

STATISTICAL PARADOX IN ECONOMY

Borivoj Subotić¹, Ivica Stanković², Ilija Subotić³

¹*Faculty of Business Studies and Law, University Union Nikola Tesla, Belgrade, SERBIA, borivoj.subotic@fbsp.edu.rs*

²*Faculty of Business Studies and Law, University Union Nikola Tesla, Belgrade, SERBIA, ivica.stankovic@fbsp.edu.rs*

³*Faculty of Business Studies and Law, University Union Nikola Tesla, Belgrade, SERBIA*

Abstract: *In this article the authors have pointed to certain statistical paradoxes in the economies of certain countries. The main question - whether these seemingly disparate paradoxes are connected by some functional dependence - remains unanswered. Answer to this question requires huge work, a monumental effort, perhaps even finding a new method yet unknown to us. Why? This is about a very large number of parameters, and it is indeed going to be a major challenge for potential researchers to define their importance, as well as to determine whether to obtain this response it is necessary to consider only a few, key parameters. This modest paper certainly does not pretend to do all that.*

Keywords: *paradox, statistics, production, Belarus, Ukraine, Serbia, America, China*

1. INTRODUCTION

The reason for writing this article is the ever increasing number of occurrences of unusual paradox in various economic spheres, which remain inexplicable to most people. For their understanding we do need a little basic knowledge of statistics, economics, knowledge of the function and supply-demand balance of the market conditions. Of course, experienced and attentive reader is also necessary, on top of all that. We will use this opportunity and attempt to look at some examples of this paradox by showing that they are not real paradoxes indeed, as it at first seems; we only need to scratch a bit under the surface.

2. EASTERN COUNTRIES PARADOXES

2.1 The paradox of Belarus statistics

The citizens of Belarus would probably be surprised if they learn that their net salary (with the impact of inflation) in the year before last (officially the first year after the crisis)

surpassed the global 1991 average 3.77, climbing thus above the Russian average 2.74 times. At the end of the Soviet Union, in the last 5 years of existence, the average salary in the Russian Federation was about 13% higher than in Belarus. Counting this, it follows that the average employed Belarus is about 2.4 times richer than the average employed Russian. In order to be able to believe, let us look at the graph in Figure 1.

We may be dismayed: whence this growth, if average annual salary in the Republic of Belarus in 2012 amounted to \$450, and in the Russian Federation \$850? The difference in the exchange rate of the dollar does not help – it is even to the detriment of Belarus. More experienced reader will notice that in the graphic, from 2000 onwards, the net salary in Belarus grew much faster than its GDP per capita - in 2012 it was exceeded 1.8 times. On the Russian side, this growth is even.

The answer to the question raised in the previous paragraph is the fact that the average salary is calculated in relation to the consumer price index (calculated only per narrow, basic consumer basket), while real GDP is calculated in relation to the deflationary GDP (which takes into account all products and services throughout the economy).

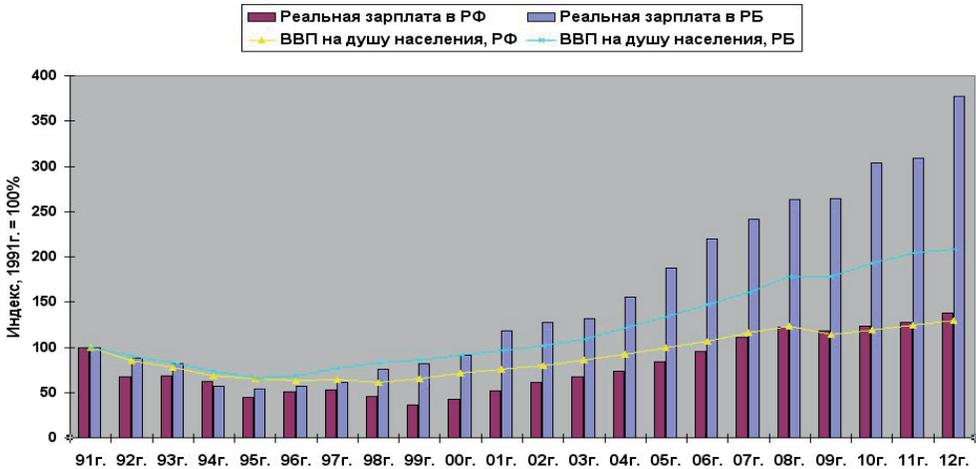


Figure 1: Graphic net salary in Russia (black) and Belarus (gray) in the period from 1991 to 2012 Thin white lines represent the movement of the GDP of the two countries: the lower one is the Russian GDP.

(Source of data: Belarusian Belstat, the research of the Russian Academy of Sciences, the Federal Statistics Service of Russia; databases of Angus Maddison and the IMF)

When we consider all statistical parameters, we arrive at the conclusion that consumer prices in Belarus, which are below the national average, are higher than the same prices in Russia by about 1.87 times. From this follows that average Belarus actually earns those 2.4 times more than average Russian, but only we look at narrow food basket (which prices Belarus lowers to the maximum).

Analogy: if we sent that same worker to a labor camp and gave him even less than 10% of the original plate, but provide him with all the necessities, his real wages would tend towards infinity.

A similar procedure is reflected in the overall economy of Belarus - the costs of foreign investors and exporters have been reduced to the maximum by reduction of the average net wage of workers, and exports of goods are very cheap. Naturally, this also brings the expected political points to the government in Minsk.

Analogy: if we repeat the experiment with a worker in a labor camp, and this time with the same salary of 10% of the original, while at the same time providing him from the budget with the entire consumer basket (of course, that would not be a wide basket of products), the competitiveness of its economy to international trade would instantly soar.

Consequently, no wonder that there are frequent traffic jams on the border of Belarus and Russia: pensioners from Russia, with Russian pensions (which are higher) cross over to live in Belarus, while the working-age population goes to work in Russia and then returns to Belarus, with a lot more purchasing power than if they stayed in Russia.

Another interesting paradox of Belarusian statistics is the following: if at this moment we reduced the number of employees, at the same time would, for the higher rate, the number of unemployed would be *reduced*, too. It sounds unbelievable, but this is what the analysis of the labor market show. Therefore, Belarus is now one of the few countries where layoffs would be welcomed with praise, because the resulting rapid increase in employment compared to the situation before the said layoffs.

2.2. The paradox of the economy of Ukraine

In all these years Ukraine is the IMF forecasts that are not at all pleasant: "Ukraine is becoming a regional outsider measured by GDP growth." A similar statement was made by its ex-Minister of Economy: "In Ukraine it is not simply crisis that we have, but in this country we have a collapse of the whole model of economic development."

The paradox which occurred in Ukraine refers to similar things as in Belarus, this time Ukraine's GDP keeps falling at unprecedented speed and, on the other hand, the budget revenue keeps growing.

Economic indicators of the first quarter of 2013 delivered certain surprises: if one is to believe the official statistics, in Ukraine there has appeared some source of funds from which the budget is supplied. This, however, is not the case only with the revenue side: expenses increase, too.

Website Cenzor.NET announced that nothing known to us, not a single statistical analysis and economic evaluation can explain this strange picture: how is it that at a time we have a declining GDP, and both revenues and expenditures of the budget increase. Not even the central bank of Ukraine was able to provide an explanation, which nonetheless manages to hold inflation at zero and maintain a keep the exchange rate of hryvnia stable.

According to the Ministry of Finance of Ukraine, the common of budget incomes of consolidated budget for the first 4 months of 2013 amounted to 106,895 billion hryvnia, which is 8.3 billion hryvnia or 8.4% more than in the same period of 2012. The largest income the national budget realized in the first quarter of 2013:

- Value added tax - 42.9 billion hryvnia (UAH)
- Corporate tax - 18:35 billion UAH
- The excise tax for the excise goods in Ukraine - UAH 6.85 billion
- Fee for the use and exploitation of minerals - 2,66 billion UAH
- Customs duties on imports - 2.39 bln UAG.

However, the data of the Statistical Office of Ukraine show something else: the GDP of the first quarter of 2013 amounted to 98.7%. Thus, there is a decline of about 1.3%. The index of industrial production in period January - March 2013 compared with the same period of 2012 was 95% and was down about 5%. As for the construction industry - in the same period, a decrease of approximately 16.8% was recorded.

Furthermore, by the means of transport in this period in 2013 about 177.2 million tonnes of cargo were transported, representing a decrease of approximately 6% compared to the year 2012. Index of price of production in the industry has also changed - upwards in April 2013 amounting to 102.3% of the index price of 2012.

The conclusion is as follows: in 2013 companies were working less, produced fewer products, prices did not change compared to 2012, and the tax paid was - higher. Was this used to replenish reserves, or was it some kind of robbery? Interesting question.

Without looking at logically inexplicable increase in revenue, the budget for the first quarter of 2013, however, remained in deficit. And this was a deficit of UAH 5.68 billion more than planned.

Budgets expenses increased faster than revenues were coming in: for the first quarter of 2013, total cash expense amounted to 112,103 billion UAH, which is 13.2% more than in the same 2012 period.

Therefore, if the economy stagnates - revenue growth is possible only on paper.

3. THE PARADOX OF SERBIAN MILLING AND BREAD INDUSTRIES

Serbia in the past several years has been affected by the so-called paradox of "reverse the economy." This is what it's all about. A few years ago the world economic crisis broke out. Its consequences have extended to this very day, although it is officially over. And then, in a time of crisis, it would be logical to consume food that is among cheaper goods - such as bread. However, the statistics tell a different story.

Industrial milling of wheat in the period from 2009 to 2013 was as follows: in 2009 - 800 thousand tons; 2010 - 794; 2011 - 761; 2012 - 781; 2013 - 664 thousand tons. Average five-year period was 784 thousand tons. It follows that - in relation to the five-year average - the quantity of milled wheat in 2013 was lower by about 15 percent, and compared to the year 2012 by 14 percent or 117 thousand tons.

However, if we look at the total amount of milled wheat in 2013 - amounting to 1.2 million - we conclude that legal milling of wheat barely participated with some 55%. Thus, the gray area of milling was almost equal to the legal.

With this kind of data, we can only expect chaos in the market bread. And that is exactly what happened: the state price of white bread was in 2013 limited to 45 dinars, in order to "protect" consumers from legal millers that used to be the ones to define the price of flour. On the other hand, there appeared a type of bread priced at 20-30 dinars. Another paradox - the state determines the upper limit of the price, and suddenly there appears bread that is up to twice cheaper than the limit. The question is: how the bread industry managed to earn in such conditions.

The average man is not interested in where this bread comes from, who produces it and from what kind of flour. Behind all these we have the above non-booked half million tons of flour. From this easily one can easily make a million loaves of 0.5kg. If we base the calcula-

tion on the then valid tax on bread, on transport and taxes for bakers and millers, we find that the Republic of Serbia on this “gray” type of bread lost about 5.5 billion dinars in 2013.

Now it is quite clear that “gray” millers and bakers make more money selling bread at 20-30 dinars then those who sell it legally at the prescribed price of 45 dinars.

4. THE PARADOX OF ECONOMIC WEST-EAST RELATIONS - THE UNITED STATES AND CHINA

Many economic analyzes indicate that in the US in this moment everything is bad, and that in China everything is advancing. Chinese pace of economic growth is fast and soon will reach and even exceed the US. These analyzes often refer to three sources of statistical information economy: government and external debt, budget deficit, balance of trade balance and unemployment.

However, if in America everything is so bad, how to explain the content of the following chart: accelerated revenue growth of corporations in the United States in the last 14 years (except in times of global crisis 2008-2010) (Figure 2)?

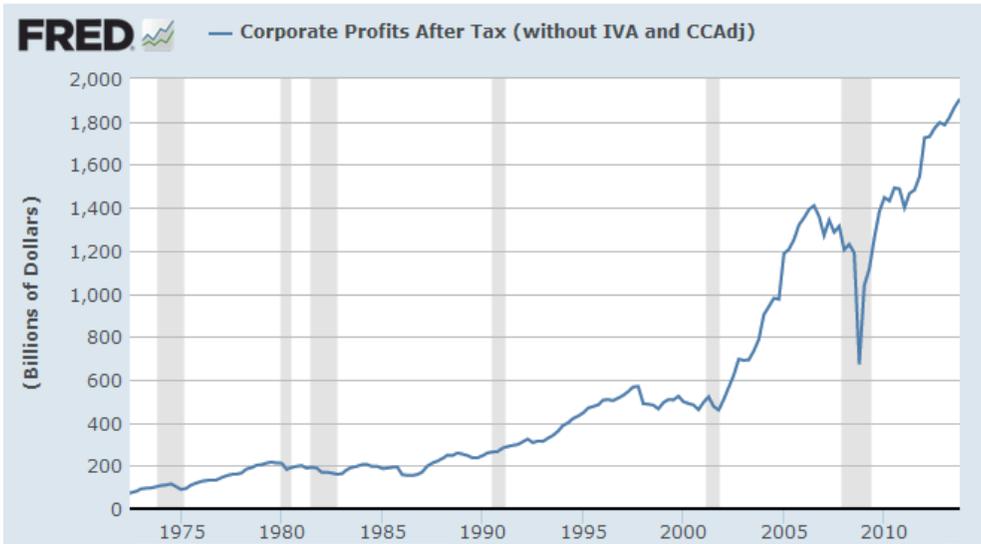


Figure 2: Graph of growth of income of corporations in the United States (as per collected taxes), data from official survey by the Federal Reserve Bank of St. Luisa, US

As an attempt to explain this situation, we are about to analyze one of the three segments statistical economy: external debt and balance of foreign trade balance.

State debt is debt owed by the state both to domestic and foreign creditors. Foreign debt is therefore defined as debt that state owes to foreign creditors. The situation is similar with the deficit of the trade balance: if imports exceed exports, there is a trade deficit.

When we claim that the economy in China is growing faster than in the US, we must keep in mind that the Chinese economy is growing because it is largely oriented towards exports goods to foreign markets, but thanks to *outsourcing* (outsourcing - surrendering

part of one's production to a foreign partner or country) Chinese production is not actually completely Chinese. Right now and right here we arrive at a paradox.

As early as 2005, the journal "Foreign Affairs" published an article devoted to trade relations with China. It reads:

"In fact, nearly 60% of Chinese products exported to the US market are products of companies whose owners are foreign companies, most of them in the United States. These companies have moved their production abroad, in response to competitive pressure, in order to reduce production costs and thus provide lower prices for consumers."

This is the American version of what happens in trade relations between China and America. And it was written a long time ago, nine years ago.

Four years ago, their view of the situation was also presented by the Chinese agency Xinhua (Xinhua 新华网 首页), stating the following:

"According to statistics published by the Ministry of Trade, some 55.9% of exports of China last (2009) year can be credited to foreign companies. The proportions were 83-75 for high-tech products and electronic components. More than 90% of exported high-tech products to the US market were developed by foreign companies. "

These data are corroborated by many examples, such as Apple's iPhone, which is, as is well known, assembled in China. A research was conducted by the University Irvine of California and the University of California in Los Angeles, about which country in the world has the most profit from making the iPhone: whether countries that provide components, or China, where everything is assembled, or the US, as the state of residence of Apple.

Here are the most interesting results: in China remains only about \$3.70 - 4 from the production of a single iPhone, while the wholesale price of the iPhone, at the time of the survey, was \$ 224. The highest percentage of proceeds from the sale of the iPhone is returned to Apple, as the holder of the patent and the company that produces it, no matter the labels "Made in China" that we see on these products, and no matter that all this is recorded as export of China.

Apple and other US companies operating in China, it seems, are the exception to the rule of thumb that about 20% of the revenue from each mobile phone and about 30% of the revenue returns to computer companies that are manufacturers and / or owners of these patents.

We can now illustrate the entire production process of American companies: a company develops a specific product, orders parts, instructs its production facilities in China and gives them the necessary documentation. Chinese assemble the product and paste "Made in China" label, which allows the entire value of the finished product to be classified as its exports - that is, about \$ 300 per iPhone.

As the result we get another paradox: the export of China two years ago exceeded 1.3 American exports, while the gross domestic product of China was about half the size of the US GDP.

When the finished product arrives in the US, it is recorded as the country's imports, and as US companies own manufacturing facility in China, the Chinese are not paid for the product. Therefore, the only correct way actually is to add this to the national debt increasing therefore the trade deficit and external debt.

All this may explain the third paradox: although with such debt and balance of trade dollar exchange rate should by all economic laws fall, this is not the case (as we ourselves daily witness). Sometimes this situation is attributed to conspiracy theories; however,

economy justifies it: as we have already said, most of the products that China exports are not Chinese, and the same goes for the US products.

When they are sold, revenues are converted in USD and transferred in part to taxes in the USA, and the rest goes to major manufacturers, for example *Apple*, as already mentioned.

This situation is recognized as suitable by investors who are buying shares of American companies, which favors dollar exchange rate even further.

5. CONCLUSION

Based on the above, we inevitably arrive at the conclusion that the authors have failed to explain some of the key paradoxes, which caused the biggest surprise of the public. Therefore, the book on understanding statistical paradox in the economy has only just been opened, and we are only on the first page.

BIBLIOGRAPHY:

- [1] Institute of Statistics of Ukraine
- [2] Data by Federal Statistical Service of Russia
- [3] International Monetary Fund - database
- [4] Sajt <http://tadavsh.livejournal.com/12108.html>
- [5] Sajt http://www.ej.by/news/economy/2013/07/31/paradoxy_belorusskoy_statistiki.html
- [6] Sajt <http://byrunews.org.benigna.neolocation.net/index.php/ekonomika//1240-paradoksy-belorusskoj-statistiki>
- [7] Sajt <http://janaonline.livejournal.com/>
- [8] Sajt http://www.danas.rs/danasrs/kolumnisti/hleba_hleba_gospodaru_.1106.html?news_id=277171
- [9] Data by Federal Reserve Bank of St. Luisa, US
- [10] Sajt www.xinhuanet.com
- [11] dr Borivoj Subotić, *Geometrijske verovatnoće i neki njeni paradoksi*, Zbornik radova, FIMEK, Novi Sad, 2009., broj 2