

IMPACT OF THE CRISIS IN THE EURO ZONE ON THE BUSINESS CYCLE IN POLAND FROM A MACROECONOMIC POINT OF VIEW

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Abstract

The paper is devoted to:

- the state of a business cycle in the last five years;
- the picture of the Polish economy as a “green isle”.

Both of these points will be analyzed from a point of view:

- economy as a whole, which Gross Domestic Product (GDP) is a measure of production;
- economic sectors – material production/service sector (MPS) and non material service sector (NMPS) – which gross value – added is a measure of production.

The aim of the paper is to prove that the crisis in the euro zone had a different impact on the business cycle in the sectors MPS and NMPS. A macroeconomic analysis of the business cycle may be a source of the false diagnostic and the wrong political decisions. When in an economy a sector business cycle asymmetry takes place, a macroeconomic analysis cannot reveal this phenomenon. In the consequence, the specific sector factors of the business cycle are not observed.

The purpose of the publication is to determine whether, in the Polish economy in 2008-2012 there was an asymmetry or not. It is assumed that the sector business cycle asymmetry (in the following quarters of the year) occurs if:

- a) the gross value added of a sector shows a positive growth rate (more than 1%), while the second sector – negative rate (more than 1%),
- b) the gross value added of a sector shows a positive growth rate, while the second sector – the rate of zero (to within $\pm 1\%$),
- c) the gross value added of a sector has a zero growth rate, while the second sector – a rate of zero;
- d) gross value added has a positive/negative growth rate higher/lower by at least 3 percentage points from that for the second sector.

A Sector business cycle asymmetry may have a dual nature. In point a), b) and c) it relates to the directional differences in terms of trade (zero versus positive versus negative) growth of particular sectors (directional asymmetry), and in point d) – the difference in terms of positive/negative growth (dynamic asymmetry). The study takes a rare situation under consideration in the analysis of the issue of asymmetry cyclical sector, based on a new methodology which assumes the division of the economy into sectors NMPS MPS.

Key words: crisis, Gross Domestic Product, material production/service sector, nonmaterial service sector, sector business cycle asymmetry.

1. Macroeconomics of Polish business cycles in 2008-2012 (annual data)

In today's globalized world cyclical impulses reach the national economy through three channels:

- a) export-import channel;
- b) channel financial and capital;
- c) channel banking and credit.

During the boom in the world economy to an open economy there flow positive impulses which are bringing beneficial effect on the dynamics of its growth conditions. So it must have been the case in the Polish economy in the years before the global crisis, when the growing demand in the European Union (especially Germany) for Polish goods and the foreign investors' demand for shares of economic operators and The National Treasury bonds were growing in terms of the expanding credit action of foreign banking groups.

However, the high economic situation in Poland in years 2006 and 2007 manifested by dynamic growth in the volume of GDP by 6.2% and 6.8%¹, only to a certain extent, resulted of these positive in-

¹ Presenting the figures for the Polish economy based on the latest statistics by the Depart-

ternational impulses because domestic demand played the leading role. This is typical in circumstances where there is relatively low share of foreign trade in GDP and small businesses dependent on the loan. As for the year 2008, it was high boom (mainly in the first three quarters), resulted in an increase in GDP of 5.1% which was also primarily due to strong growth in domestic demand (by 5.8%), including consumption (by 6.1%). The attention catching was also an increase in investment demand (by 9.6%). However, foreign demand to GDP growth had a negative impact, because net exports was negative (imports increased by 8.5% and exports by 6.8%). It is very interesting that zloty has depreciated against the euro (over 15%) and the dollar (about 21%). This suggests that the effect of the depreciation personalized by stronger reduction of growth in imports than exports will occur in 2009. And when the global economic situation worsens, as it happened following the collapse of the *subprime* mortgage market in the U.S. between 2007 and 2008 and the bankruptcy of Lehman Brothers (15 September 2008), the economy began to reach negative impulses (Arestis 2011: 40 et seq). These impulses made themselves felt in 2009 as among other factors – recession in the euro zone 4.4%, Germany – 5.1%, resulting in these countries in the falling demand for Polish export goods. This was accompanied by a tendency to under-sell Polish assets by foreign investors as a result of rising risk aversion in global financial markets and the reduction in credit action by international banks. In 2009, there was a downturn in Poland, revealing a decrease in GDP growth to 1.6%. However, this was due to an absolute decline in domestic demand (by 1.1%). Due to decrease in the gross capital formation (a decrease of 11.5%) mainly due to a strong reduction of inventories, and a decrease in gross fixed capital formation (1.2%). However, the growth rate showed consumption (private and public), which increased by 2%. This rate, however, was lower than in 2006-2008 (5.2%, 4.6%, and 6.1%). In the same year there was also observed a prominent decrease in exports (about 8%), although there was an even bigger drop in imports (by 14.3%). With a decrease in the growth rate of GDP was milder respectively, as net exports increased (by 5.2%), which contribution to GDP growth was 2.9 percentage points. This export was the main factor in GDP growth that year. It should be noted that the above dynamics of foreign trade has had a mixed impact of exchange rate (euro and dollar) on one hand a strong depreciation of the zloty against both currencies in the second half of 2008 (3.2 cents/euro in the first half of 2008 and 4.0 in end of 2008), caused by the aforementioned increase in risk aversion of foreign

investors, could activate and inhibit export growth in imports in 2009, on the other hand – its appreciation in 2009 (4,14 zł at the end of the year to 4.9 zł in the second half of February) could cause an opposite tendency, if we abstract from the effect of the delay. However, taking into account the effect – export-import contracts are typically specified in advance – it can be assumed that the advantage of a given dynamics of foreign trade in 2009 has had a greater impact on strong depreciation of the zloty in the second half of 2008, rather than its appreciation in 2009.

Between 2010 and 2011, the economic situation improved, but it did not reached the level of the years 2006 to 2007, as GDP grew by 3.9%, respectively and 4.5%. The improvement of economic situation has had a positive impact of domestic demand growth (4.6% respectively, and 3.6%) and accumulation (9.3%, and 11.2%). When it comes to investments, in 2010, they had a negative impact on GDP growth (down 0.4%). Discrepancy between increased accumulation and investment decline is explained by the rebuilding of inventories, whose contribution to GDP growth was 1.9 percentage points. However, in 2011, the investments recorded a high growth (8.5%). It should be noted that in 2011, consumption growth slowed to 1.6%, including public consumption which recorded an absolute decline (by 1.7%). As for the foreign demand in 2010, while exports recorded a strong increase (by 12.1%), imports showed a higher growth rate (by 13.9%). Thus, the contribution of net exports to GDP growth in 2010 was negative. Conversely, it was in 2011, when exports grew more slowly than in 2010 (for a 7.7%), but faster than imports (5.5%). As a result, net exports had a positive impact on the GDP growth.

It should be added that in 2010 the exchange rate of the zloty against the euro and the dollar was relatively stable, and therefore the exchange rate factor had a neutral impact on foreign trade. However, in 2011, when the euro zone crisis deepened, zloty began to depreciate gradually (a total of about 10% to euro and dollar).

However, in 2012, the situation deteriorated again as the GDP growth slowed to 1.9%. This was due to the inhibition of the domestic demand growth (down 0.2%), including consumption (an increase of 0.6%) and recourse in the accumulation of (a decrease of 3.3%), mainly caused by a decrease of inventory balance by 30,8%, as investment fell by 0.8%.

When it comes to international trade, it is indeed due to the recession in the euro area which decreased export growth rate to 2.8%, while imports recorded an absolute decline of 1.8%. Thus, an increase in net exports, which means that foreign demand was a factor in the GDP growth.

2. The situation in Poland in the sectors of MPS and NMPS in 2008-2012 (quarterly data)

The MPS sector includes the following sections: four sections of the industry (B, C, D, E), construction (F), trade and repair of motor vehicles (G) and transport and storage (H). Sections B, C, D, E² and F belong to the sphere of material production in the strict sense, and sections G and H – to the realm of the so-called material services, logistics related to these five sections. Therefore, both sections included in the sector MPS (in the broad sense). The NMPS sector includes other services sections: accommodation and catering (I), information and communication (J), financial and insurance (K), real estate services (L), professional, scientific, technical (M), administer and support service activities (N) and sections O, P, Q, Z, S, T³.

So defined MPS sector produced in Poland, in the period under consideration, around 50% of GDP, while sector NMPS – about 35% of GDP⁴. Based on GUS data on quarterly growth rates in the volume of gross value added of individual sections (or groups) in 2008-2012, there were calculated quarterly volume indices of gross value added sectors of the MPS and NMPS⁵. Then, for a comparative analysis these indicators were compared with analogous indicators of GDP (Table 1).

Table 1. Volume growth in gross value added sectors MPS and NMPS by quarters in 2008-2012. Corresponding period of previous year = 100, constant prices of the previous year.

Years	2008				2009				2010				2011				2012			
quarter	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
PKB	106,3	106,1	105,2	103,2	100,4	101,0	101,7	103,2	102,7	103,7	104,2	104,7	104,5	104,3	104,4	104,9	103,5	102,3	101,3	100,7
MPS	108,8	108,3	104,7	101,0	100,1	101,1	104,1	104,4	105,5	105,9	104,6	106,2	104,9	104,5	104,9	103,9	104,9	102,7	100,8	99,6
NMPS	103,2	104,7	106,5	107,6	101,2	99,7	96,9	97,2	100,0	100,7	102,3	102,7	103,0	104,6	102,9	102,2	101,8	103,0	102,1	103,5

Source: Own calculations based on data from the Central Statistical Office of National Accounts GUS (April 2013).

² That means mining and quarrying (B), manufacturing (C), the production and supply of electricity, gas, steam and hot water and air climate (D), water supply, sewerage, waste management and remediation activities (E).

³ That means public administration and defense (A), education (P), health care and social assistance (Q), cultural activities and entertainment and recreation (R), other services (S), households (T).

⁴ The difference between GDP and the sum of gross value added and NMPS MPS results from the omission of section A (Agriculture, forestry, hunting and fishing), due to the strong influence it non-economic factors (weather) and net taxes and subsidies.

⁵ Presenting figures on a quarterly basis for the production of gross added value in current prices by section are based on the latest statistics by the Department of National Accounts GUS.

This comparison results in an interesting insights into the sector changes in business conditions during this period. Talking about the changes in economic conditions, we mean the levels in the coming quarters and the trend of changes in these quarters.

Analyzing the economic level measured by GDP between I quarter of 2008 and IV quarter of 2012 we can distinguish four periods:

1. I. 2008 – III. 2008: high boom;
2. IV. 2008 – III. 2009: boom moderate (IV), stagnation (I) and a Low (II and III);
3. IV. 2009 – I. 2012: moderate prosperity;
4. I. 2012 – IV. 2012: the poor economic situation (II and III) and stagnation (IV).

It the light of sector growth rates in can easily be observed that in the previous four periods of economic conditions at the macro level there are the result of:

During period I: in the MPS situation very high in the first half of the year and moderate in the third quarter, and in the NMPS: moderate economic situation in the first half of the year and high in the third quarter.

During period II: in the MPS situation very low in the fourth quarter and the second quarter, the stagnation in the first quarter and moderate in the third quarter, and in the NMPS: situation very high in the fourth quarter and very low in the first quarter, turning into stagnation in the second quarter and a recession in the third quarter.

It should be noted that the stagnation or very bad situation in the first half of 2009 in the MPS resulted in Sections B, C, D, E, which occurred in the recession period (a decrease of 3% in the first quarter and 2.9% in the second quarter), which was caused by manufacturing sector (down 2.5% in the first quarter and stagnation in the second quarter) and transport (down by 6.1%, and 3.4%). It is worth mentioning that in the construction industry then there was a very high boom (an increase of 11.6%, and 10.2%). However, the recession in the NMPS in the third quarter contributed to section financial and insurance activities, the decline was almost 40%.

During the III period: in the MPS: a moderate situation in IV 2009, high in the first half of 2010, moderate in III, 2010, high in IV, 2010, a moderate in the first quarter of 2011 – the first quarter of 2012, and in the NMPS: recession in IV 2009, stagnation in the first half of 2010, the economic situation in the second half of the year low in 2010, moderate in the first – third quarter of 2011, a low in the fourth quarter of 2011 and very low in the first quarter of 2012.

During period IV: in the MPS situation in the second quarter low and stagnant in the third and fourth quarter and in the NMPS: temperate situation in the second and fourth quarter, and low in the third quarter.

These observations are of particular importance in the asymmetric cyclical sector, especially in times of the crisis in the European Union. At that time, the GDP growth is the result of either multidirection in terms of character growth in gross value added sectors highlighted, and these sections (points a, b, c), or large differences in the growth rates of these values (point d).

It appears, therefore, posed in the introduction question: whether the phenomenon of cyclical sector asymmetries between sectors and NMPS MPS occurred in the Polish economy in the time period? The data in Table 1 indicates that this phenomenon occurred in relation to the directional asymmetry (b) and asymmetric dynamics (d). Asymmetries a and b, when the positive growth rate of the MPS sector accompanied by the zero or negative growth NMPS, happened many times: in the second half of 2009, in the first half of 2010 and in the second half 2012. It implies that in terms of the calendar, including both of these asymmetries they were observed for 18 months. Throughout the whole year without interruption, these asymmetries occurred in the third quarter of 2009 – the second quarter of 2010. The asymmetry d, when the MPS sector growth was significantly higher than that NMPS, started in I, II and IV in 2008, and in IV, 2010 and the I quarter of 2012. The inverse proportion between the dynamics of these two sectors were in the IV, 2008. On the basis of the above we can observe that the asymmetry d took place mainly in 2008 (three quarters).

In these cases the statistical, not economic nature of macro-measurement of GDP is clearly observed. The statistics substance is revealed only in terms of sector disaggregated approach. In addition, treatment of GDP as a unified and autonomous sector in economic analysis can be a source of statistic illusion; acceleration/deceleration of GDP or it automatically applies to all areas of the economy, or only material production, especially industrial, which is evident by its very nature, as opposed to invisible services assets.

Let us now turn to the second aspect of the analysis of the situation, i.e. the tendency of its fluctuations in the examined quarters. Here we assume that the observations are subjects to change during the growth rates of more than 1 percentage point⁶.

Observing these trends, the level of GDP can be easily distinguished in five periods:

1. I. 2008 – II. 2008 – Stabilization

⁶ Growth rates in the range of 0 and 1 is considered to be negligible, as are within the limits of statistical error.

2. III. 2008 – I. 2009 – Slow
3. II. 2009 – IV. 2010 – Acceleration
4. I. 2011 – IV. 2011 – Stabilization
5. I. 2012 – IV. 2012 – The slowdown

Similar to the general picture of economic trends can be observed in the case of the MPS:

1. I. 2008 – II. 2008 – Stabilization
2. III. 2008 – I. 2009 – Slow
3. II. 2009 – II. 2010 – Acceleration
4. III. – IV. 2010 – No trend
5. I. 2011 – I. 2012 – Relative stabilization
6. II. 2012 – IV. 2012 – The slowdown

However, in the case of the distribution of fluctuations NMPS is as follows:

1. 2008 II – IV. 2008 – Acceleration
2. I. 2009 – III. 2009 – The slowdown
3. 2010 – II. 2011 – Acceleration
4. III. 2011 – I. 2012 – Slow
5. II. 2012 – IV. 2012 – No trend

On the bases of the above we observe that in this sector the acceleration took place first, and then it slowed down, while in the opposite MPS: the slowing down occurred before the acceleration. Later the NMPS sector recorded the acceleration and the deceleration, while the MPS sector, about the same time, was experiencing the stability. The latter slowdown in 2012 was accompanied by a lack of trend in the NMPS.

The hypothesis that emerges from this observation is as follows: during the crisis phenomena, the fluctuations affected MPS, it can not be observed in the case of the NMPS, which seems to be ruled by its own laws. As the world financial crisis unfolded (2008), the sector recorded the acceleration. This explains also the non-traditional way, why the Polish economy was relatively immune to the global crisis. Simply, about 35% of GDP is not affected by the phenomenon of exchange, or foreign demand (GUS external trade statistics covers only material products).

3. Poland as a “green island”

In 2009 in Poland, the first slowdown in the GDP growth occurred. The analysis of this case will be an exemplification of the existing methodological findings. The idea is that the attention of the observers was focused on the fact, boasted by the Polish Government, that the Polish economy – the

only one in the EU in 2009, had a positive growth in GDP (OECD 2012: Economic Survey of Poland”, March). The standard, meaning the macro-economic explanation of this fact is based on the Keynesian model of the economy (Grace 2010).

Let us recall, first, that in that year, GDP increased by 1.6%. In the analysis of determinants of a demand, however, it is the face value of the GDP which plays the key role, which grew by 5.4% then. And this growth of GDP in this model is the basis for a quantitative analysis of decomposition of the major components of a final demand. The result of this decomposition was the assumption that the nominal GDP growth occurred due to the multiplier increase in a foreign demand (by 5.7 percentage points) and the public sector (by 4.1 percentage points). However, private investment demand reduction (by 4.3 percentage points) by multiplication contributed to reducing the scale of the GDP growth (OECD 2012: Economic Survey of Poland”, March).

Without going into far more detail in the assessment of the methodological assumptions of this decomposition, we must bring to reality the analytical basis: the total volume growth in GDP of 1.6% by an increase in gross value was added by sector MPS 2.4% (including four industrial section of 1.2%, while in the manufacturing industry by 3.7%) and the absolute decline in the value NMPS sector (1.2%). So here we deal with the economic situation asymmetry “a”. It thus appears that not all of the Polish economy was the “green island”, but the material production sector, with the processing industry on top. However, the NMPS sector shared the fate of many of the economies of the EU, in which there was a recession. This was the result, the slowdown in the sector in the first – third quarters as the recession in the third and fourth quarters.

In such a state of affairs the conclusion comes that this decomposition of the nominal GDP made in the scale of the economy as a whole is a purely a statistical procedure (otherwise sophisticated accounting), a devoid of economic substance. The content of this decomposition can take different shapes when carried out separately for the MPS industry, including the processing industry and NMPS. So it was about disaggregating the decomposition of the nominal gross value added generated in the MPS/manufacturing (an increase of respectively up 10.2% and 9.0%) and in the NMPS (an increase of only 3.0%), according to the separate components demand for the production of these sectors.

It is, however, controversial, if in the case of the NMPS decomposition it would be an adequate basis for Keynesian theory of the effective demand. This problem is not developed, it is left open. In any case, there is no doubt that this theory is applicable in the MPS, due to two of its fundamental principles and main categories of demand that operate.

These assumptions are:

1. under-utilization of production factors;
2. no difficulty in balancing the trade (OECD 2012: Economic Survey of Poland, March).

The assumptions above are fully adequate to the nature of the MPS industry for which there is the opportunity to correct the econometric estimation of potential output and the foreign trade statistics includes the production of the material. As for the main categories of demand to this theory, it is about:

1. multiplier investment demand, including wrestling (multiplier);
2. multiplier demand of the state (fiscal multiplier);
3. multiplier export/import of goods (foreign trade multiplier) (Romer 2000: 223-31).

There is no need to justify closer that from the point of view of the sector categories, in its quantitative meaning, on the basis of standard statistical data, they are material. Thus, they are relevant to the MPS industry, especially for the production of a processing industry. The nature of this production is particularly suitable for Keynesian concept of the multiplier mechanism (investment, foreign trade and fiscal). However, it is questionable, as already mentioned, whether this concept is compatible with the specific NMPS sector.

If this reasoning is correct, it calls for the conclusion that the analysis of the sources of “green islands” should not be made on the level of GDP, but the MPS/processing industry sector. For that we use the volume and value growth rates of value added of the sector/section.

4. Summary

A sector analysis presented in this paper demonstrated that the meter of the GDP manufacturing – is a non-uniform sector and therefore autonomous, as it is the resulting sum being the gross value added of individual sections. Thus, in case of research of a demand situation, in the case of its sector business asymmetry situations cannot be limited to the aggregated factors at the macro level (domestic demand – consumption, accumulation – foreign demand) of the situation, which usually takes place in a variety of studies, but these studies need to be expanded, taking into account the specific demand factors relevant to the highlighted sectors, and further more to individual sections. So in our case, the attention should be paid by the analysts to the explanation of the reasons of recession in the face of a very low situation in the MPS sector in the first half of 2009 and the recession in the

manufacturing industry in the 2009 and the recession in IV 2009 and stagnation in the first half of 2010 in the NMPS, as surely demand conditions, at the time, were completely different from those in a construction sector.

Thus, only the economic sector research including differential impacts on the crisis in the EU, can be the basis for the formulation of possible applications at economic policy.

Any economic policy should be based on facts of the diagnosis made on the basis of relevant indicators of production. Referring now to the results of our analysis of the sector, we saw in the three cases, the incompatibility with the reality of macro-economic diagnosis. At the level of GDP in the Polish economy in 2008, it slowed down. However, this is a misleading diagnosis, since it is limited to half of the GDP, the MPS industry. In the remaining part of GDP – the NMPS sector – there was a good and growing prosperity.

If now, on the basis of this diagnosis, one will prepare a macroeconomic forecast further slowdown, the result for the purpose of economic policy is clear: to energize a global demand by increasing the budget deficit. But such a solution in the NMPS sector will be at least unnecessary, if not counterproductive. And for the MPS sector calculated from macro theory, the required size of the effective demand increases in a budget expenditure (including estimated level of the fiscal multiplier) is excessive, taking into account the scale of the sector in the GDP.

In 2009, the GDP quarterly indicators showed improvement in the economic situation. But this improvement took place in the MPS, and in the NMPS – deterioration until the recession. The diagnosis and macroeconomic forecast that economic policy should be neutral, and the diagnosis of the sector – need to be an activated NMPS sector. In 2012, the GDP slowed again, but again the sector NMPS broke away from this trend. The application at economic policy – negative and positive – is analogous to that for 2008.

From the statements above, the final conclusion emerges that the asymmetry in terms of sector cyclical economic policy at the macro level is inadequate. The condition of adequacy is the sector breakdown, so that the policy tools are compatible with the specific demand-side factors of production in a particular economic sector. This is particularly important when the external environment (recession in the euro zone) has a varying impact on the situation on a sector basis. But for this, it is necessary to draw up a business cycle forecasts in this system, not only at the macroeconomic level, as it is commonly done. This last statement acquires significance in the light

of the current pessimistic macroeconomic forecasts for the EU and Poland in 2013⁷.

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⁷ For example, NBP has recently forecasted that this year the GDP growth in Poland to be further reduced, to 1.3% (NBP 2013: 72 and 73). On the other hand, according to the European Commission, the GDP growth is projected at 1.1%. (European Commission 2013:81), while according to the IMF – 1.3% (IMF 2013:48).