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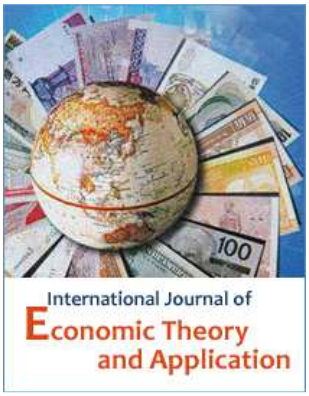

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Wage-Led Growth: An Example of Dynamics and Rigidity of Gross Mean Wage in Lithuania

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Abstract
The paper deals with the driving factors shaping the gross mean wage (GMW) and her rigidity in Lithuania. The current paper is a first in series "Wage-led growth" and it reminds briefly the basics of well-known and popular approach on wage-led economic growth. The calculations are performed over a sample of ten years. The paper presents the regressive analysis of GMW driving factors. The analysis confirmed an existence of strong, linear relationship between the GMW and three driving factors, namely the unemployment rate, social disbursement expenditures and national GDP. This kind of relationship is inherent in the considerably export-sided economies of small countries like a Lithuania. Furthermore, the well-known multinomial-logit model of GMW rigidity has been applied in current research. The analysis found a strong rigidity of the GMW and even the stiffening of rigidity over the past few years in Lithuania. The defined wage rigidity can be perceived as a binding constraint on wage setting for large segments of the work force in a low inflation environment like in a Lithuania during the current period. The corresponding upward pressure on wages was caused by the decline in unemployment and seems to be a result of strongly improved job market position of Lithuanian employees. A shift in the bargaining power of employers to the employees was found too. The current paper suggests softening the real wage rigidity, gaining strength the foreign direct investments, internal consumption and youthfulness of nation. It would bring a positive pressure to increase the incomes per capita and raise a well-being of Lithuanian people in the next future.

1. Introduction

A lot of attention has been still given to the financial roots of the past economic crisis, the role of wages on the other hand has yet to get the consideration it merits both as a cause of the crisis as well as a solution to the current economic predicament after crisis. The average wages and average labour compensation have not kept up with the productivity growth. A functional income distribution has considerably shifted at the expense of labour and a personal income distribution has consequently become more unequal in many European countries. By many measures the income inequality is worse than at any time in the past twentieth century. At the same time economic growth processes have become imbalanced. The financial crises have become more frequent, the household debts have risen sharply, and the international imbalances have in point of fact increased, with some countries relying excessively on export growth (Stockhammer, 2011). As E.Stockhammer observes, the most countries or regions typically operate under "wage-led" regimes while

a few, particularly the small export-oriented countries, come more closely to the description of "*profit-led*". Contrary to neoliberal claims the pro-capital policies did not lead, over the past 35 years, to increased investments (and eventually wages) and consequently did not set an economic virtuous circle into motion. Ultimately, an economic growth became dependent on finance-led consumption. The economy of Lithuania is a clear example of that kind of economic strategy. What lessons can be drawn from more successful wage-led economic growth strategy? Notably, all the Lithuanian economic – social terms are in place. It is under consideration too. The practical importance of current research is clear and evident.

The purpose of research is to analyse econometrically the relation between different contributors and the gross average wage. Using the simple polynomial model, the real wage rigidity was analysed too. The long-term, pro-labour policy that would soften the real wages rigidity and the increase the wage share will plays an important role in the generation of balanced and equal growth in country. It is clear from the subsequent discussion that the policy means intensifying the discerned real wage drivers and jointly rebating the real wage rigidity would make sure the effective economic growth that leads to long run increases in the wealth-being of Lithuanian nation. It refers to the innovation of current research effort and the present paper too.

This paper is a second in series "*Wage-led growth"*. It reminds briefly the basics of wage-led economic growth approach and presents the regressive analysis of factors shaping the gross mean wage in Lithuania. A current paper notices also that the freezing of wages, i.e. the rigidity of real wages, and the decline in the wage share plays an important role in the generation of imbalanced and unequal growth in country. The third paper of series „*Wage-led growth*" will discuss the applications of approach and the direct/indirect effects of pro-labour wage policy that will form an important part of a policy package that generates a stable growth regime.

The structure of paper is as follows. A section 2 reminds briefly the basics of well-known and popular approach on average wage-led economic growth. A section 3 goes in details on the role and contributions of average wage in economic growth, the main determinants and constraints on the average wage rigidity. A section 4 presents the current research methodology and framework of numerical working out. A section 5 discusses the main findings of current research. A section 6 thereafter summarises and concludes.

2. Wage-Led Economic Growth

The relation between the distribution and economic growth was at the centre of macro-economic analysis in the classical economics, but with the dominance of neoclassical economics in the twentieth century, the issues of income distribution have occupied a secondary place, since the income distribution was assumed to be regulated by the marginal productivity relations within a perfect competition model. The income distribution is the outcome of complex social and economic processes, but the governments influence it by the means of social policy and labour market policy. The pro-capital distributional policies are defined as the policies that lead to a decline in the wage share, and the pro-labour distributional policies result in an increase in the wage share. The pro-capital distributional policies in point of fact proclaim to promote the **"***labour market flexibility***"** or the wage flexibility, rather than increasing the capital income. They include the measures that weaken the collective bargaining institutions, weaken the labour unions, lower the minimum wages, and weaken the employment protection legislation. The pro-labour policies are often referred to as strengthening the welfare state and the labour market institutions and include strengthening the collective bargaining (e.g. by extending the reach of bargaining agreements to the non-unionized firms), strengthening the labour unions, increasing the unemployment benefits, and reducing the wage and salary income inequalities. It is assumed here and further in current paper that an effective labour demand is inelastic (or upward) sloping (see e.g. Rowthorn (1999). Thus an increase in real wages will correspond to an increase in the wage share.

The wage-led economic growth strategy has a long history. It has been articulated in reformist visions within the labour movement and was discussed under the heading of "*under consumption*" in nineteenth century economics. The theory got a boost from the theories of effective demand developed by Keynes and Kalecki (Stockhammer, 2011). The modern theoretical debates on wage-led demand were based on seminal papers by Rowthorn (1981), Dutt (1984) and Bhaduri and Marglin (1990). The policy-oriented concept of a wage-led growth strategy was prominently used by UNCTAD (2010).

The question is how aggregate the demand reacts to a change in income distribution. These effects will be in point of fact complex and are discussed in more depth (Stockhammer, 2011). The demand may be wage-led or profit-led. A *wage-led demand regime* means that an increase in the wage share leads to an increase in aggregate demand. The wage-led scenario may arise when the higher wages lead to higher consumption expenditures (the higher consumption sales may then also induce the higher investment expenditures). Conversely, a *profit-led demand regime* means that an increase in the wage share leads to a decline in aggregate demand. The demand may be profit-led if an investment is highly sensitive to a reduction in profit margins. The high profitability (at a given rate of capacity utilization) may motivate the firms to expand their productive capacity and increase the investment.

Of course, there are also other factors influencing the income distribution, such as the technological changes, globalization, and financialization. While there are some differences in the theoretical arguments, the empirical assessment is rather clear. All the studies find the substantial effects of globalization on the functional income distribution. For example, the IMF concludes that "the globalization is one of several factors that have acted to reduce the share of income accruing to labour in advanced economies" (IMF, 2007).

Furthermore, these factors have recently played an important role, but it will be not elaborated on them here because the research efforts are directed at the wage rigidity role. One of main findings is that the wage-led growth economic strategies, far from undermining growth as is argued by mainstream economists, would on the contrary improve the growth rates. This is an important argument as it directly contradicts the current "*competitiveness*" policy orientation in much of the world – an orientation based on permanent wage moderation.

On the other side, it is clear that such a current recovery can only materialize if there is a rebalancing of wages and productivity in both as at global level as well as at national or even local level. This will not only require that the trade unions should intensify their efforts at the bargaining process and in pushing for better minimum wages, but that they fight to change the new national or even global "*rules of the game*" that are diametrically set against them. In this area, as for others, collective action is a *sine qua non* condition to achieving any success (Macys, 2012).

A next question is arising: what kind of progress of the pro-labour policy has been achieved in Lithuania? The two periods can be uppermost noticed looking the historical way of pro-labour policy: a first was before the membership in EU in 2004, and a second - ever after. The Lithuanian labour market policy was modelled in view of preparing for the European Union accession stage, harmonising Lithuanian labour market policy with the EU normative acts and implementing the common European Employment Strategy during the first period. The national labour market policy was also drawn up in line with '*homework*' assigned by the European Commission and the aim was to create an active, flexible and stable labour market, also one that reflects national interests (Grazulis et al., 2009).

The State-issued decisions on labour market policy issues capacitated a more flexible labour market and one more open to the challenges of integrating to the common EU market. This stage is considered often by experts to have been one of the most successful in terms of Lithuania's labour market policy formation.

However, not all the goals were attained, as the unemployment stayed at above 10 percent threshold (Macys, 2014). The unemployment was in large part reduced due to emigration volumes. Moreover, the dropping unemployment levels for the first time prompted the dangerous signs of shortage of qualified workforce.

The next 2005 – 2007 stage was marked with positive changes to Lithuania's labour market policy. The legal framework, which made the Lithuania's labour market more open and flexible and one that warranted the rights of the employed and reconciled employer/employee interests, started operating in full swing during the years in question. The level of unemployment was on a consistent downward spiral as the Employment Promotion Incentives were being successfully implemented. The labour market policy in point of fact accommodated provisions of the joint European Employment Strategy and joined in on the Lisbon Process that maintained employment as one of key national policy priorities. The average wage, however, remained insufficient and thus had a negative impact further strengthening the migration. The outgoing migration, albeit slowing down notably, remained a problem of concern, especially in terms of brain drain, i.e. a loss of highly qualified workforce. A shortage of workforce, especially highly qualified workers became especially evident in this period, as well as a poor natural shift among the different economic sectors. The regional differences in unemployment also remained in place, as well as the structural unemployment, leaving a labour market policy still relevant in the country for the times ahead. The changes to the labour market undergone during 2005 to 2007 revealed that a legal framework alone does not ensure the effective implementation of pro-labour policy (Macys, 2014).

3. Role of Real Wages Rigidity

The extent and nature of downward nominal wage rigidity (DNWR) are likely to have strong implications for the functioning of labour market and for the questions of monetary policy, especially in small country like a Lithuania. Historically, new Keynesian economists have a long while ago sought to explain persistently high unemployment in industrialized economies. They explained a part of this excess supply in the labour market with real wage rigidities that hold the wages above the market clearing levels. The economists have stated three main groups of theories for explaining the real rigidities in the labour market: the implicit contract theories, efficiency wage theories, and insider-outsider theories. The new Keynesian economics is especially associated with the latter two.

An implicit contract theory attributes the stable real wages to the implied agreements between the employers and workers. The firms serve not just as consumers of labour, but also as the wage insurers. By showing their workers that they will provide the stable real wages, the business entities secure their loyalty. Seeing the implicit contracts as a poor basis for the real wage rigidities, the new Keynesian economists sought other explanations. It should be noticed that there is no information regarding the rigidity of nominal wages in an environment of low nominal wage growth. This question is important because there is little need to cut nominal wages in an environment with high wage inflation and, hence, nominal wage rigidity - if it exists - probably has no major real effects. In contrast, the wage rigidity may well be a binding constraint on wage setting for large segments of the work force in a low inflation environment. Hence, the non-negligible real effects of nominally rigid wages are far more likely in an environment with low nominal wage growth. However, little is known about wage behaviour in this situation.

The efficiency wage theories explain why the firms might pay their employees more than the market clearing rate. Since the workers' productivity can be dependent on their wages, the employers have an incentive to pay their workers to the point where they are most productive. Under these models, the wages are not determined strictly by the supply and demand

for labour but by the marginal productivity of workers. The economists have several explanations for the intuition behind the efficiency wages. In "*adverse selection*" models, the firms find it more cost effective to offer a high wage and attract the skilled workers rather than carefully investigating a workers skills and firing the workers who turn out not to be adequately skilled. In the "*shirking model*," a firm pays a worker above the market rate because they want to give the worker an incentive to perform well and not shirk at his current job. If the worker's next best job opportunity offers a lower pay than his current position, he will have an incentive to perform well to keep his current job. In "*turnover cost*" models, the firms pay their workers above market wages to prevent turnover and the costs of recruiting and training replacement employees. In "*gift exchange*" models the firms pay high wages to increase the productivity through the improved worker morale. In fairness models, a more recent trend in the efficiency wage literature, employers have to pay a sociologically "*fair*" wage in order to encourage workers to be productive (Peeters et al., 2001).

On the other side, it can be noticed that the nominal and real wage rigidities (RWR) have a long tradition in the explanation of business cycle fluctuations. While the concept of nominal wage rigidity is commonly related to the speed with which nominal wages can be changed in reaction to the economic shocks, there seems to exist less unanimity about the exact meaning of real wage rigidity. The definition by Blanchard (2006) can serve as a useful reference point: „Real wage rigidities' [*capture*] the speed at which real wages [adjust] to changes in warranted real wages. The slower is the adjustment, the higher and the longer lasting the effects of adverse shocks on unemployment" (Blanchard, 2006). In the benchmark labour market model with complete flexibility the "*warranted real wage*" is equal to the marginal rate of substitution between consumption and leisure. These results leave little doubt that the rigidity of nominal wages was very persistent during these years. Moreover, the results also show that the real wages would have been quite flexible in the absence of nominal wage rigidity. This indicates that nominal wage rigidity was an important determinant of real wages in an environment with low nominal wage growth.

The real price rigidity can in turn result from the several factors. First, the firms with market power can raise their mark-ups to offset the declines in marginal cost and maintain a high price. The search costs can contribute to real rigidities through "*thick market externalities*." A thick market has many buyers and sellers, so the search costs are lower. The thick markets can be expected to occur more often during the booms, and they thin during the downturns. If this pattern causes marginal costs to increase during the recessions, the thick markets can lead to the real rigidities. The "*Customer markets*" can also create the real rigidities. In the customer markets, the firms take the advantage of their market power and refuse to lower the prices because they do not want to give the customers an incentive to shop elsewhere and search for the prices that are even lower. They would rather offer the customer a consistent price and have the customer consistently a shop at their store. Also, the customers will likely not notice a price cut as much as a price increase, giving the store less of an incentive to cut the prices. The complexity of the "*input-output table*" can also lead to rigidity. The decentralized global supply chains lead to the many firms competing for the same inputs and producing the same outputs, but an individual firm does not know whether the other firms and industries will be affected the same way in a shock. The cutting prices in a situation would not necessarily create more demand for the firm's products; it may just lead to lower the profits and bankruptcy. The firms face the large information requirements in determining how to optimize their pricing. They not only have to know the demand for their own goods and their own costs, they have to know the pricing factors for all their competitors and other firms in the vast market of inputs and outputs.

The capital market imperfections in point of fact lead to the more real rigidities. The capital markets may have the asymmetric information problems because the borrowers are better aware of their situation than lenders. This can lead to the firms seeking more external finance during downturns, which drives up the firm's cost and creates another kind of rigidity. The imperfect information can also create the rigidity in the consumer market. The consumers may see a price as an indicator for the quality. The firms may be reluctant to cut their prices if they fear that the consumers might start to require the product as "*cheap*."

The recent years have shown an increased interest in the issue of RWR. Over the past two decades, a substantial volume of empirical research has been directed towards identifying the elements of public expenditure (at its aggregate and disaggregate levels) that bear the significant relationship with an economic growth. This empirical literature varies in terms of the data sets and econometric techniques, and often produces the conflicting results. Only a dozen of years ago the huge, strongly increasing, domestic unemployment was a source of concern for most European countries (OECD, 2007).

In trying to explain this phenomenon of persistently high unemployment many comparisons with the United States have been made. The European labour markets are characterised often as '*rigid*' and '*inflexible*'. The unemployment has on average been much higher in Europe than in the US, a country facing obviously less employee protection measures. Nickell (1997) rebutted this criticism in an extensive study on the basis of different labour market criteria, emphasising the diversity of the European countries.

The unemployment during the period 1983-1996 has been on average lower in five of the fifteen European Union countries than in the US. Moreover, the unemployment compensation payments had been more generous in the US than for instance in Italy (Peeters et al., 2001). The literature describes the wage negotiation process in different ways. One of the most well-known economic models is the Nash bargaining model that originates from game theory. The model distinguishes on the one hand employers (organisations) and on the other hand - employees (organisations) or labour unions, wishing to reach an agreement on the employees' wage. The

model deals thus with two "*players*", being the employer and the employee, who negotiate on equal terms on an "*average*" wage.

During the negotiation process the gross wage is at stake. The players bargain and have a strict conflict of interests. The employer´s aim is the profit maximisation, while the employee aims at obtaining a net wage that is as high as possible. The employee maximises the "*utility*" that depends proportionally on this net wage. A higher wage for the employee necessarily implies a lower profit for the employer and, *vice versa*, a higher profit can only be achieved by paying the employee a lower wage. Usually the wage in the official sector will be somewhere in between. The gross benefit received when an unemployed equals $R\ W$ because the replacement rate R equals the '*average*' unemployment benefit divided by the average market wage W. The replacement rate plays an important part in this model. It can be seen as a sort of reduction in income in case a person, instead of working, does not work.

The wage obtained in the unofficial sector can result from work done in the black market or saved expenditures due to homework. The examples of the latter are the savings due to child care, cleaning or house (re-) decoration. It is assumed that the productivity in the informal sector is linked to that of the official sector because of the spillovers of technological progress improving labour productivity in general.

The wage effect of the wig that is the difference between the wage that the employer pays and the wage that the employee receives is not unambiguously positive or negative. To analyse this effect, a further distinction is to be made between the social security contribution paid by the employee, paid by the employer, as well as the marginal and average tax burden for the employee. An increase in the average tax burden will in general, given the marginal tax burden, a result in a lower net wage. Such a decrease in the net wage makes it more attractive not to work, strengthening the bargaining position of the employee and for this reason eventually leading to a higher gross wage rate. The marginal tax rate influences the wage *ceteris paribus* negatively. In case of an increase in de marginal tax rate it is no longer attractive to earn additional money. This after all taxed more heavily. The employee therefore has an incentive to content himself with a lower gross wage (Macys, 2013).

Important determinants in the wage formation are the *unemployment* and the *replacement rate* that influence the wage rate interactively according to the bargaining model. As explained before, the replacement rate measures the financial distance between working and not working. The definition of the replacement rate can vary. Sometimes 'minimum' instead of 'average' income and/or social security benefit is used. Moreover, the replacement rate can be calculated for different groups of unemployed, like short- and long-term unemployed or different family compilations. The measurement of the replacement rate is thus not unambiguous.

As working in the official sector will be more profitable than the social benefit for an unemployed person, the replacement rate is smaller than one. It approaches one if there are hardly any differences between working and not-working. It approaches zero if working is extremely profitable.

Often the replacement rate is used to explain labour supply. If, for instance, a working is made more profitable compared to not-working, more persons outside the labour market will be inclined to start looking for a job. The replacement rate reduces in this case and the labour supply rises. The effect of the replacement rate on the labour supply is therefore negative.

Empirical evidence also shows that the replacement rate affects the wage rate. In contrast with the relation with labour supply this relation is positive. The case of an increasing replacement rate, a smaller distance between the working and not working people, will put an upward pressure on the wage rate in the long term.

The wage rate has in a sense to compensate for the difference in both situations. The smaller is a distance, the larger the wage compensation. In the extreme case where the distance is zero, so the replacement rate equal to one, the employee has no financial incentive to work. He will require the wage compensation before taking part in the paid labour process. A tight (loose) labour market will increase (decrease) the denominator of the replacement rate. The shortage or abundance of the work force exerts expectedly more or less pressure on the wage rate. This pressure will raise or lower the average wage in the economy. The numerator of the replacement rate on the other hand experiences more influence from changes in social security, like unemployment benefits, other social security payments, taxes, social contributions, etceteras.

A higher unemployment rate exerts, as one may expect because of the higher demand for than supply of paid jobs, a downward pressure on the wage rate. The effect of the unemployment rate on the wage rate is thus negative. The extent of this effect depends on the replacement rate. The unemployment rate moderates the wage rate most when unemployment is high and the replacement rate low. This situation is a combination of a loose labour market where at the same time working is much more profitable than not working. In this situation many people are involuntarily an unemployed. The wage moderating effect of unemployment will be higher as long as not working is less remunerative. In times of a relatively high replacement rate that is almost equal to one, when the difference between the remuneration in case of working as compared to non-working is by definition small. The replacement rate itself exerts a positive effect on the wage rate. The reservation wage increases, which causes the employee to require a higher wage claim in order to achieve his optimal level of utility. The effect on the wage rate depends at the same time, as stated earlier, on the unemployment rate. So the unemployment and replacement rate interactively affect wages.

The wage bargaining model tries to describe suitably the wage formation. The model explains the wage rate by the determinants. The special feature of the resulting wage equation concerns the non-linear character. As a consequence an identical alteration in, for example, the unemployment rate

affects the wage rate not necessarily to the same extent at different points in time. The real wage flexibility can thus change over time. These partial effects or the elasticities are included in determinants for a certain sample based on estimated parameters that appear usually in the wage bargaining model. Both labour productivity and the sum of the two prices possess a semi-elasticity of 1 by definition. More interesting cases are the unemployment and the replacement rates. The replacement rate is an interesting determinant because it reflects governmental policy decisions. The semi-elasticity, i.e. the wage rate change as a result of a percentage point change in the replacement rate, reflects in a sense the effectiveness of this policy. The Government policy is therefore most effective on the wage rate when the unemployment figures are highest.

4. Research Methodology

The measures of downward nominal and real wage rigidity used in the current study were closely related to the indicators which are derived on the basis of individual wage change distributions observed in household survey and administrative data (see e.g. Dickens et al., 2007). Our survey asked if firms have ever cut or frozen wages during the past ten years (Zadranovic, 2012). The firms were instructed to answer the wage-setting questions with reference to their main occupational group, defined in the survey. Following the information on wage freezes, the firms that froze the wages at any point can be regarded as showing the evidence of DNWR. The multinomial logit model for the categorical and dummy variables has been applied in current research. The framework and procedures of model are well scrutinized and detailed in well known research (see Babecky et al., 2009).

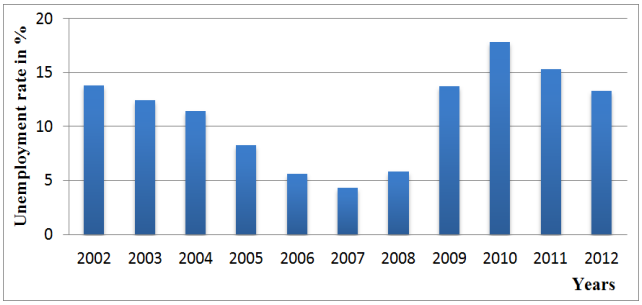
Both the wages and economic growth driving factors in Lithuania are based on panel data from 2002-2013 and were withdrawn from the Lithuanian national statistic surveys. The selected descriptive statistics from these surveys on unemployment, social disbursement and other mean wage driving factors in Lithuania have been withdrawn too. For the measurement process, the ten variables were used, which were grouped into three categories, namely the "*sectors of production and services*", the macro-economic determinants of "*labour pool*" and the determinants of "*social relationship*" (see Eq. 1). Then the time-series of basic determinants were evaluated, and finally, the endeavours to relate the remaining differences to the pro-labour activities of firms were undertaken.

For the estimation method, the algorithm „*Pooled Time Series*"was used. As a result of Pooled Least Squares and GLS methods, following estimation results are found. However the R-squared is favourably high (no less 0.8) and more importantly, a probationary F-statistic shows too that this equation of wage function explains quite well. On the other side, a thorough discussion of several problems related to the estimation of production functions is provided in the papers (Griliches, Mairesse, 1995), (Olley, Pakes, 1996), (Levinsohn, Petrin, 2003). Even though the model specification was given, yet for the purpose of estimation, the sensitivity analysis was conducted using only the robust variables, which are not sensitive to different econometric techniques. For this purpose, a lot of regressions were running and the most robust variables were chosen. The robustness of the variables is also apparent from the short run diagnostic test. From the results of the short run diagnostic tests it was clear that there was no serial correlation and heteroscedasticity. To detect the problem of autocorrelation and heteroscedasticty, the serial correlation Lagrangian multiplier and autoregressive conditional heteroskedasticity tests were used respectively. In order to test the normality of error term, the Jarque-Bera test has been used. From the calculated value of Ramsey test it was clear that the functional forms of the models were correctly specified. Moreover, the data was normally distributed. The models were not sensitive to changes in econometric techniques

The current model in point of fact examines the link between the high-value-added production function and eight familiar determinants: starting by the R&D budgeting and finishing by the labour resources and skills of R&D sector denominated by the lagged independent variables X_1... X_{10}. In the context of the Cobb-Douglas production function the statistical relationship between the GMW and ten factors could be presented in the form of multiple regression equation:

$$W=\alpha_0+\alpha_1 X_1+\alpha_2 X_2+\alpha_3 X_3+\alpha_4 X_4+\alpha_5 X_5+\alpha_6 X_6+\alpha_7 X_7+\alpha_8 X_8+\alpha_9 X_9+\alpha_{10} X_{10}+\varepsilon, \quad (1)$$

where W denotes a dependent gross mean wage function, X_1 – an unemployment rate, X_2 – the number of inhabitants, X_3 – the social disbursement expenditures, X_4 – the number of high education graduates, X_5 – the volume of export, X_6 – a minimal wage, X_7 – a corruption perception index, X_8 – the national GDP, X_9 – an inflation index, X_{10} a number of working enterprises, α_i – the slope parameters, α_0 – the intercept parameter, ε – the statistic error term.



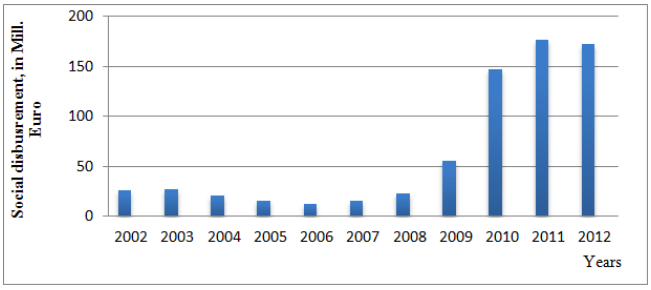
Source: Litstat 2013.

Figure 1. *Unemployment rate in Lithuania, in 2002-2012.*

Looking at the statistical outcomes, the procedures of sample t-Test have reduced the list of regressors to 3: X_1 – an unemployment rate, X_3 – the social disbursement expenditures and X_8 – the national GDP.

A good statistical fit is obtained in case of linear regression equation. It shows the importance of namely these variables even for the complicated case of economic growth during the

serious crisis period 2008-2010. The explanatory power of the model is good, as indicated by uniformly high adjusted R^2 (0.97).



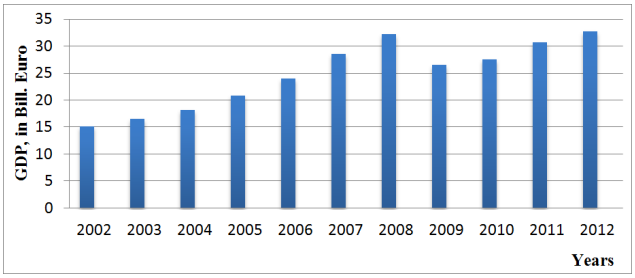
Source: Litstat 2013.

Figure 2. *Social disbursement in Lithuania, in 2002-2012.*

So the gross wage is clearly defined by the unemployment rate, social disbursement expenditures and GDP terms. The time series of regressors X_1, X_3 and X_8 show slightly complicated record and are presented above.

The rate of unemployment is following the course of economic cycle: the appreciable reduction and the lowest value of 4.3% have been achieved during the time of economic rise in 2007 (Fig. 1). The crisis challenges have constrained to corner the successful social policies in Lithuania and the unemployment rate has achieved the threshold of 17.8% value in 2010 (Macys, 2012).

The biggest changes of social disbursement volume (SDV) were obvious during the last decade. The marginal volume and even reduction of the SDV were clear during the economic rise after the joining the EU. Unfortunately, the volume of SDV has become fast growing more than 5.5 times during the crises time and achieved the value of 176.447 Mill. Euro in 2011 (Fig. 2).



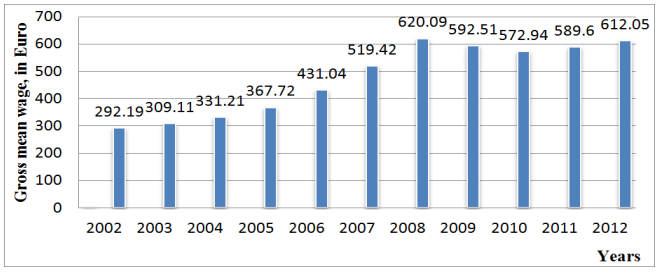
Source: Litstat 2013.

Figure 3. *National GDP of Lithuania in 2002-2012.*

An even growth of economy can be noticed during 2002-2008 and it was induced by clear expectations joining the European Union (Fig. 3). A new period of growth can be noticed after a couple years of economic slowdown in 2009.

5. Main Findings

The regressive analysis of gross mean wage (GMW) has revealed the strong linear dependence from three factors and amazingly high accuracy ($R^2 = 0.97$). The prognostic values of GMW are not presented here because they were corrected by the political decisions according the joining the Euro zone rules.



Source: current research.

Figure 4. *Gross mean wage in Lithuania, in 2002-2012.*

The GMW has grown continually up to the year 2008, i.e. the last year before the economic crisis. An average annual grow sought the level of 17.4% within that period. It is true to say that the economy of Lithuania has undergone a "Golden age" within that period.

The next period of crisis has brought apparently down all the economic indexes including the GMW and even the signs of real deflation can be noticed in 2009-2012. Namely, a cutting of real wages (-8.23%) has been achieved in Lithuania at 2009. It is true also to say that the same signs of deflation can be seen in the large part of EU peripheral countries like Estonia, Latvia, Romania and Hungary (Onaran, Galanis, 2012).

The fast improving economic situation in 2012-2013 has brought a positive pressure to raise the GMW and its level has returned to the past level of 2008. The regressive analysis shows that the GMW would decline in 2014-2015. It is true mere partially because the Lithuania is introducing the Euro currency on the 1st January, 2015 and a political decision was accepted to keep all the economic indexes stable including the gross mean wage. It was stated too that the GMW, retirement benefits and other incomes will be indexed in the next future. It is a first inference drawn from the current analysis.

The second consequence refers the acceleration of economic growth in Lithuania has been adopted so strong that a Lithuanian GDP per capita has overtaken the long-term Baltic economic leader - Estonia - even in 2012. According the recent Eurostat dates on the consumption spending rate per capita the Lithuania has surpassed and recedes further from the Baltic neighbours – Estonia and Latvia – and the EU member states from Eastern Europe except the Slovenia (Eurostat, 2014). The Lithuanian GDP per capita has come to the level of 7.586 Euro in 2013, and sought the level of 74% of the average GDP of European Union per capita, the Estonian accordingly – 72% and Latvian – 67%. According the continuing annual growth of national GDP the Lithuania has became now a well-deserved economic leader in the European Union. It is true to say that the Lithuania has perfectly learned the lessons of economic cycle, namely: 1) a quite flexible private sector has totally changed the directions of export from East to West, 2) a biggest part of disposable unearned incomes and 3) a biggest part of remittances from the native

fellow-countrymen working abroad.

The third consequence applies to the perceived raising RWR. According the current calculations based on the model of multinomial logit regressions the Lithuanian DNWR has sought the meaning of 0.347. It shows the part of firms that have frozen the wages and were considered to be a subject to the DNWR. Accordingly the downward real wage rigidity (DRWR) has sought a level of 1.869 and it shows the part of firms that apply an automatic wage indexation mechanism, and they were considered also to be a subject to the DRWR. It is interesting to notice that an independent research has revealed the close values: the meaning of DNWR was 0.509 and the meaning of DRWR was 2.048 in Lithuania before 2009 (Babecky et al., 2009). It can be drown the inference that the rigidity of gross mean wage has been stiffened during the crisis time and still persists now. The defined wage rigidity can be perceived as a binding constraint on wage setting for large segments of the work force in a low inflation environment like a Lithuania during present period after crisis. In the Lithuania a shift in the bargaining power of the employers to the employees was found too.

The minimal monthly wage (MMW) achieves now Euro 289.86 and it comprises 48% of average monthly wage (AMW) in Lithuania. Conversely, the share of the AMW and GDP comprises only 44-45% in Lithuania, though it achieves 60% in the EU countries of first decade. Furthermore the part of people receiving the MMW is ¼ of workforce in Lithuania, while only 2-3% is receiving the MMW in the EU countries of first decade, and they are the unqualified workers in large part.

Some local political parties require boosting the real wages now. Unfortunately the political efforts to change the way of policy too fast and not covering by the raise of productivity would greatly deteriorate the economy of country. The plans of current Socio-Democratic government to raise the AMW at the few annual percents according the growth of productivity are in point of fact balanced and real.

A domestic private demand (i.e. the sum of internal consumption and investment) is wage-led in all countries, because consumption is much more sensitive to an increase in the profit share than is investment (Onaran, Galanis, 2012). Thus an economy is profit-led only when the effect of distribution on net exports is high enough to offset the effects on domestic demand. A Lithuania would be the one to fulfil that condition (Macys, 2013).

The Lithuania has one way to increase their wage-share, i.e. to increase the domestic private demand, though it should be avoided the danger to stray into the pitfalls of debt-led consumption. The latter Government decisions to raise gradually the MMW, pensions, gratuitous treatment of people more than 85 years old, accelerate the implementation of innovative production sector and other means are positive pro-labour policy means. Furthermore, the large economic areas with a high intra-regional trade and low extra-regional trade, like the Euro area, which tend to be wage-led, the macroeconomic policy coordination, in particular with regards to wage policy, can improve the growth and employment, i.e. the introducing now Euro will require coordinating the macroeconomic policies and repealing the remnants of profit-led policy in Lithuania.

The main findings of present research are:

a) a strong linear relation of the GMW and three driving factors, namely the unemployment rate, social disbursement expenditures and national GDP. It circumstantiates in point of fact that the economy of country is export-sided. The next two economy driving factors, namely the foreign direct investments and internal consumption are supposed to be captured in future.

b) a strong rigidity of the GMW and she has stiffened during past few years. The defined wage rigidity can be perceived as a binding constraint on wage setting for large segments of the work force in a low inflation environment like in a Lithuania during present period.

c) the corresponding upward pressure on wages of last year was caused by the decline in unemployment and seems to be a result of strongly improved job market position of employees in Lithuania. A shift in the bargaining power of the employers to the employees was found too.

6. Conclusions

The regressive analysis of GMW dynamic processes has revealed the strong linear dependence from three factors, namely the unemployment rate, social disbursement expenditures and national GDP. The prognostic values of GMW were corrected by political decisions. Such permutation of the GMW driving factors is normally appropriate for the small country that economy usually draws the strong export sector like the case of Lithuania. The strong economic development ordinarily requires three at last pulling factors, namely export, foreign direct investments and internal consumption. The current regressive analysis supported the circumstance that the economy of Lithuania is mostly export-sided. To be fair, the reason should be added that at last the two remaining factors will gain strength after introduction of Euro currency. These political discussions are inspired by the success story of economic development of small country - Ireland.

The currently defined wage rigidity is a binding constraint on wage setting for large segments of the work force in a low inflation environment like a Lithuania during current period. In the Lithuania a shift in the bargaining power of the employers to the employees was found. The corresponding upward pressure on wages was caused by the decline in unemployment and seems to be a result of strongly improved job market position of employees in Lithuania. According the recent statistics the Lithuania has learned the lessons of last economic cycle and became an indisputable leader of economic development between three Baltic States. These factors in conjunction with started already to implement the pro-labour measures and supposed softening of real wage rigidity, gaining strength the foreign direct investments, internal consumption and youthfulness of nation will bring a positive pressure to increase the distribution of incomes and raise a well-being of Lithuanian people in the next future.

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