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DETERMINATION OF THE SACRIFICE RATIO – THE COMPARISONS OF TURKEY, POLAND AND ITALY

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"Most of the people in the world are poor, so if we knew the economics of being poor we would know much of the economics that really matters. Most of the world's poor people earn their living from agriculture, so if we knew the economics of agriculture we would know much of the economics of being poor"

(Shultz, 1979)

Abstract. Although there is a common belief that the stabilization policy leads to output losses, alternative research puts forward no output losses at the end of the stabilization periods. This study aims to test whether for the 1990–2008 period anti-inflationary monetary policies which reduced the ongoing inflation to one digit rates, also led to agricultural output losses in Turkey for the same time period. Periodic sectoral sacrifice ratios will be calculated as a proxy for output losses. Model relies on the Phillips Curve model showing an alternative sacrifice between unemployment and inflation. Employed variables in the model are inflation and output losses in the agricultural sector. Output loss can be defined as the difference between potential and realized output differences in the sector examined. The sacrifice ratio will also be calculated by balancing the output loss in agriculture at the cost of lowering high inflation rates. Small sacrifice ratios for the post 2001 period for Turkey will show the success of monetary policy implementation of Turkish Central Bank. Alternatively, increases in the sacrifice ratio, at a stage where agricultural output and its potential disparity increases, will reflect the negligence of agricultural sector at the cost of stabilizing the economy. All these findings will be compared to Poland and Italy experiences.

Key words: agricultural sector, disinflation, sacrifice ratio.

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INTRODUCTION

Looking at the world economy at a global scale, one can easily see negative impacts of high inflation rates, and stabilization programs to eliminate the negative impact of steady increase in overall prices. Although some economists argue on the positive role of stable prices for the long term in terms of income increases, an alternative group of economists have controversial view of long run stability of stable prices. Taylor [1983] argues that slow pace of disinflation reduces the burden of inflation, while Sargent [1983] argues that fast pace of stabilization reducing the output gap is in fact less costly with respect to more slow pace stabilization policies. This study focuses on the impact of stabilization policy periods on the agricultural output gap. Another way of coating the problem could be the output sacrifice in the agricultural sector at the cost of lowering high inflation rates. Sacrifice ratio can be defined as the output foregone at the cost of stabilizing the national economy [Çetinkaya and Yavuz 2002]. This study is especially focused on the agricultural sector, which functions far more with traditional technology and behavior.

This paper aims to measure realized output lost for the period of 1990–2008 as a result of disinflation policies implemented in Turkey. As a result of the agricultural output gap measurement, analysis will be extended to Poland and Italy for comparison. Through this approach, we will be able to check whether there are country specific differences among Turkey, Poland and Italy in terms of agricultural output lost. Turkey being a pre-accession country will be compared to two full members of EU. All three selected countries have been witnessing stabilization difficulties.

LITERATURE REVIEW

As in the case of most countries, Turkey also would like to adapt an agricultural policy which fulfills the requirements of World Trade Organization and that is sustainable, efficient and triggers the change process required for the 21st century. Independent of the development levels of prospective countries, agricultural sector is still dominated by risk factors that cannot be ignored. Public interference, regulations, subsidies and transfers still dominate most agricultural sectors around the globe. Transformation and improvements take considerable time and even predetermined agendas are realized with considerable lags. One unique factor that dominates the future of agriculture is shifting the short-run paradigm towards the long-run. As in most economic policy setting, improvement of national and global economic and social wellbeing makes the priorities of the agenda [Çakmak et al. 2004]. Although one third of Turkish population lives in rural areas, their share in the GDP never exceeds 8–10 percent. Looking at the major characteristics of Turkish agricultural sector one sees that small scale production, scattered distribution of agricultural land and low agricultural productivity dominates the sector. Relatively speaking, population growth is relatively higher in the agricultural sector. This reality reflects as the division of ownership from heritage into smaller land ownerships which also triggers the rural migration towards urban areas. Whereas diffused ownership of agricultural lend leads to lower productivity, and increase in the cost of production. All these events take place in an era where agriculture and husbandry are under continuous

transformation. In today's world, agriculture is under the strong influence of technology and new economic norms. To achieve the required transformation, land consolidation and technology adaptation became a must [Ari 2006]. The emphasis of strategy (long range planning) and sustainability makes most of the recent literature on agricultural research. But one should not omit the fact that one other major agenda of all countries is the fight against inflation.

For a long time period Turkish economy had the principal agenda of never dropping inflation rate, high inflation rate, policies that should or have been adopted to lower the inflation rate and the impact of these adopted policies on the economy in itself. By using dis-inflationist policies for reducing inflation can result creation of internal output gap increase. In other terms, while reducing inflation; the national output is reduced and due to this reason the output is sacrificed. The sacrifice ratio in laments term is the amount of total output that is lost to reduce the inflation rate [Çetinkaya and Yavuz 2002].

There are various studies on the impact of inflation on agriculture each covering a different aspect of the existing problem. Ulrich [2010] looks at the impact of agricultural inflation contribution to overall inflation rate. Another study focused on the causes of agricultural inflation [Henderson 2008]. Schertz and Harrington [1980] focused on 1960–1980 periods inflation impact on the agricultural sector. Whatever the direction of its impact, impact of agricultural sector on inflation and impact of inflation on the agricultural sector is backed by the relevant literature.

There are very controversial findings as witnessing output losses under stabilization policies, while high inflation rates not corresponding to symmetric narrowing of potential and actual output [Jordan 1997]. This is another way of stating that disinflation and sacrifice ratios are not recursive reflecting no narrowing of potential and actual output levels. This also shows why the task of lowering high inflation rates is more costly than increasing actual to potential with low inflation rates.

When looked at the world economy from a summarizing point of view, it can be stated that inflation has a negative effect on nations and due to this effect attempts to reduce inflation through disinflation programs are frequently adopted. Many economists in that sense state that low inflation will increase earnings in the long term. If inflation stability is a positive outcome, that should as well hold for the agricultural sector. If the action of lowering inflation hurts GDP, this again should hold for the agricultural sector. Taylor [1983] and Sargent [1983] state the importance of disinflation periods in a supporting manner while also discussing the recovery speed of disinflation period from different perspectives. Taylor in this sense states the position of "slow disinflation pace will reduce costs", while Sargent states the position of "fast disinflation being less costly" meaning that it will cost less output gap. Jordan [1997] within the same topic discusses that "on disinflation periods with increasing output gap periods being high, the contrary situations convey no situations with symmetric gap reduction. This in meaning conveys a finding that states; opposite of sacrifice ratios do not generate utility rate environment. As a conclusion from these standpoints one can infer that it is a difficult task to reduce inflation and its effects on the economy.

Ball [1994] has examined the sacrifice ratio factors which were a result of disinflation. In the study sacrifice ratio was defined as ratio of loss output over reducing trend of inflation rate. Ball defined sacrifice ratio by developing a method for calculating single

disinflation period and has implemented this for 65 periods of midlevel inflation holding OECD counties. The results reflect that the sacrifice ratio was reduced as in the pace of disinflation pace. In this study slowly reducing the inflation has risen the sacrifice ratio but sudden policies of inflation reduced sacrifice ratios. Ratio also at the same time reduced with the wage setting institutions flexibility. Wage rigidity is found to be also increasing the sacrifice ratio. Openness of economy has not affected the ratio. Ball's results also show that disinflation policy at the beginning and income policies have no certain relation with the ratio.

Zhang in his study looked at the sacrifice ratio in terms of its long term and empirical effects. Study reflects the term also called as hysteresis effect which is a strong persistence. The empirical study focused on 1960–1990 unemployment data quarterly and was focused on G-7 countries. As a result of Zhang's study; calculated long term sacrifice ratio is higher than non-calculated long term sacrifice ratio. Sacrifice ratio and beginning inflation rate has been found to be in a negative relationship. Long term sacrifice ratio and wage profitability have no relation between each other [Zhang 2001].

Jordan's research looked at situations of disinflation and rapid inflation increase and investigated them both. Looking at the central bank's independence rate in terms of explaining sacrifice and benefice ratio fluctuations in terms of how they would be explaining [Jordan 1997]. Ball [1994] in his study also used the output gain approach for 19 industrialized countries time periods between 1960–1992. Research was purposed to look at central bank independence ratio would define sacrifice and benefice ratio fluctuations. Possible flow pace, inflation rate change, nominal wage profitability and early period inflation rates were considered within the study. As a result, central banks with the higher independence rate had higher sacrifice ratios but inflations increase rate periods benefice rate were not higher could be observed. Daniels on his research with a similar research to Jordan's 1997 study, looked at openness of an economy and relationship of sacrifice ratio based on central bank independence [Daniels et al. 2005]. In this study Daniels has found a positive relation between sacrifice ratio and openness of economy. As openness increases the central bank's positive affect on sacrifice ratio reduces.

Yay's [2001] study is one of the first studies based on Turkey. Study first looks at the dis-inflationist policy costs theoretically and then investigates different counties heterodox disinflation policies. Argentina (1979–1981; 1985–1986), Brazil (1985–1986; 1994), Chile (1978–1982), Mexico (1987–1994), Uruguay (1978–1982; 1990), Israel (1982––1983; 1985) were enriching countries in terms of results for study. Lastly the study looks at 1999 and onward period with its IMF originating stability program.

METHODOLOGY

For the study at hand, the relation intended to be obtained with the current framework literature is the relationship between dropping disinflation period between reducing outputs and reducing inflation rate. The relation between potential income used and actual income difference between year's inflation rate series is relation coefficient; which is actually the sacrifice ratio. This coefficients calculation will be composed of two different methods. The first method will include a regression equation which will provide a ratio.

This method does not include between period changes and includes a single constant change coefficient; therefore the method is heavily criticized. Other approach includes a approach where a different ratio can be calculated for each year individually as a series. For this study both methods will be adopted and individually be calculated. After evaluating sacrifice ratio, within the disinflation periods disinflation periods monetary policy affects sustainability will be measured with "hysteresis coefficient". Relevant literature reflects that, sacrifice ratio measurements has been linked with expectations backed Phillips Curve approach. In the corresponding equation, output has been associated with GDP or between GNP and inflation [Okun 1978, Gordon and King 1982].

$$y_t - y_t^* = (\pi_t - \pi_{t-1})\alpha + u_t \qquad \alpha > 0 \tag{1}$$

On the first equation y = actual output level, y_t^* = Potential output level, π_t = t periods actual inflation rate and $(\pi_t - \pi_{t-1})$ = t periods actual disinflation rate and ut represents the error term. Within the equation the sacrifice ratio is defined by α, the conducted regression analysis result can be accepted as a stable value. The sacrifice ratio is expected to be positive. Meaning of this expectation is that, dis-inflationist periods in-between inflation rate increase $(\pi_t - \pi_{t-1})$, is increasing the difference between actual and potential difference $(y_t - y_t^*)$. To elaborate more, if the in between two period inflation rate was dropping caused by disinflation policies, due to the actual shrinkage experienced within the economy actual output dropping, the gap between potential and actual inflation will raise which is defined as the output gap. As a result, the defined rate of sacrifice is the output reduction to reduce the inflation rate one score. The higher the in-between periods inflation rate is the higher will be the output gap.

Within this framework, [Ball 1994], assumes a variable sacrifice ratio while the basic model assumes the ratio to be constant, Ball argues that, as the inflation rate increases or drastic fluctuations in demand occurs, keeping the sacrifice ratio constant will not be very reliable. In equality 2, nominator is the quarterly output gap and the denominator is the quarterly differences in the inflation rate:

$$SR = \Sigma\,(y_t - y_t^*)/(\pi_t - \pi_{t-1}) \tag{2}$$

Here the model associates the output gap in the dis-inflationist times, with the inflation rate decline in the corresponding time period $(\pi_t - \pi_{t-1})$. In this method, sacrifice ratio will be turned into a series where the trend can be observed [Jordan 1997, Bernanke et al. 1999, Boschen and Weise 2001], Ball specially preferred this model with respect to previous ones.

Although Ball solves this problem by selecting annually changing sacrifice ratios and adapting these ratios for every corresponding years, and thus solving the problem of keeping sacrifice ratios constant [Ball 1994], Zhang arguing that sacrifice ratio changing annually and keeping a structure will make the Ball's approach inadequate [Zhang 2001]. For him not only the sacrifice ratio but impact intensity as a result of change process is as well important. To remove such bottlenecks below mentioned equation (3) has been used at the implementation stage:

$$(y_t - y_t^*) = \alpha\,(\pi_t - \pi_{t-1}) + \beta\,(y_{t-1} - y_{t-1}^*) + u_t \qquad \alpha > 0,\ 0 < \beta < 1 \tag{3}$$

Here β coefficient shows the power of persistence effect. As β, goes to 1'e the degree of persistence effect will also increase. On the contrary Zhang, assumes the value of β is between $0 < \beta < 1$.

As in the case of Zhang [2001], similar findings by Çetinkaya and Yavuz [2002] show that, disinflation phase as a result of monetary shocks, will correspond to a long lasting impacts. And these findings are backed up by long term impacts.

In both studies, Ball [1994] and Zhang [2001] observed very strong persistence effect, which they named it as hysteresis impact. If the hysterical attitudes influence the output via monetary policy, disinflation permanent impact will be realized [Zhang 2001].

All data set related to the model have been received from OECD 2009 Quarterly National Accounts Report. For the three countries under study, to find the difference between domestic agricultural GDP and its potential, series had been filtered by Hodrick Prescott Filter in order to calculate the potential output and the difference between trend and natural log values has been calculated. To find the inflation rate from the consumer price index, natural logarithm of the CPI has been calculated, while the first difference series has been derived reflecting the inflation rate.

Turkey

To calculate the initial sacrifice ratio [Ball 1994] approach has been adapted. This method aims to reach to general sacrifice ratios by calculating sacrifice ratios:

$$SR = \Sigma (y_t - y_t^*)/(\pi_t - \pi_{t-1}) \quad (2)$$

Figure 1 shows the sacrifice ratio trend for the agricultural sector derived from the equation 2, for the given years:

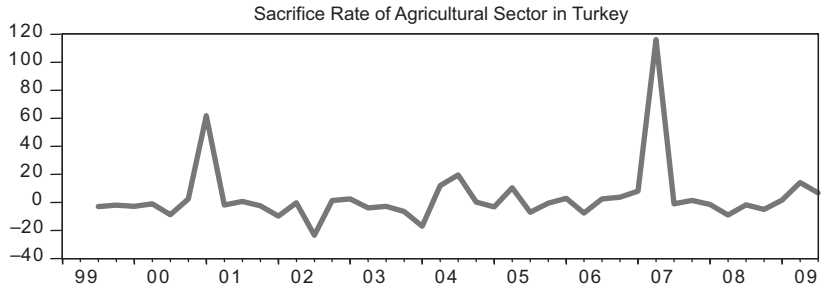

Fig. 1. Sacrifice Ratio of Turkey
Rys. 1. Wartość współczynnika poświęcenia w Turcji

Source: OECD Quarterly National Accounts, 2009, 4, p. 407.
Źródło: OECD Quarterly National Accounts, 2009, 4, str. 407.

As can be seen from the graphs (Figure 1 and 2) over the years sacrifice ratio generally seems stable while on some periods certain peaks can be observed. In the year 1993 and 1999 the sacrifice ratio seems to drop while on 1995, 1997 and 2007 there are high peaks experienced.

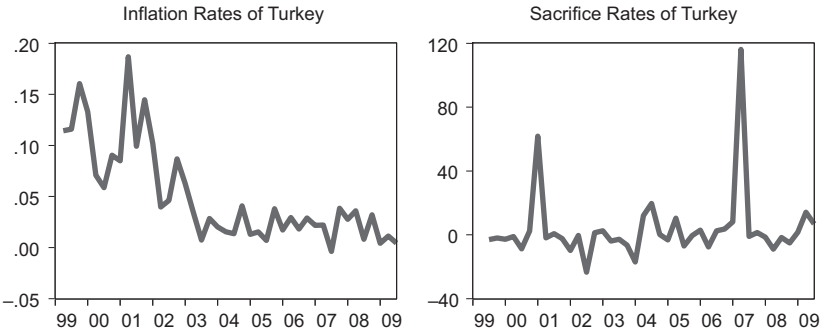

Fig. 2. Inflation and Sacrifice Ratios of Turkey
Rys. 2. Inflacja i współczynnik poświęcenia w Turcji

Source: OECD Quarterly National Accounts, 2009, 4, p. 407 and OECD web page.
Źródło: OECD Quarterly National Accounts, 2009, 4, str. 407 oraz strona internetowa OECD.

Italy

Sacrifice ratio calculated with the [Ball 1994] approach is given by Figure 3 and 4. Sacrifice ratio calculated by $SR = \Sigma (y_t - y_t^*)/(\pi_t - \pi_{t-1})$, compared to Turkey, inflation cost is far more stable up to 2007.

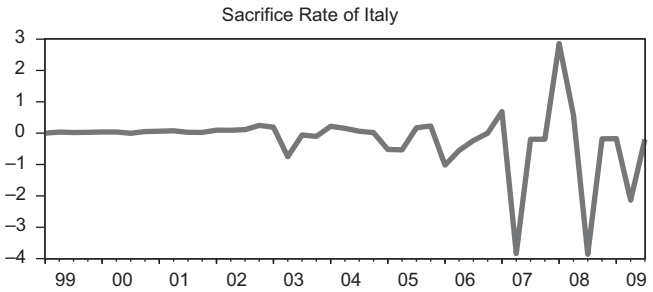

Fig. 3. Sacrifice Ratio of Italy
Rys. 3. Wartość współczynnika poświęcenia we Włoszech

Source: OECD Quarterly National Accounts, 2009, 4, p. 226.
Źródło: OECD Quarterly National Accounts, 2009, 4, str. 226.

But with the 2009 Economic Crises, which negatively influenced the developing world, Italian sacrifice ratio significantly increases and shows an unstable trend. Instability in the inflation rate increased the sacrifice rate for the agricultural sector.

Italian agricultural sector is not strongly influenced by the disinflationary policies. Core reason for such an outcome can be explained by the experienced cooperatives existing in the market for decades [Köroglu 2003]. Among the founders of EU, Italy's 20% of the population is active from a total of 60 million inhabitants. The share of agricultural population within the active population is only 10% which continuous to decline. Roots of agricultural cooperatives go back to 19 th century, which continued to strengthen for then on. Input supplier milk cooperatives had been the pioneers in the cooperative movement.

Consumption, production and credit cooperatives were established an upper structure in 1856. 1866 being the early years for the implementation of modern agricultural techniques in Italy, national agricultural federation for agriculture "FEDERCONSORZI" was established in 1982. This upper body took the responsibility of supplying all agricultural inputs. Funding of agricultural cooperatives take three alternative routes; internal finance, owners' equity and external sources. Infernal finance covers, allowances from members, from partnerships, and from social credit programs; owners' equity cover, partnership contributions and subsidies received; external sources funds received from banks and from other financial intermediaries. Cooperation's have significant tax reductions. If cooperatives distribute more than 60 percent of income-cost differences to their partners, there will be full tax exemption. Apart from FEDERCONSORZI there are two more cooperatives CONFCOOPERATIVE and LEGA (national cooperative solidarity). Being member of COGECA, three national unions' work very parallel to the international norms. Italian Constitution gives a social role to cooperatives and is generous in the funding of such institutions. In 1992, which required efforts towards conformity within EU, Italian legislature had been revised an capital requirements and partnerships shares have been reshaped.

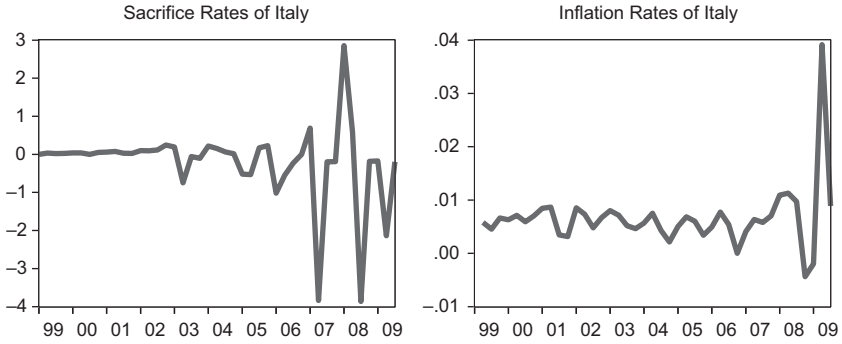

Fig. 4. Inflation and Sacrifice Ratios of Italy
Rys. 4. Inflacja i współczynnik poświęcenia we Włoszech

Souce: OECD Quarterly National Accounts, 2009, 4, p. 325.
Źródło: OECD Quarterly National Accounts, 2009, 4, str. 325.

Poland

Sacrifice ratio for Poland calculated with [Ball 1994] approach is given in Figure 5 and 6.

Ratio calculated via the following equality $SR = \Sigma (y_t - y_t^*)/(\pi_t - \pi_{t-1})$, when compared to Turkish performance, inflation cost in Poland, at post 2002 period and during the full membership stage to EU increased considerably.

In the second phase of our research, for the three countries involved OLS regression has been structured for agricultural output gap (AGGAP) as the dependent variable and inflation difference (DINF) as the independent variable. In Model II independent factors inflation difference (DINF) and output gap (AGGAP) has been inserted to the model with a difference variable. Both functions have been estimated by OLS regression. In the first model, α variable gives us the sacrifice ratio, while in the second model β reflects the

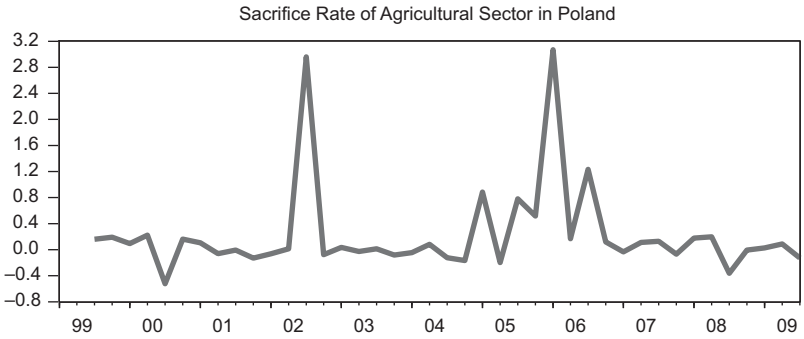

Fig. 5. Sacrifice Ratio of Poland
Rys. 5. Wartość współczynnika poświęcenia w Polsce

Source: OECD official web page.
Źródło: Oficjalna strona internetowa OECD.

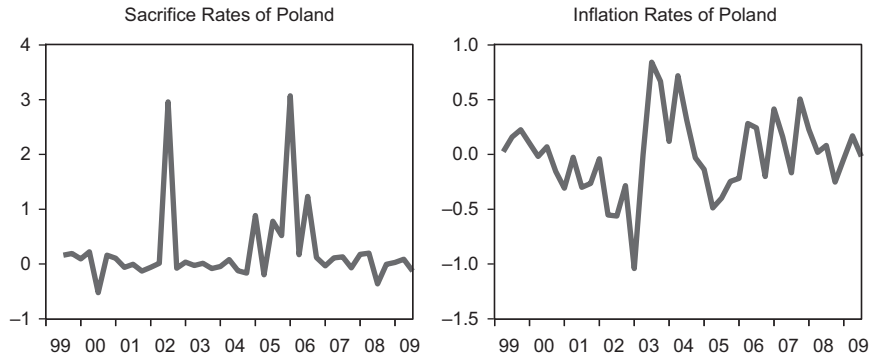

Fig. 6. Inflation and Sacrifice Ratios of Poland
Rys. 6. Inflacja i współczynnik poświęcenia w Polsce

Source: OECD official web page.
Źródło: Oficjalna strona internetowa OECD.

power of persistence effect [OECD 2010]. Poland's economic performance in 2009 was overwhelmingly well, given the global downturn. Although excess demand was substantially large prior to the crisis, the external imbalance was modest relative to some neighbors' Macro-policy responses to the slowdown were largely appropriate, and the sharp depreciation of the zloty cushioned the impact of the foreign shock, but contributed to the postponement of Euro adoption. The slowdown had some inflationary pressures, while the swift turnaround in wages helped to limit job losses. A number of issues should be addressed, to strengthen Poland's position in the globalizing world; given the prospects of future Euro adoption, persistently large EU transfers and desirable inflows of foreign direct investment helped Poland to face a very fast recovery.

Although Poland is witnessing a structural institutional change, still there is financial aid from EU. Accepted as a transitional country, Poland's rise is faster than expected. [Acar 2005].

Table 1. Regression Results
Tabela 1. Wyniki analizy regresji

Turkey		α Coefficient (Sacrifice Ratio)	β Coefficient (Persistence Ratio)		
Dependent Variable	TRAGGAP				
		TRDINF	TRYGAP1	LM TEST	BPG
	MODEL I	**–1.20**		0.48	1.34
		(0.02)		(0.78)	(0.51)
	MODEL II	**–1.214**	0.00067	2.9	0.1079
		(0.023)	(0.73)	(0.23)	(0.74)
Poland					
Dependent Variable	POLAGGAP	PDINF	PYGAP	LM TEST	BPG
	MODEL I	0.0081		0.48	0.035
		(0.63)		(0.78)	(0.84)
	MODEL II	0.0053	**0.478**	0.48	1.34
		(0.73)	**(0.0016)**	(0.78)	(0.51)
Italy					
Dependent Variable	ITAGGAP	ITDINF	ITYGAP	LM TEST	BPG
	MODEL I	1.024		0.812	0.022
		(0.87)		(0.66)	(0.879)
	MODEL II	1.032	0.00076	0.857	0.72
		(0.87)	(0.90)	(0.65)	(0.69)

(Numbers in parenthesis are p values)
(Wartości podane w nawiasach to wartości p)

Source: Own elaboration.
Źródło: Badania własne.

Sacrifice ratio for Turkey is negative, and statistically significant. This simply means that as the inflation rate falls, agricultural sector output gap (TRAGGAP) also decreases. In other words decrease in inflation does not necessarily lead to a deviation from its potential. Sacrifice ratio for Poland is not statistically significant, but unlike Turkey, its sign is positive. In the case of Italy we see that, inflation is not influencing the agricultural output gap (ITAGGAP) shown by the parameter being statistically insignificant ($p = 0.87$). But, in the case of Italy, as in the case of Poland have a positive sign. This means that, decrease in inflation rates (PDINF), increases the output gap in the agricultural sector (PYGAP). While the power of persistence effect is statistically insignificant, permanent inflation effect in Poland exists. β parameter is positive and statistically significant. It can be concluded of a 0.48 permanent effect of inflation. Italy's persistence effect coefficient (β), is statistically insignificant ($p = 0.90$).

Looking at these overall findings, sacrifice ratio for the Turkish agricultural sector is negative, meaning that as the inflation rate declines, actual and potential agricultural outputs shows a narrowing. But in the case of Poland and Italy, sacrifice ratio is positive but statistically insignificant. Inflation impact on agricultural output cannot be supported. Persistence effect coefficient for Poland is statistically significant.

Core reason for adding Italy to the analysis is to capture EU response via Italy performance [Köroğlu 2003]. Agricultural institution setting of EU seems to have strong historical background. In these countries, independent and adaptive farmer unions have been structured, and they have completed their maturity periods. These unity's, have been successful to reflect their problems towards their role towards a competitive market system transferring governmental funds for restructuring. Main policy within EU, have been the establishment of farmer unions, integrating the farmer structures bottom-up and down to bottom. [Köroğlu 2003], In the Turkish case, SME nature of the agricultural sector, hindered efficient funding and adaptation of relevant technology. Existence of numerous intermediaries between producers and consumers reduced the bargaining power of producers in the market. Non-complaint to global competition, sector frequently witnesses shortages and surpluses. Farmer unions to avoid the lack of appropriate input supplies, dissemination of available technology options, instability increasing pricing mechanisms have been insufficient as well as badly coordinated. On top of all Turkish legal regulations seems to be disorganized in terms of encouraging cooperatives and unions. As seen in appendix 2 sectors are structured by three different laws. Today, 58,318 cooperatives exist in 26 different activity areas with 8,720,906 members, 503 unions and 11 central unions. All these cooperatives are organized under the shield of Turkish National Cooperatives Union. In terms of auditing they are responsible to Agriculture and Rural Affairs and to Industry and Commerce Ministry while financed by eight different government offices and by eight different banks. This format of structure leads to loss of efficiency and inefficient use of scarce financial resources. Cooperative policy as is not appropriate and does not fit to the sector needs.

Figure 7 summarizes the sacrifice rates of three countries under the same scale. Looking in depth shows that Turkeys agricultural sector is the most disadvantaged among three.

Italy being negatively influenced by pre 2009 period, Poland seems to bear witness to relatively more stable economic performance.

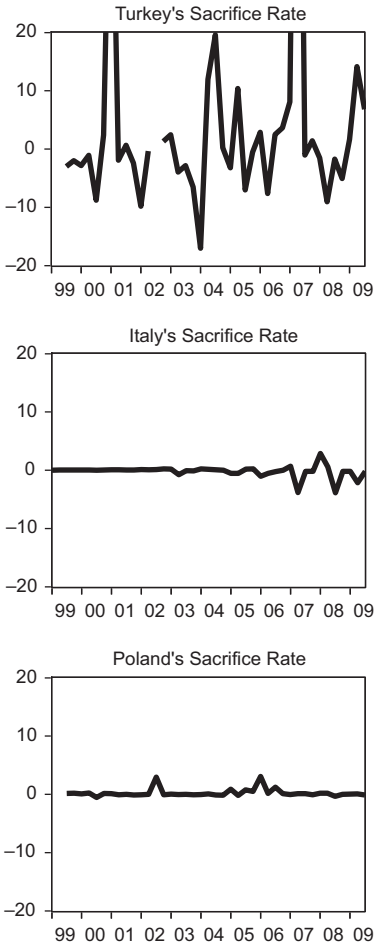

Fig. 7. Sacrifice Ratios of Agricultural Sector for Turkey, Italy and Poland

Rys. 7. Wartość współczynnika poświęcenia w sektorze rolnym Turcji, Włoch i Polski

Souce: OECD Quarterly National Accounts, 2009, 4.

Źródło: OECD Quarterly National Accounts, 2009, 4.

CONCLUSION

It is a common debate that reducing the inflation rate has foreseen benefits while also raises certain questions about the costs involved. These costs are usually measured by the output losses that come with the stabilization policies. In this study we concentrated on the disinflationary moves effect on agricultural output for Turkey, Italy and Poland for the 1999–2009 periods. Expected sign for the sacrifice ratio is positive. This approach, foresees that an increase in time specific gap of inflation rates, increases output loss gap.

Taking all three countries together, 1999–2009 period sacrifice ratio calculation for Turkey is statistically insignificant and has a negative sign. One other parameter calculation is related to (β), power of disinflation policies, in other words (β) is the power of persistence effect. As (β) approaches to one, power of persistence effect increases. It is assumed that the parameter value will lie between $0 < \beta < 1$. For the given period power of persistence effect coefficient is 0.00067 on the average but is statistically insignificant. This finding corresponds to the interpretation that disinflation policies are not long lasting for the agricultural sector. Examining Figure 4 shows that beyond 2001 implemented dis-inflationary policies is not long lasting for the agricultural sector, while the sacrifice ratio increases in times of economic crises.

Analysis for Italy has the expected sign for the sacrifice ratio, but is statistically insignificant. In other words the output gap between the potential and the actual in the agricultural sector narrows as the inflation rates declines. We would like to stress the importance of sign of the relationship.

The coefficient of persistence effect coefficient is 0.00076, but is statistically insignificant. This verifies that inflation witnessed in Italy does not have a long term impact on the agricultural sector. Graph on Figure 5, sacrifice ratio seems to be rather stable up to 2007, where volatility increases from then on. The impact of the crises can be easily observed in both diagrams.

Poland's sacrifice ratio is positive but not statistically significant. Power of persistence effect coefficient is 0.478 and is statistically significant. This finding compared with Turkey and Italy shows that, disinflation policies have a stronger and long lasting impact on the agricultural sector. Examining the graph, one sees that, during the post 2004 period of full membership to EU, there has been a significant increase in Poland's sacrifice ratio, and inflation rate started curbing down as a result of disinflationary policies.

Looking at the study as a whole, the country that is most influenced by the disinflation is the Turkish agricultural sector. While Italy endowed with the strong roots of institutionalized unity and EU privilege suppressed negative influences, Poland was backed up with EU and OECD centers strengthened not only economically but politically at the same time. Turkish agricultural sector, structurally made out of SME's was backed up by three overlapping and contradicting legal frameworks which further complicated the issue. As an outcome, Turkish agricultural sector reflects a fragile structure. Thus, disinflationary periods hit the agricultural sector more harshly than Italy or Poland.

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OKREŚLENIE WSPÓŁCZYNNIKA POŚWIĘCENIA (SACRIFICE RATIO) W TURCJI, POLSCE I WŁOSZECH: PORÓWNANIE

Streszczenie. Pomimo powszechnego przekonania, że polityka stabilizacyjna prowadzi do strat wydajności, alternatywne badania wskazują na brak strat w wydajności na końcu okresów stabilizacji. Celem niniejszego opracowania jest sprawdzenie, czy w latach 1990–2008

antyinflacyjna polityka monetarna, która zredukowała stopę inflację do rozmiarów jednocyfrowych doprowadziła w tym samym okresie również do obniżenia wydajności w rolnictwie w Turcji. Obliczone zostaną okresowe sektorowe współczynniki poświęcenia (sacrifice ratio). Model oparty na krzywej Philipsa pokazującej alternatywne zależności pomiędzy inflacją i bezrobociem. Zmienne włączone do modelu to inflacja i straty w wydajności w sektorze rolnictwa. Straty w wydajności można definiować jako różnice w potencjalnej i zrealizowanej wydajności w analizowanym sektorze. Współczynnik poświęcenia będzie również oszacowany poprzez wyrównywanie strat w wydajności w rolnictwie kosztem obniżenia wysokiej inflacji. Niska wartość współczynnika poświęcenia w Turcji po 2001 roku wskazywać będzie na sukces polityki monetarnej wdrożonej przez Turecki Bank Centralny. Alternatywnie, wzrost współczynnika poświęcenia w sytuacji, gdy wydajność w rolnictwie oraz jej potencjalne nierówności wzrastają, odzwierciedlać będzie na zaniedbanie sektora rolnego kosztem stabilizacji gospodarki. Wszystkie rezultaty będą porównane z doświadczeniami Polski oraz Włoch.

Słowa kluczowe: sektor rolny, dezinflacja, współczynnik poświęcenia

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