td>111.5</td>
</tr>
<tr>
<td>2013</td>
<td>141.7</td>
<td>131.0</td>
<td>25.6</td>
<td>104.6</td>
<td>117.3</td>
<td>84.9</td>
</tr>
<tr>
<td>2014</td>
<td>118.6</td>
<td>122.6</td>
<td>21.5</td>
<td>94.3</td>
<td>101.0</td>
<td>98.3</td>
</tr>
<tr>
<td>2015</td>
<td>106.4</td>
<td>136.1</td>
<td>24.9</td>
<td>88.7</td>
<td>95.6</td>
<td>75.8</td>
</tr>
<tr>
<td>2016</td>
<td>91.5</td>
<td>118.2</td>
<td>24.8</td>
<td>80.6</td>
<td>98.2</td>
<td>90.7</td>
</tr>
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</table>

**Table 2.** Correlation matrix

<table>
<thead>
<tr>
<th></th>
<th>M2</th>
<th>M3</th>
<th>Ref</th>
<th>CW</th>
<th>FD</th>
<th>Ex</th>
</tr>
</thead>
<tbody>
<tr>
<td>M2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M3</td>
<td>0.81</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ref</td>
<td>0.32</td>
<td>0.53</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CW</td>
<td>0.36</td>
<td>0.01</td>
<td>-0.74</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FD</td>
<td>-0.07</td>
<td>-0.24</td>
<td>-0.72</td>
<td>0.73</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Ex</td>
<td>0.58</td>
<td>0.49</td>
<td>-0.19</td>
<td>0.50</td>
<td>0.06</td>
<td>1</td>
</tr>
</tbody>
</table>

**Figure 6:** Correlation between interest rate and the volume of construction works

Interest rate (Ref), change in foreign debt (FD) and change in exports (Ex) – see Figure 6 – 8. It is necessary to notice that correlation dependence is not causal, therefore shows only interrelation of factors, but not influence of one on another.

The explanation of the obtained results could be the following. Usually but not always construction works growth observed during the increase in exports. Exports favors to the inflow of additional money resources to the economy, growth of revenues and domestic demand. If construction grows underexports decline as it observed in 2009, it boosts foreign debt growth. The main cause of growth in construction industry is lower interest rate that was also proved on Chinese example.

Lower rates are inherent for stable economic situation, when exports grow, either when the National Bank provides easing of monetary policy to promote economic growth. There is a risk of increasing debt in the latter case.

Growth in construction works closely related with increase in the gross capital formation that leads to increase in gross foreign debt through the current account imbalance.

**DISCUSSION AND CONCLUSION**

In general, the obtained results confirm the Thirlwall’s balance of payments constraint for the small open economy.
of Belarus. We found the main restrictions of growth of construction industry: a high foreign debt, trade imbalance and high interest rates.

There are the following objective causes explaining the reduction in construction works in Belarus since 2016:

In the face of declining exports and GDP stagnation, incomes of households declined and they have less opportunities for purchasing or building housing;

The banking sector can not provide cheap loans for housing because of a high refinance rate;

Construction industry does not create a product that could be exported, but it generates imports within the entire value chain. Every 100 rubles of gross output in construction creates 25 rubles of imports in related industries including energy resources and metal because these resources are not produced in Belarus.

There is a high probability that monetary stimulation of construction will disturb economic equilibria by increasing trade imbalances and foreign debt, so investments to construction is not a source of long-term sustainable growth of a small open economy.

That is why Belarusian Government has changed the priorities concerning this industry. In accordance with the new State housing construction program for 2016 - 2020, the main priorities was shifted from apartment buildings construction in large cities to the construction of individual suburban housing, as well as the development of satellite towns (The state program of housing construction for 2016-2020 approved, 2016).

The main large objects which are under construction currently are not housing and social facilities but industrial facilities capable to provide jobs and produce export products in the future, for example:

The nuclear power plant in Ostrovets, Grodno region, in the North-West of Belarus; Great Stone Industrial Park in Smolevichi district, Minsk region;
At the same time funding for construction is carried out not at the expense of budget, but mostly due to foreign investments and loans.

In general the Belarusian experience has shown that a small open economy has rather limited opportunities to stimulate economic growth by investing in the construction of housing, social facilities and infrastructure. Yet the main source of growth of a small open economy is exports, so projects that contribute to the increase in exports should be a priority in the implementation and funding.

In addition, the experience of the Belarusian economy may be useful in the analysis of risks of the global economy. For example, an important factor in the growth of the Chinese economy has become mortgage loans. According to some experts, China’s credit boom has reached the point when the country goes through the financial stress that can affect international markets, taking into account the size of the Chinese economy (Vesti-Economy, 2017).

The future research could be aimed on the modeling the balanced economic growth in Belarus, taking into consideration the Thirlwall’s balance of payments constraint. The main problem is that the variables discussed above are interdependent, therefore the dependence of the volume of construction works on macroeconomic parameters cannot be described by a simple linear model.

REFERENCES


