EVIDENCE OF MINIMUM WAGE EFFECTS IN THE ALBANIAN LABOR MARKET

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ABSTRACT

The minimum wage refers to the lowest wage foreseen by law. A minimum wage policy is intended to ensure a minimal standard of living, as well as to be used as an instrument for minimizing the shadow economy, especially in developing economies, as Albania. The main advantage of having an increasing minimum wage policy is that a several number of low-wage and low-skill workers retain their jobs and earn higher incomes. Meanwhile the main disadvantage is that low-paying jobs with low skills as a prerequisite, are the jobs most likely to decline with an increase in the minimum wages. Therefore studies also suggest that minimum wage policies reduce jobs.
Through this paper, we are interested to analyze how the minimum wage affects the overall level of wages, and the level of unemployment in the country. Literature often provides an important link between low level wages and the minimum one, while higher wages are less or not affected at all. The paper include an attempt to analyze the relation between the minimum wage, wages distribution and the level of unemployment. This is done through three statistical tools: Kaitz Index, Kernel distribution and a regression model. The findings i) show relevant considerations of the minimum wage in the Albanian economy, ii) show that the minimum wage serve as a shifter to the distribution of the general level of wages, highly affecting those close to the average and iii) show that an increase of the difference between the minimum real wage and real average wage has a positive effect on employment. In addition to this latter, an increase in the GDP per capita would result in a decrease of the unemployment rate. The authors have used secondary data to meet the above mentioned objectives. The elaboration is done in E-Views 7 program.

Keywords: *minimum wage, unemployment, labor policies*
JEL Classification: *E 23, D 31, J31*

1. Introduction

The minimum wage refers to the lowest wage foreseen by law. A minimum wage policy is intended to ensure a minimal standard of living, as well as to be used as an instrument for minimizing the shadow economy, especially in developing economies. One of the main benefits of an increase in the minimum wage is the positive effect it has in low income families. Meanwhile, it brings in the same time a high risk for these families, as the low paying jobs require low skills, so they face the risk of unemployment as the minimum wage increases (Neumark, 2014).

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Unemployment has been one of the main problems Albania faced in the after '90-s period and it still remains an issue. The level of unemployment is calculated at 17.6% for 2016[3], showing a slight increase in our country. When analyzing unemploymentwe should consider two elements: *first*, the real level of unemployment is higher, if we take in consideration that many people are not registered as "job seekers" at the "National Labor Offices", because they are pessimistic about finding a job; *second,* the number of individuals registered as first time job seekers has increased compared to 2014. In 2015 the increase of first-time job seekers at 1.7% may explain the increase in unemployment for this year at approximately the same rate. As shown in the table below, unemployment rate has an increasing trend after 2009, coinciding with the impact of post 2007-2008 financial crisis. Nevertheless the increase continued similarly in 2015 and 2016.

Table 1. Unemployment rates for the period 2000-2014

2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
16,8%	16,4%	15,8%	15,0%	14,4%	14,2%	13,9%	13,5%	13,0%	13,8%	14,2%	14,0%	13,9%	16,0%	16,1%

Source: INSTAT, 2017

The inequality of wages has been growing in continuation, referring to the difference between the minimum real wage and average real wage in following statistical analyzes. The same conclusions seem to have been presented in 2017 World Economic Forum 2017 (WEF, 2017).

The global crises made it possible for Albania to experience a significant decrease of the GDP growth to 3.35% in 2009 with a continuously decrease up to 1.11% in 2013, after a steady increase at about 6% from 1999-2007. The GDP growth had a slight increase in 2014, continuing in 2.6% in 2015 and then 3.2% in 2016.This improvement of the GDP growth is connected mainly with the increase in consumption, influencing the increase of the service sector. The Albanian economy has a modest improvement in almost all the financial and macroeconomic indicators. However, our economy continues to operate under capacity.

2. Literature Review

Literature is very confusing in regards to the impact minimum wage has on unemployment. Many researches, especially in their studies on developed countries, find this effect as minimal, or at around zero. Various studies for these countries find minimum wage mainly impactingwage inequality, not unemployment itself.Di Nardo et al. (1996) emphasizes that labor market institutions and tools, especially minimum wage, are as important as market forces in explaining changes in the wage distribution (on U.S wage distribution in the early 1980s).Di Nardo, Fortin and Lemieux (1996), Lee (1999) and Teulings (2000, 2003) concluded that a decrease in the real value of the federal minimum wage in the US in the 1980s could explain all of the rise in lower-tail wage inequality in that period. Manning and Smith (2010) argue that impact may be exaggerated, but nevertheless conclude that minimum wages do have a non-negligible impact on wage inequality. Autor, Katz and Kearney claim also that the decline in the real minimum wage is the primary source of the rising wage inequality over recent decades in United States (Autor et al., 2005).

Butcher et al. (2012) developed a model in which the minimum wage has an impact on wage inequality in UK, but no significant effects on employment. Moreover, they suggest that the introduction of the UK minimum wage in 1999, can explain an important part of the evolution of

[3] INSTAT, Labor Statistics, 2017

wage inequality between 1998 and 2010. In summary there is growing evidence that under the influence of an efficient minimum wage policy, the difference between high and low wages becomes smaller in favor of the latter ones.The limited evidence from developing countries indicates that wage compression effect of the minimum wage is stronger than in developed countries (Lemos, 2009). The main issue in developing countries is that they are characterized by high level of informality, with an undisputed impact in the wages distribution. Similar considerations should be taken for Albania, as well since informality is one of the constant issues of the country's economy (National Business Forum, 2016). However, evidence from developing countries indicates that the minimum wage has a positive distributional effect not only in the formal sector, but also in the informal sector (Lemos, 2009; Cunningham, 2007; Maloney and Mendez, 2004; Neumark et al., 2006; Fajnzylber, 2001; Khamis, 2008). Furthermore, in their theoretical paper Fugazza and Jacques (2003) develop a model in which the minimum wage is efficient for reducing the informal sector and under the certain circumstances the wages in the regular and irregular sector move together.

Houller et al. (2012) emphasize that the main driver of the increase in inequality is the growing wage dispersion. Rising income inequality creates economic, social and political challenges (OECD, 2011). A study in Turkey confirms that the minimum wage has played the pivotal role in reducing wage inequality for both men and women wage earners between 2003 and 2005 (Pelek, 2013).A study in Thailand, found that large scale firms mostly comply with the minimum wage regulations, and that an increase in minimum wages brings as a consequence an increase in employment from this companies. Hence, as the minimum wage increases, these employers easily meet the regulation, and expand employment (Ariga, 2015)

Particularly when the economy is in a recession or operating below full employment, a minimum wage increase may also increase demand for firms' goods and services, offsetting the increase in employer costs. Since the minimum wage transfers come from employers (who generally have a high savings rate) to low-wage workers (who generally have a low savings rate), a minimum-wage rise could increase consumer spending. This increase in spending could potentially compensate firms for the direct increase in wage costs. Doug Hall and David Cooper (2012), for example, estimate that an increase in the minimum-wage from its current level of $7.25 per hour to $9.80 per hour by July 2014 would increase the earnings low-wage workers by about $40 billion over the period. Several studies use Kaitz Index in an attempt to measure the effects of the minimum wage, by the ratio of this latter to the mean wage, considering adjustments by industry level coverage. However in time researchers have suggested to substitute the mean (average) wage to the median one, in order to avoid the effects of extremes (especially very high earnings). This has been suggested also because researcher argue that an increase in the minimal wage, does not certainly assures a proportional change in the average wage (Dolado, Ferguerosо, and Jimeno, 1997, Bazen, Martin, 1991). The unequal difference in changes for both wages, provides us with ground to use and discuss this variable in the analysis.

Several studies on the other hand show no relation between minimum wages and employment or unemployment levels. Most importantly Neumark and Wascher (1992) found statistically significant employment effects from lagged values of the minimum wage in time-series panel of state-level data. They continued to defend their arguments in their next publication in 1993. In latter studies they provide suggestions for a long period analysis – if looking for a possible effect of minimum wages in employment or unemployment (Neumark and Wascher, 2007). Meer and Waste have as well provided lately with evidence on the effect of minimum wage on net job

growth. Burkhauser, Couch and Wittenburg demonstrate that studies on minimum wages with no employment evidence are found to be inappropriate.

3. Data

Table 2. Summary table of paper data

	Nominal Average Wage	Nominal Minimum Wage	Dif (Real Minimum Wage – Real Average Wage)	GDP/Capita 000 ALL	Unemployment
2000	14,963	7,000	-7,628.55	163.74	16.80%
2001	17,218	7,580	-9,300.67	184.12	16.40%
2002	19,659	9,400	-1,0084.60	200.1	15.80%
2003	21,325	10,060	-10,893.46	222.97	15.00%
2004	24,393	10,080	-13,997.59	243.7	14.40%
2005	26,808	11,800	-14,702.17	267.03	14.20%
2006	28,822	14,000	-14,449.59	291.64	13.90%
2007	33,750	14,000	-19,146.21	325.09	13.50%
2008	36,537	17,000	-19,115.30	366.66	13.00%
2009	40,874	18,000	-22,066.42	390.75	13.80%
2010	43,625	19,000	-23,745.10	425.55	14.20%
2011	46,665	20,000	-26,216.15	447.75	14.00%
2012	50,092	21,000	-28,383.89	459.51	13.90%
2013	52,150	22,000	-29,591.08	466.07	16.00%
2014	53,025	22,000	-30,820.09	481.89	16.10%

Source: INSTAT, Authors calculation, 2016

The secondary data used in the analysis include representations for the time period 2000-2014. The data is taken from INSTAT online sources and include elaborated and raw data on unemployment, wage and GDP. In particular the authors have used the data on wages from the LFS for the period 2009-2013. The final data used in this paper are the GDP/capita in thousands ALL, unemployment rate, minimum, average and median wage. This three latter variables (in real and nominal terms) have been used to define more than one result from the statistical tools throughout the analysis. Data of the difference between real minimum wage and real average wage have been taking into consideration inflation levels for the period in discussion.

4. Methodology

This paper includes three different analysis in an attempt to review the relevance of minimum wages in the country and a possible relation of the minimum wage and unemployment levels in the country.

The *Kaitz Index*[4] is a relative indicator which measures the impact of the minimum wage in the labor market. In its shortest expression method, this index is measured as a ratio of the minimum wage to the average one (adjusted by the industry level coverage – when such differences in minimum wages do exist) (Kaitz, 1970). In the latest studies there is an attempt to improve this index by substituting the mean (average) wage with the median wage for a specific period (year).

[4] http://www.jstor.org/stable/41837841?seq=1#page_scan_tab_contents

The difference in both methodologies relates to the very high earnings of a small part of the population of a region or country. These earning levels are taken highly into consideration from the Mean, while is omitted from the Median.

Kernel distribution is an approach rooted in the histogram methodology, which estimates the density function at a point x using neighboring observations. It belongs to the so-known non-parametric density estimators. In comparison to parametric estimators, non-parametric estimators have no fixed structure and depend upon all the data points to reach an estimate. In the smoothed histogram presented from the Kernel distribution plots, we often estimate the probability density function explaining the probability of a value between x_1 and x_2 is the area under the curve between the two points (Hwang, Lay, Lippman, 1994). In this particular case we will try to find a possible spike around a vertical *x* line (referring to the minimum wage in a specific moment in time), analyzing the relation amongst this line and the distribution.

The time series regression model, as explained above include, as main data of the analysis for the period 2000-2014 minimum and average wages, GDP/capita and unemployment levels. Variables have resulted relevant and have provided a good regressive model[5] in their *log* form with a satisfactory level of R^2, explaining around 50% of the variability of the data. The dependent variable in the model is the *Unemployment Rate*, while the independent variables are the *GDP/Capita* and the *difference of the Real Minimum Wage to the Real Average Wage*. Statistical analysis have proven a normal distribution of remains and no unexplainable statistical concerns. In consideration of the stationarity arguments provided in the discussions above, the coefficients arisen by the model represent a positive relation between the natural logarithm of the absolute value of real minimum and average wage and natural logarithm of unemployment rate, and a negative relation between the natural logarithm of the $GDP/_{Capita}$ and natural logarithm of unemployment rate. The raw version of the model is presented in equation (1).

$$\ln(UR) = \alpha + \beta 1 * \ln(|MW - AW|) + \beta 2 * ln(GDP\text{Capita}) + \mu i (1)$$

5. Analysis

<u>*Kaitz Index*</u>

The graph presents the values for the Kaitz Index 2009-2013, using both median and mean of the wages for the full time workers in the country. As expected the Kaitz Index calculated with the help of the median wage, shows values almost the double of the index calculated with the mean wage. This comes as a result of omitting the extreme values, especially the high incomes effects on the mean wage. Nevertheless, in both cases a high level of the Kaitz index would indicate a higher importance of minimum wages in labor policies and higher impacts for the labor market. And while comparing the Kaitx values for Albania to the ones for some of the OECD countries (Table 1, Appendix), we can easily notice a slightly higher level of the Kaitz Index (Minimum Wage/Mean Wage), except for Slovenia which for the period 2010-2013 shows a relatively higher Kaitz level.

[5]The analysis is performed through the Eviews7 program.

Fig 1. Graphical presentation of the Kaitz Index levels in Albania

Source: Authors calculations

However the difference is notable when comparing the Kaitz Index calculated by Median Wage. Slovenia is the only country which overpasses the level of 0.5 from the countries taken into analysis. Albania, on the other hand, in this case shows values of Kaitz which variates from 0.73 to 0.84, indicating quite a relevance of the minimum wage in the labor market and economy.

Kernel Distribution

Kernel density plots for the period 2009-2013 are calculated using the respective data from the LFS, with the help of the Gaussian Kernel estimator for the weights of the function. This latter is widely used in similar analysis when a high number of observations are taken into consideration. Other estimators provide similar graphs, although through different levels of smoothness. Figure 2 shows a superposition of five group of yearly data on wages in the country and shows the slight differences from one year to the other. We notice changes in the display of the lines, especially in the years 2011 and 2013 and we certainly notice an increased density of the wages above the minimum wage. In the same time changes in the lines are seen in the left side of the graph as well.

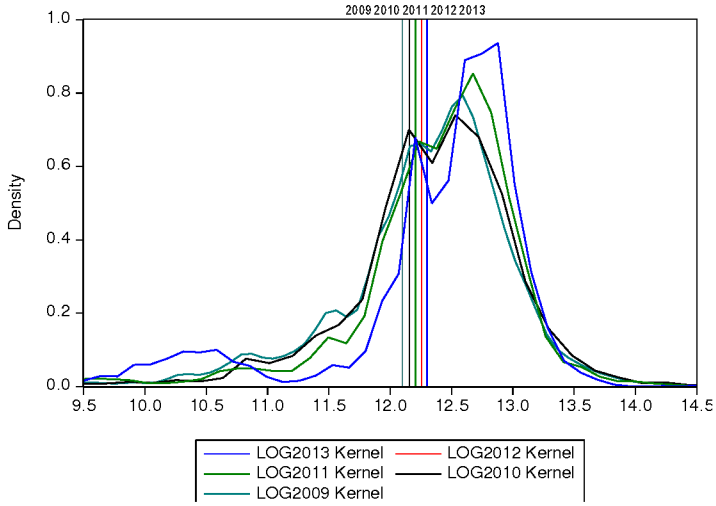

Fig 2. Kernel Density Plots for the period 2009-2013

Source: Authors calculations

Considering as a basis of the analysis Figure 3, we can easily state that there is quite an important share of fulltime workers who have subminimum earnings. The 'far lower wages' from the minimum one in the graph have a higher distribution for the year 2013 than 2009. We notice no spike around the minimum wage in 2009, giving no evidence of concentration of wages around the minimum wage. In 2013 line we notice a spike prior to the minimum wage level and a spike in a second part of the line, close to what is the mean wage for the period.

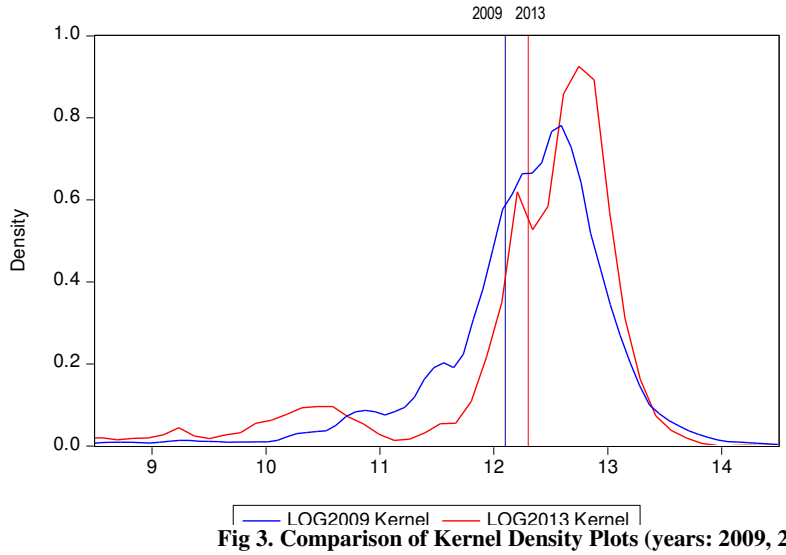

Fig 3. Comparison of Kernel Density Plots (years: 2009, 2013)

Source: Authors calculations

This gap between the two spikes seems to have been deepen throughout the years, since 2010. One of the main possible arguments for the existence of the spike close to the minimum wage, but not around it, is informality treats in Albania, include returning part of the salary to the employer, diminishing therefore the earning of the individual. The graph does not show with certainty the enforcement of the minimum wage and this can be easily supported by the level of informality in Albania throughout the years. However the graph shows shifts of the lines and area under the line, when the minimum wage has increased. This provides an argument in support of the minimum wage policies.

Time Series Regression Model

Both above analyzed statistics offer the basis in support of minimum wage relevance to economic development. However it does not offer a relation of unemployment and minimum wage, to which we would like to come to a conclusion. Therefore, an analysis of time series has been realized to come to a regression model with variables of GDP/$_{\text{Capita}}$, absolute value of real minimum wage with the real average one, and unemployment rate. The final regressive model is shown under equation (2).

$$\ln(UR) = -2.959 + 0.307 * ln(|MW - AW|) - 0.345 * ln(GDP\text{Capita}) + \mu i \quad (2)$$

The model presents a satisfactory $R^2$of 54%, and an adjusted R^2 of 49%. Therefore the dependent variable is explained in 54% by the independent variables. Statistics in this first analysis ensure the importance of the model and of coefficients of the independent variables. Residuals distribution shows no statistical issue of interest and no sign of heteroscedasticity. Despite the lack of non-usual results in the explanatory indicators of the model, satisfactory results of the Fischer distribution, the time frame of the series and the natural relation of the variables (especially to the GDP) makes it possible for the model to show signs of multicollinearity. The model is proven to be cleaned from autocorrelation through tests in Eviews, although a positive line slope of the residuals graph (with a ρ *approximately 0.3).*

[6]Abbreviations: UR - Unemployment Rate in period t, MW – Minimum Wage Level in period t, AW – Average/Mean Wage in period t, GDP/$_{\text{Capita}}$ – Gross Domestic Product per Capita

In overall the model is cleaned from statistical concerns and proves a relation of independent variables to the unemployment rate. More importantly, equation (2) shows there is a positive relation between the difference of real minimum wages to average wages and unemployment rate.

6. Conclusions

Minimum wage levels may affect the economy and different countries depending on how it fits in the labor market. The analysis in this paper demonstrates a relevant minimum wage in Albania, although not statutory. The Kaitz Index shows that minimum wage compared to other countries, affects a higher share of employees. The high levels of Kaitz Index, calculated through median wages shows a higher the share of employees affected by the minimum wage levels, and therefore a higher effect in the Albanian labor market.

Additional conclusions are derived from Kernel distribution, as it is noticeable that minimum wage existence has not avoided subminimum wage earners in the country. Distribution lines do not show us in this case a distribution of wages around the minimum wage: on the contrary, they show different spikes on lower and higher levels of earnings, demonstrating a graphical inequality. Nevertheless lower earnings spike close to the minimum wage levels, which in conditions of an informal economy, gives importance to a specified level of minimum wage, not allowing for the gap between wages to be higher. However the difference between minimum wage and average wage has proven to be relevant through the regressive model. Unemployment is expected to raise in an increased difference of real minimum and real average wage. We could state that an increased inequality of earnings could be a reason for an increased unemployment rate. An explanatory argument would be that in high unemployment rate conditions, the government would be obliged to not increase minimum wage, as a diffidence to business reactions in affecting furthermore unemployment. But, a constant nominal minimum wage, brings to a decreasing real minimal wage, increasing therefore the difference with the real average wage, and as a consequence raising unemployment. High difference discourage individuals in seeking actively a job, and this as well supports the positive relation discussed above. If we merely refer to the data used in the Table 2, we can notice a continuously increasing difference. This difference is stronger in the period 2010-2014, coinciding with a shaper increase in unemployment rates.

In Albania, an increase of the minimum wage would affect the decrease of the difference with the real average wage, decreasing also unemployment rates. In a well-functioning economy we would expect an increase of the minimum wage to increase average wages. However, in countries still under development, with a high level of informality, we do not expect the increase to be proportional (Dolado et al. 1996) or highly perceptible. As similarly drawn up by researchers in previous canonical and more alternative studies, the reasoning indicates that minimum wage can serve as an instrument to address unemployment issues and mitigate the phenomenon.

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Appendix

Tab 1. Kaitz Index for some of the OECD Countries (2009-2013)

Country	Series	2009	2010	2011	2012	2013
Czech Republic	Mean	0.32	0.32	0.31	0.31	0.31
Czech Republic	Median	0.38	0.38	0.37	0.36	0.37
Estonia	Mean	0.34	0.34	0.33	0.32	0.33
Estonia	Median	0.40	0.40	0.39	0.38	0.40
Greece	Mean	0.33	0.38	0.36	0.30	0.31
Greece	Median	0.48	0.48	0.52	0.44	0.46
Romania	Mean	0.32	0.32	0.33	0.33	0.35
Romania	Median	0.41	0.43	0.47	0.46	0.48
Slovak Republic	Mean	0.36	0.36	0.36	0.36	0.36
Slovak Republic	Median	0.45	0.46	0.46	0.45	0.46
Slovenia	Mean	0.41	0.48	0.49	0.50	0.52
Slovenia	Median	0.51	0.59	0.61	0.62	0.64

Source: OECD Statistics, Minimum relative to average wages of full-time workers, 2016

Tab 2. Regression Model

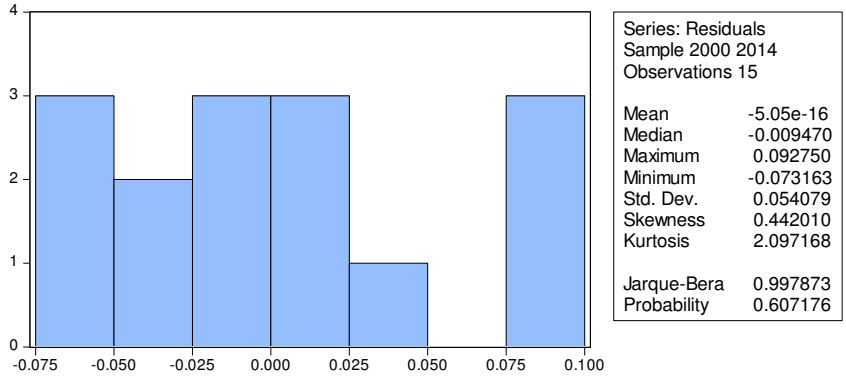
Dependent Variable: LOG(UNEMPL)
Method: Least Squares
Sample (adjusted): 2000 2014
Included observations: 15 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.959141	0.587172	-5.03965	0.0003
LOG(ABSMW_AW)	0.307148	0.103057	2.980369	0.0115
LOG(GDP)	-0.345535	0.093824	-3.682795	0.0031

R-squared	0.538792	Mean dependent var	-1.918085
Adjusted R-squared	0.491924	S.D. dependent var	0.079631
S.E. of regression	0.058412	Akaike info criterion	-2.665726
Sum squared resid	0.040944	Schwarz criterion	-2.524116
Log likelihood	22.99294	Hannan-Quinn criter.	-2.667234
F-statistic	7.009316	Durbin-Watson stat	1.420767
Prob(F-statistic)	0.009625		

Source: Authors calculations

Tab 3. Histogram of the Regression Model



Source: Authors calculations