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Fiscal impulses influencing the development of the Polish agriculture in the period 2007-2015

Abstract: *Fiscal policy affects the economy through numerous channels. Fiscal impulses are defined as changes in government budget balance resulting from changes in budget expenditure and taxation [Shinasi, Lutz 1991]. The interest of economist in assessing fiscal impulses and determining their short and long-term impact on the economy has been growing since the 90s of the previous century.*
The role of fiscal impulses, also referred to as fiscal stimulus, is sometimes also analysed at the sectorial level. However, agriculture has not been found as a popular research issue. This is partly related to the fact that the estimation of output is in this sector of the economy is subject to even greater uncertainly than in other sectors. Therefore, it is more advisable to measure input rather than output [de Castro et al., 2010].
In both the EU and global economy the period 2007-2015 was characterized by a serious financial and economic crises that led in numerous countries to introducing stimulus packages or austerity measures. In Poland the negative impact of the EU and global crises was not that significant therefore the introduction of special measures was limited.
Yet, it is interesting to verify what were the fiscal impulses targeting the Polish agriculture and how they influenced the situation of this sector, which are the aims of this paper.
The results show that the fiscal policy towards agriculture remained in the analysed period relatively stable and thus its impact on agriculture was limited. However, small fiscal adjustments observed can be classified as expansionary.

Keywords: *fiscal policy, fiscal impulses, agriculture.*

Introduction

Fiscal policy affects the economy through numerous channels. Fiscal impulses are defined as changes in government budget balance resulting from changes in budget expenditure and taxation (Schinasi, Lutz, 1991). The interest of economists in assessing fiscal impulses and determining their short and long-term impact on the economy has been growing since the 90s of the previous century. The last world financial and economic crises acted as catalysts for research on fiscal policy as a stabilization tool (Iwata, 2013).

The general aim of fiscal stimulus is to boost economy – its aggregate demand by increasing private consumption (Davig, Leeper, 2011). Yet, most fiscal impulses are not directly targeted at private consumption but at chosen sectors of the economy. The effects of fiscal policy are still highly disputed by the economists, but the recent studies tend to show that the actual policy impact is situation determined meaning that the effects depend not only on the policy instruments and extent of fiscal stimulus but also on the country characteristics in the moment policy was introduced and operated (Agnello et al., 2013).

Measuring fiscal impulses enables identification of the direction of fiscal policy and measurement of the aggregate effects of fiscal policy activity on the government's budget balance. As stated by Philip et al. (2002), fiscal impulse is a measure of whether government fiscal policy decisions are adding to, or subtracting from, aggregate demand pressures in the economy.

The role of fiscal impulses, also referred to as fiscal stimulus, is sometimes also analysed at the sectorial level. However, agriculture has not been found as a popular research issue. This is partly related to the fact that the estimation of output is in this sector of the economy is subject to even greater uncertainly than in other sectors. Therefore, it is more advisable to measure input rather than output (de Castro et al., 2010).

Agriculture in most countries has been a sector for decades being a beneficiary of redistributive fiscal spending. Thus, its net fiscal position in relation to public finance is positive. Yet, there is a question of volatility of this redistribution and its impact on the development of the agricultural sector.

The aim of this paper is to present the changes in the scale and character of the fiscal impulses directed to the Polish agriculture in the years 2004-2016 and to assess their role in the changes observed with this sector. First definitions and measurement of fiscal impulses is presented. In the following section scale and changes in fiscal impulses directed to Polish agriculture are described. The next section shows the impact of fiscal impulses on the Polish agriculture.

Fiscal impulses – definitions and measurement

Fiscal policy affects the economy in numerous ways influencing e.g.: growth, inflation, aggregated demand, income distribution. The question to what extent and how still is an important question in macroeconomics.

As stated by Bouakez et al. (2014) "measuring the effects of discretionary fiscal policy is both difficult and controversial, as some explicit or implicit identifying assumptions need to be made to isolate exogenous and unanticipated changes in taxes and government spending". It has already been established in economics that the impact of fiscal policy on economy depends not only on the scale of fiscal stimulus but also on the time it is applied – expansion or recession and the fact whether the spending is increasing or decreasing (Riera-Crichton et al., 2015).

Fiscal impulse is a discretionary change in the fiscal balance. Fiscal adjustment is a discretionary improvement of that balance, while fiscal stimulus leads to its discretionary deterioration (Borys et al., 2013). As stated by de Castro et al. (2010) we can distinguish between two approaches to fiscal stimuli – input and output approach to assessing fiscal stimuli. Input approach is an assessment of what is the financial impact of a fiscal impulse on the general government budget balance. Output approach is an assessment of the results of implementing a fiscal impulse, including second-round effects.

At the level of the whole budget we can name sources of impulse. According to de Castro et al. (2010) we have following impulse sources: automatic stabilisers (cyclical component according to ESCB method); cyclically adjusted primary deficit; cyclically adjusted revenue ratio and cyclically adjusted primary expenditure ratio. There is also a number of impulse transmission channels, including: change in direct government demand; compensation of government employees; intermediate consumption; government investment; impact on private households' income and purchasing power; social payments; capital transfers direct taxes; social contributions; indirect taxes; impact on firms' profits; social contributions; impact on rest of the world.

Finally, it must be underlined that fiscal impulses should not be confused with fiscal multipliers. As stated by Schinasi and Lutz (1991) fiscal impulses try to answer the question "Has there been a policy-based change in the government's budget balance?", while fiscal impulses focus on the question "What is the impact of changes in fiscal policy on economic activity and other economic variables?". This approach is contradictory to the output approach presented by de Castro et al. (2010) which in general is synonymous to the

Scale and changes in fiscal impulses directed to Polish agriculture

The OECD analysis identified Poland as one of the countries with below OECD average spending and receipts and with the smallest change in expenditure over the past decade (Bloch et al., 2016). Yet, the inclusion into the European Union resulted in significant changes in the scale and structure of support targeted to the agricultural sector. The common agricultural policy (CAP) offers substantial support for farmers and thus it has a significant impact on the condition of the agriculture. At the same time it enables member states to alter the focus of their agricultural spending on the issues not tackled by the CAP or to reduce the agricultural spending altogether.

In recent years the Polish national agricultural budget has significantly decreased (Table 1). Only in 2014 it grew by less than 4% in real terms (taking into account the estimated inflation target). However, when taking into account the funds directed to social security system for farmers and the members of their households[1], the drop in total agricultural spending is much lower, but observed in each year of the period 2012-2016. The EU funds increased in the period 2013-2015 as the end of the programming period 2007-2013 led to higher inflows of funds for the pillar 2 of the CAP. The growth of EU funds led to a significant increase in BGK[2] pre-financing as it was not necessary. Summing up, all the funds for agriculture changed less significantly than the strictly agricultural spending from the Polish own resources and for the Polish national agricultural policy. Thus, it shows that in recent years the national agricultural policy offered negative fiscal impulses, which were abated by the fund from CAP and social security system for farmers.

Table 1. Fiscal impulses in the Polish agriculture (per cent change year-on-year)

Budgetary positions	2012	2013	2014	2015	2016
Agriculture, rural development, agricultural markets & aquaculture	-7.55	-2.56	3.92	-15.3	-8.61
With social security system	-2.56	-0.46	-2.25	-3.5	-1.88
The EU funds	-9.39	10.97	5.79	8.05	-7.71
BGK pre-financing	-19.43	-19.78	-35.36	-66.85	126.35
Plus the EU funds & BGK pre-financing	-8.06	4.02	0.89	-1.36	-4.42

Source: Own elaboration based on Czyżewski (2012-2016).

[1] Farmers' social security system in Poland operates within Agricultural Social Insurance Fund (KRUS). More about it can be found on its homepage: http://www.krus.gov.pl/en/.

[2] BGK i san abbreviation of the name: Bank Gospodarstwa Krajowego. There is no official English name used. BGK is a Polish state-owned development bank. More information about its activities can be found on the page: https://www.en.bgk.pl/.

Looking at the agricultural spending as a whole – both Polish and CAP funds, the picture is more complicated. The fiscal impulses were negative in 2012, 2015 and 2016, but where positive in 2013 and 2014. Yet, given the year-on-year changes the actual tendency seems to show that we observe a change of the trend – from positive fiscal impulses in the post-EU accession period to the current reversal of the trend.

The share of agricultural spending in the Polish state budget has steadily been decreasing in recent years (Table 2). The share of agriculture in the Polish budget dropped by over 1 p.p. in for years. In 2012 it amounted to 3.52%, while in 2016 it was only 2.28%. Yet, when we add to the agricultural spending the amount devoted to support of the social security system for farmers the share of agricultural budget in the state budget rises to over 8% in to 2012, but in 2916 it is lower by over 1 p.p. When we add to it also EU funds the share of agricultural spending grows substantially. In 2012 it exceeds 15%, growing in the following two years and reaching 16.71% in 2014. Yet, in the next two years it fell – to 16.2% in 2015 and by almost 2 p.p. in 2016 reaching 14.48%. This recent fall is result of the delays in implementation of rural development programme for years 2014-2020, which is a result of the late adoption of an EU regulation concerning the pillar 2 funds in this programming period (Regulation (EU) no. 1305/2013).

Table 2. Agriculture in the Polish budget (in per cent of the total budget)

Budgetary positions	2012	2013	2014	2015	2016
Agriculture, rural development, agricultural markets & aquaculture	3.52	3.36	3.33	2.71	2.28
With social security system	8.34	8.39	8.48	7.82	7.23
Added to that the EU funds	15.13	16.04	16.71	16.20	14.48

Source: Own elaboration based on Czyżewski (2012-2016).

Even more vividly the share of each of the components of the total agricultural spending in Poland is presented by using the level of the GDP as a reference (Table 3). The strictly agricultural and rural spending as defined in the Polish state budget amounted to 0.73% of the GDP in 2012. In 2016 it was only 0.44%, which is both the result of the decrease in agricultural spending and the GDP growth. When we analyse the figures including social security system for farmers the fall in the spending in relation to the GDP is much lower. In 2012 the agricultural spending together with social security amounted to 1.70%, while in 2016 it was 1.41%. Adding to the Polish national spending the pre-financing of the EU funds and the EU funds themselves, the decrease in even less pronounced as the fall in the share in the GDP amounts to about 0.3% - from 3.08% in 2012 to 2.86% in 2016.

Table 3. Agricultural budget as a share of the Polish GDP (in per cent)

Budgetary positions	2012	2013	2014	2015	2016
Agriculture, rural development, agricultural markets & aquaculture	0.73	0.67	0.63	0.52	0.44
With social security system	1.70	1.67	1.62	1.52	1.41
Plus EU funds & BGK pre-financing	3.08	3.17	3.15	3.14	2.86

Source: Own elaboration based on Czyżewski (2012-2016).

The longer perspective shows that the Polish national spending as a share of the GDP at the beginning of the EU membership grew, ameliorating even further the support for the agricultural sector (Figure 1). The reversal of the trend started already in 2010. It will probably continue up to 2020, when the current EU programming period ends. The further tendencies will depend on the scale of the national envelop assigned for Poland within the CAP for the period post 2020. Yet, there is not much room for further reductions in real spending on agriculture within the Polish national budget as it generally is devoted to supporting prevention and fighting of plant and animal diseases as well as research, which is especially needed in the light of the challenges related to climate change.

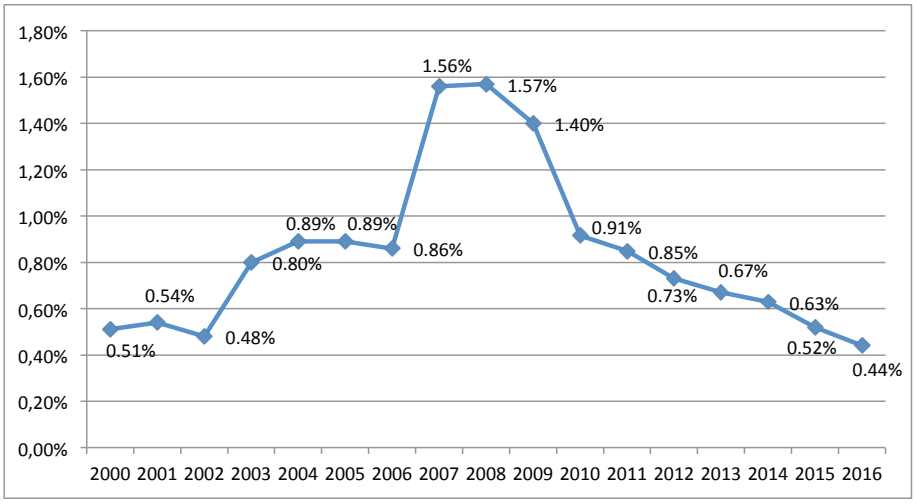

Figure 1. Share of spending on agriculture, rural development and agricultural markets in the GDP in 2000-2016 (%)

Source: Own elaboration based on Tab. 3 and Czyżewski, A., Matuszczak, A. (2012). Fig. 6.

The budgetary headings and subheadings are highly aggregated constructs leaving no room for the actual analysis of their potential impact on the economy. Therefore, it is more advisable to assess the level of support targeted to the Polish agriculture in the form of national state aid as defined and categorised by the EU regulations.

In general the scale of the Polish state aid expressed as percentage of the GDP plummeted in the period 2004-2014. In 2004 it amounted to 0.38% and a decade later it was only 0.11% (Table 4). Despite this fall the level of state aid for agricultural sector is in Poland still over twice as large as in average for the EU.

Table 4. State aid for agriculture as a share of GGP in the years 2004-2014

Country	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Poland	0.38	0.38	0.38	0.17	0.21	0.17	0.19	0.18	0.18	0.19	0.11
EU-28	0.10	0.08	0.08	0.08	0.09	0.08	0.07	0.07	0.06	0.06	0.05

Source: Own elaboration based on the DG Competition data.

The scale of state aid aimed at the Polish agriculture deceased by over a half in the period 2004-2014 – from over EUR 1,084 million in 2004 to over EUR 433 million in 2014 (Table 5). The rapid fall was observed in 2007 when the spending halved from the record EUR 1,180 million to just EUR 569 million. This was a result of the end of the three-year-long transitional period, after which the Polish state aid instruments had to be fully compatible with the EU regulations.

Not only the level of aid but also the structure underwent significant changes. Yet, the key state aid instrument in Poland are still tax exemptions related to the exercise tax on petrol used for agricultural machines. However, their share in the total support fell from over 3/5 to over 2/5 in the analysed period. Also in the case of support for investment in agricultural holdings there was a significant fall in the share of the funds directed to this policy instrument. In 2004 over 14% of state aid was directed to farm investment, while in 2014 it was only 8%. The position of supporting setting up of young farmers did not change much, although there were significant fluctuations within the analysed timeframe. We can observe a substantial increase in the share of funds directed to animal diseases – from 3.1% in 2004 to 16.6% a decade later. Currently, an important share of the state aid for agriculture relates to insurance premiums – 8.9%, while in 2004 there was no spending on risk management.

Table 5. Scale of funding for national state aid measures for the Polish agriculture in the years 2004-2014 (in EUR million)

State aid measure	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Adverse climatic events	:	:	:	9	53.6	21.1	56.4	23.1	12.7	6.9	3.6
Adverse weather conditions	12.3	5.7	12.8	8.7	0	0	0	0	0	0	0
Animal diseases	33.8	37.8	49.9	58.1	49.5	36	58.9	64.2	63.8	66	72
Employment	0.7	0.5	0.2	0.1	0.1	0	0	0	:	0	:
Forestry	11.1	11.2	11.2	10.9	19.1	21.4	48.4	82.3	25.6	22.8	19.6
Insurance premiums	:	0	2.9	8.8	40.5	21	24.8	31.3	39.5	39.5	38.6
Investment in agricultural holdings	152.8	159.2	99.8	79.6	71.6	62.6	44.8	58.3	109.6	134.4	35.2
Plant diseases and pest infestations	2.2	2.1	1.7	0.5	0.4	0.7	0.8	0.2	0.2	0.6	0.1
Investment in processing and marketing	0	0	0	0	1.5	0	0	0.4	0.3	0.3	0.1
Environmental protection	3.6	4.3	2.9	0.4	0	0	:	:	:	:	0
Encouraging quality products	0.6	2.4	4	8.8	18	15.2	15.6	18.7	25.4	16.5	11.1
Research and development	44.7	37.5	37	38.1	29.5	24.3	25.3	24.2	24.3	25.1	23.9
Restructuring firms in difficulty	1.3	0.5	0.3	0.1	0	0.2	0	:	:	:	:
Early retirement	2.3	2.2	2.1	1.5	0.7	0.1	0	:	:	:	:
Start-up of producers groups	1	1.5	1.1	0.7	0.5	0.2	0.1	0.3	0.4	0.3	0.2
Tax exemptions under Directive 2003/96/EC	663.5	683	719.7	204	278	314	319.9	296.3	311.4	369.1	189.3
Technical support	:	:	0.5	0	0	0	:	:	:	:	:
Natural disasters or exceptional occurrences	35.9	20.8	154.4	41.2	46.4	23.3	17.6	13.9	7.2	0.9	1.8
Setting up of young farmers	80.5	84.8	64.4	75.7	107.9	79.3	74.6	80.9	94.5	58.3	36.3
Rescuing firms in difficulty	2	0.8	0.8	0.1	0.3	0	0.9	:	0	0	:
Other	36.5	47	14.3	22.6	0	0.4	0.7	0.4	0.7	4.7	2
Sum	1084.8	1101.3	1180.0	568.9	717.6	619.8	688.8	694.5	715.6	745.4	433.8

Source: Own elaboration based on DG Competition database.

Impact of fiscal impulses on the Polish agriculture

The economic situation of the Polish farms changed significantly with the EU accession as the Polish agriculture was enclosed into the common agricultural policy (CAP). The Polish agricultural budget was strengthened by the EU funds.

As showed by Kirwan and Roberts (2016) in the case of US agricultural policy, the support is the most crucial for the smallest farms, as it slows down the small farm contraction. In the Polish case of the EU accession the rapid increase in public support helped all the farms ameliorate their financial situation. Yet, in the case of large and medium sized farms it also stimulated investment, while in the group of small farms it led to keeping agricultural land as an important source of income without any modernisation processes within these farms, which is showed in a tiny drop in the number of farms receiving each year direct payments. Thus, we can conclude that as in the case of the US agricultural policy the support leads to slowing down the contraction of the number of small farms.

Within a decade of the EU membership the balance of current subsidies and taxes grew ten times. Therefore, the changes in financial situation in the group of farms represented within the Polish FADN show that in the case of an average FADN farm the share of net current subsidies (balance between current subsidies and taxes) in the farm net income grew significantly in the period 2004-2015 (Tab. 6). In 2004 it amounted to only 15%, while in 2015 it was over 74%. In 2009, when prices of agricultural products were low, this share was even higher, despite the lower direct payments (the key element of current subsidies) was even higher – over 81%. The changes of agricultural prices resulted in the fluctuations of total output, yet the changes in the value of input were even more pronounced. This was also expressed in the relation between total output and input. This ratio varied during 2004-2015, but at the end of this period was significantly lower than at the beginning. Together with the increasing share of subsidies in the farm income the two phenomena lead to growing dependence on public support which is not a good sign given rising competition from the non-EU countries and challenges related to climate change, in the Polish case the most distinct problem is supply of water for agricultural production.

The detailed analysis of the Polish agricultural budgets shows that despite of the steady decrease of the national spending there is no clear-cut strategy of these reductions as the single budgetary positions experiencing cuts in one year, in the next one are assigned additional resources. This shows that the key determining factor in these decisions in a political one.

Table 6. Changes in key FADN indicators for an average Polish farm in the years 2004-2015 (monetary figures in EUR)

Indicator	Total output	Total inputs	Balance current subsidies & taxes	Total subsidies - excluding on investments	Farm Net Income	Balance subsidies & taxes on investments	Total output / Total input	Balance current subsidies & taxes/Farm Net Income
Year	SE131	SE270	SE600	SE605	SE420	SE405	SE132	SE600/SE420
2004	19,010.3	14,953.6	496.4	660.3	4,409.5	-143.6	1.3	15.0
2005	20,651.5	16,890.9	2,040.8	2,302.5	5,551.1	-250.6	1.2	41.5
2006	22,553.2	18,167.6	3,413.8	3,643.6	7,447.3	-352.4	1.2	48.9
2007	24,726.3	19,284.0	2,847.2	3,021.1	8,049.0	-240.5	1.3	37.5
2008	25,927.2	23,350.7	4,553.4	4,852.4	7,003.2	-126.7	1.1	69.3
2009	20,158.1	18,814.1	4,183.2	4,435.7	5,456.1	-70.9	1.1	81.3
2010	25,275.7	21,338.8	5,621.7	5,920.1	9,585.0	26.5	1.2	61.8
2011	28,084.0	23,644.6	5,782.4	6,094.0	10,220.4	-1.5	1.2	59.6
2012	30,248.3	25,308.4	5,461.6	5,847.3	10,404.3	238.0	1.2	56.2
2013	34,220.4	30,460.6	5,968.6	6,431.1	9,786.8	58.6	1.1	65.7
2014	29,841.9	26,898.2	5,458.6	5,889.5	8,475.9	73.7	1.1	69.5
2015	28,723.9	26,322.0	5,347.4	5,771.9	7,764.2	14.8	1.1	74.3

Source: Own elaboration based on the Polish FADN data.

Yet, the expending tasks of institutions related to food safety and the decades long negligence related to rural electricity system and water infrastructure call for increases in budgetary spending as these needs are not financed form the CAP and should be financed from state budget because there is hardly any room for using private funds or public-private partnerhips.

Conclusions

Given the low share in the GDP the agriculture is not the sector to be the main target of fiscal stimulus packages. Therefore, presenting in a framework of fiscal policy impact a single sector of the economy, especially one so much cut-off the economy dynamics in terms of supply and demand as agriculture proves impossible. Moreover, the fiscal impulses aimed at agriculture are more difficult to assess than the ones aimed at the whole economy given the uncertainty of the weather conditions and long production circle. The ups and downs of fiscal stance on agriculture in such a developed country as Poland are not so much determined by the changes in the macroeconomic situation but more are silent beneficiaries or victims of a given state budget. It can also be stated that the changes in the Polish "agricultural budget" seem to be the shaped by the interplay between the agricultural lobbies and the limited resources for all the positions in the budgetary expenditure. Therefore, it seems more advisable to analyse the financial aspects of the budgetary policy towards agriculture irrespective of the year-on-year flows in the agricultural output. It is more the general climate for agriculture that can be presented using budgetary data than actual output dynamics.

Moreover, it seems that more important the level of economic policy uncertainty than actual yearly flows in the level of funds envisaged for the agriculture. Even this policy uncertainty in the case of the EU member states is not a question of annual national budgets but the seven-year long financial perspectives which specify the level of financing the common agricultural policy. Thus, the policy uncertainty should be measured based on the EU policy cycle and the actual impact of this uncertainty can prove to be significant given the fact that agricultural incomes in all the EU member states are based on the CAP direct payments. Therefore, uncertainty concerning the continuation of this support can have a serious impact on investment decisions of farmers. Other effects of policy uncertainty named in the literature are precautionary cutbacks in spending, risk aversion or increase in cost of external financing (Baker et al., 2015).

Since the Polish EU accession the key source of public support for agriculture is the EU budget. Yet, as stated by the study conducted by Bonfiglio et al. (2016) most of the Polish NUTS-3 regions receive both low level of support from the first as well as from the second pillar of the CAP, although it increased significantly from one to another financial perspective. However, it seems that in the following EU budgets the support for the agriculture can decrease. The possible fall in support will surely be accompanied by a drop in the impact of the support on the development of the agriculture therefore the way farmers use the support they receive today is so crucial for the economic position of their farms in the coming years.

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