

PARTY POLITICS AND BUDGET
TRANSFERS TO REGIONS

by

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Abstract

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The paper is aimed to investigate whether there is a problem of a “pork-barrel” spending in Ukraine and whether decentralization has eliminated it. The literature considers both theoretical models and empirical studies. Theoretical ones confirm that politicians have incentives for “pork-barrel” allocation to preferable regions. Empirical ones show that this actually happens in different countries. In order to test the presence of the “pork barrel” spending in Ukraine the dummy for local ruling party being the same as party of coalition in Parliament was created. Also the dummy on decentralization equal to 1 for periods after 2014 was created. The interaction term of these dummies measured the effect of decentralization on the “pork barrel” spending. Social and economic factors were included into the model as controls. The key subvention used as a dependent variable is a subvention on social and economic development, as it is distributed discretely between the regions. The results show the presence of the “pork-barrel” allocation in Ukraine. If the local party of the region is the same as any coalition party, the amount of subvention allocated to oblast is higher on 31,69 UAH of 2017 per capita. However, decentralization seems to have no significant impact on this effect. Also the electoral cycles were found in Ukrainian budget transfers.

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GLOSSARY

The term **“pork-barrel politics”** refers to instances in which ruling parties channel public money to particular constituencies based on political considerations, at the expense of broader public interests. (Sharma 2017)

Electoral cycles – periodic increase in budget expenditures in the years of elections.

Subvention on social and economic development – the subvention in Ukraine, which is allocated for building, reconstruction and repair of infrastructure, ecological events, gasification etc. (Decree of CMU #106 2012 (Ukraine))

Chapter 1

INTRODUCTION

Budget relations traditionally are subject to the political pressure and backstreet arrangements. Especially, parliament members and governors have incentives to channel budget funds to the preferred districts. The local people will see that the local governors care for them, because more money will be spent on public goods. As a result, the local governors will be more supported by people. Also more financial resources give the preferred local governors more opportunities for corruption and the central governors can be involved in it too. The focus of this thesis is not corruption schemes that can be used with spending money on public goods, but rather the way of how funds are allocated among different regions. In other words, what factors affect budget money redistribution across regions. Economists define politically determined budget transfers as “pork barrel”. One of the most explicit definition of the “pork barrel” is given by Sharma (2017): “The term “pork-barrel politics” refers to instances in which ruling parties channel public money to particular constituencies based on political considerations, at the expense of broader public interests”.

The problem of “pork barrel” spending is worldwide known phenomenon. From the recent examples, it was mentioned in the British press that the Conservative party of the UK gave the “pork barrel” to Ireland in order to make a coalition with Democratic Unionist Party.¹ “Pork barrel” spending did not pass by Ukraine either. For example, at times when the Party of Regions was at power, Donetsk, the main region of the Party of Regions, obtained the biggest amount of pork barrel, while at other times (when the Party of Regions was not in power) it did not (Appendix B, Figure 4).

¹ <https://www.thetimes.co.uk/article/may-s-pork-barrel-tactics-demean-our-politics-rz7nvh5mh>

In 2014 the Ukrainian Parliament passed several decentralization laws that changed the distribution of powers and fiscal responsibilities between central and local governments. In particular, the changes to the Budget codex were introduced.(Law #79-VII 2015 (Ukraine)) Also, there are a lot of claims of Ukrainian governors that Ukraine has a course on the decentralization.²³ The decentralization policy is expected to reduce at least somehow the incentives of the central government to allocate “pork barrel” to the preferred regions, because more autonomy should be given to regions and they should not be so dependent from the budget transfers from center. As a result, central politicians should get less benefits from the “pork barrel” allocation, so their incentives to allocate it politically should decrease. This institutional change can be used as a watermark division to study budget allocation.

We should also take into account that there were no times in Ukraine when the leading party did not have its coalition partners. In order to get their votes for such a “pork barrel” allocation the leading party can allocate some subventions to regions preferred by the coalition partners. Do the coalition partners have any benefits from “pork barrel” allocating in Ukraine?

The research question in my thesis is whether the decentralization have eliminated the political effect on the “pork barrel” spending in Ukraine. There is, actually, no such studies about Ukraine. There was a master thesis of Vialykh (2011) about the subventions allocation, however the main research question was how it is influenced by the origins of MPs, but not the political parties. So the main contribution of this thesis is in evaluating the Ukrainian situation in this field.

² <https://ukr.segodnya.ua/politics/decentralizaciya-rabotaet-za-god-dohody-mestnyh-byudzhetrov-vyrosli-na-35-yacenyuk-610679.html>

³ https://www.ukrinform.ua/rubric-other_news/2343909-grojsman-decentralizacia-trivatime.html

There are a lot of studies that analyze the “pork barrel” politics in different countries. We consider the research about the Philippines, India, the USA and Brazil in more detail. The theoretical studies are also taken into account. The main findings of theoretical studies were that politicians have incentives to allocate resources using “pork barrel” in order to get their political benefit, which turns to inefficiency of resources’ allocation. Empirical ones give the evidence that such occurrences really happen in different countries: governors or MPs make “pork barrel” spending, because of political factors, but not socio-economics. Actually, there is no consensus about the attitude to the “pork barrel”, however, the mainstream considers it as a negative occurrence, because of economic inefficiency associated with it: regions preferred by politicians get more budget transfers from the centre than efficient level and those which are disliked by politicians get less than efficient level (Battaglini and Coate (2006)). Also using “pork barrel” by politicians in order to increase chances of being re-elected makes public deficit worse (Maskin and Tirole (2014)).

For the analysis of the political effects on the “pork barrel” spending in Ukraine I use annual data on the subventions on the social and economic development. This subvention seems to be relevant for my research because the amount obtained by each region is set up by politicians (government and parliament) discretely. The data are obtained from the State Statistics Service of Ukraine, Central Election Commission and Verkhovna Rada of Ukraine web-sites. Since the data are panel, the political effect on the “pork barrel” spending is estimated by the fixed effect model.

I expect that regions being governed by any coalition party, get more “pork barrel” than others. The expected effect of the decentralization on the amount of subvention given to the preferred local governments is negative, but not strong enough to eliminate the whole political effect on the “pork barrel” spending.

The model built in this thesis show us that if the ruling party at the local level is the same as coalition party in Parliament, the amount of subvention allocated to oblast is higher on 31,69 UAH of 2017 per capita. However, the decentralization effect was not recognized after building the model. There was no effect of the interaction term of decentralization and a dummy on the same ruling party as a member of coalition.

The thesis is structured as follows. The second section is the literature review, which discusses the most important studies about “pork barrel” spending. The third part describes data and methodology, in particular, the nature of the key subvention, which is considered as a “pork barrel” and other data analyzed in the thesis. The fourth part presents results from the key model built to investigate whether the research hypothesis is true. Finally, the fifth part is the main conclusions made from the empirical results.

Chapter 2

LITERATURE REVIEW

First of all, in this section we should consider the studies discussing the nature of the “pork barrel” spending and theoretical models of how politicians can allocate it. This helps to provide theoretical framework for this particular thesis. Then we look at the empirical studies that investigate whether there is evidence on such allocation of “pork barrel” as implied by the theoretical models.

The nature of the “pork barrel” is important for this thesis, because before analysing its distribution we should investigate, whether this occurrence create any economic problem. Talking about the nature of “pork barrel”, Battaglini and Coate (2006) describe it as the “business as usual” policy in the contrast to the “responsible policy maker” policy. They explain by such terms that politicians who practice pork barrel spending maximize the utility of preferred regions at the expense of the whole society, while the “responsible policy maker” tries to maximize the utility of the whole country. The authors construct a political equilibrium of the “pork barrel” allocation and conclude that such a political equilibrium is economically inefficient. There are also alternative ways of defining the nature of the “pork barrel” spending. For instance, Drazen and Ilzetski (2011) deny such a division of the politics on “business as usual” and “responsible policy making”. They talk about heterogeneity of the legislators’ ideologies and present the “pork barrel” as the mechanism that can assist passing the laws needed by the country in the crisis times. So the “pork barrel” spending can also have positive effects.

The other type of the problem associated with the “pork barrel” is not only its geographical allocation, but also its allocation in time. There are theoretical models that construct the cyclic behaviour of the “pork barrel” spending. For

instance, Grossman and Helpman (2005) claim that MPs are interested in “pork barrel” transfers only in the election period, unless they have a very strong party discipline. They model a three-stage game: campaign, voting and legislative deliberations – and find that incentives of politicians in each stage are different: during the elections parties try to show that they will use resources the most efficiently, but then MP’s demand more for their districts. So the way of “pork barrel” spending depends on the party-discipline. Drazen, Eslava and Marcela (2006) also support the idea of electoral cycles in the “pork barrel” spending. They investigate how politicians support targeted groups with the “pork barrel” before elections at the expense of voters of other groups. They study two cases: when the voters do not understand the motivation of politicians for “pork barrel” spending and when they do understand it. In both cases voters have incentives to support the leading party and, as a result, the leading party has incentives for such a “pork barrel” allocation.

Next, it is important whether the theory described above is relevant on practice. We consider the empirical studies that investigate the presence of the “pork barrel” spending in different countries. Bandsal (2004) analyses the determinants of the “pork barrel” spending in the Philippines. It is tested whether the legislator’s elected from the district belonging to the leading national party have statistically significant effect on the transfers from the central government to local ones. The control variables are area of the district, population size, education and literacy level, income per capita etc. The author concludes that the party effect on the “pork barrel” spending is insignificant. In fact, in Philippines the amount of “pork barrel” spending is determined by the population of the district, the level of population literacy and difficulty of implementation of the development projects based on the terrain.

Unlike the Philippines, in Brazil the political determinants of the “pork barrel” are significant. Alston and Mueller (2005) find that Presidents of Brazil supported regions with a “pork barrel” more, if MPs elected from those regions voted for changes in Constitution of the country in favour of president. They build a theoretical model and then test it with the data obtained. The logic of the model lays in the claim that the President has more incentives to maximize the utility of the entire society while MPs are more interested in supporting their regions. So, the “pork barrel” spending can assist in achieving the political equilibrium.

In the USA the political determinants of the “pork barrel” are also significant. Such conclusions are made by Boyle and Matheson (2008), who studied “pork barrel spending” in the years when the Republican party of the USA was a leading party (2000-2008). They find that Republican states received more “pork barrel” transfers. Also tenure of the State senator has a positive effect on the “pork barrel” transferred to the state: the longer the tenure, the more money the state receives.

The political effect on the “pork barrel” in India, as Sharma (2017) investigates, is significant (especially in the years when only one party had a majority of seats in the parliament). The author claims that the way of the “pork barrel” spending depends on the political system of the country: dominant-party system or multiparty coalition system (the situational theory of the “pork barrel” politics). According to this statement, when only one party controls the power in the country and in the majority of regions, it finances by the “pork barrel” those regions, where it is in power. But when there is a coalition consisting of several parties, it is rather difficult to support by the “pork barrel” only the regions where only one party has a power. Therefore, in the multi-party system the political effect on the “pork barrel” spending is levelled. The empirical results of the paper show that in the time of one ruling party it supported its local governments and

punished those local governments where the opposition was in power. In times of coalition the overall effect for “pork barrel” spending on the prime-minister’s party local governments was also significantly positive, but some subventions were distributed in such a way that coalition partners’ or even opposition members’ local governments were supported more than the prime-minister’s party local governments. So there is a different design of the “pork barrel” spending in different political systems.

As we can see, despite some exceptions, most of the studies characterize the politically determined “pork barrel” allocation as economically inefficient. The majority of the studies show that there are political effects on the “pork barrel” spending. However, it depends on each country’s circumstances, as there are some countries where these effects are insignificant. So the political influence on the “pork barrel” allocation is not so obvious and should definitely be estimated for Ukraine.

Chapter 3

METHODOLOGY

The research question of this thesis is to determine whether there is a politically determined allocation of the “pork barrel” and whether decentralization policy changed this effect somehow. The “pork barrel” allocation is assumed to be influenced by political conjuncture, as the theory says. Politicians, ruling in the center, are expected to allocate discretely distributed funds to the regions, where their political party is in power. The other political effect, suggested by theory increase in “pork barrel” spending. However, decentralization is assumed to reduce such effect, because when more funds are given to the local budget, they become less dependent from the center, which reduces incentives of politically determined “pork barrel” allocation. Also economic and socio-demographic factors can be taken into account while allocating “pork barrel”.

In order to test the research question, whether the decentralization has eliminated the political effect on the “pork barrel” spending in Ukraine, I use the following empirical model:

$$\begin{aligned} Subvention_{i,t} = & \alpha_t + \alpha_i + \beta_1 * coalitiondum + \beta_2 * Adjwage + \\ & \beta_3 * AdjGRDPpercapitalag + \beta_4 * ShareArea + \beta_5 * Elections + \beta_6 * \\ & Unemploymentlag + \beta_7 * Donbass2014 + \beta_7 * Decntralization + \\ & \beta_8 * Decntralization * coalitiondum \end{aligned} \tag{1}$$

Where

Subvention - real per capita subvention (2017 hryvnias)

α_t - oblast fixed effect

α_i - time fixed effect

coalitiondum - dummy on the coalition party

Adjwage – adjusted wage (average for 3 months before subvention approving), hryvnias of 2017

AdjGRDPPercapitalag – real GRDP per capita lag (millions of 2017 hryvnias)

ShareArea – share of region's area in the total Ukraine's area under control

Elections – dummy variable equal to 1 for election years and 0 otherwise

Unemploymentlag – level of unemployment in region in preceding year

Donbass2014 – dummy variable for Donetsk and Luhansk regions since 2014

Decentralization - dummy variable equal to 1 for the years after 2014 and 0 otherwise

The two-way fixed effect model was chosen, as each oblast can have its individual unobserved factors which influence the amount of subvention (for example, geographical location of the oblast) and each year can also have its unobserved effect (for example, macroeconomic situation or some national events). The F test for twoways effect shew that fixed effect model is better than pooled OLS (p -value <0.01) and the Hausman test shew that fixed effect is better than random effect (p -value <0.01).

The expected sign of the coalition dummy is positive, because we assume the presence of political effects on the subvention distribution. The expected sign of elections is positive, because in the years of elections deputies try to show how they care about people by means of spending money in the form of subventions.

The adjusted for inflation wage is supposed to have a negative sign, as the lower the average wage in the region is, the lower its social and economic development is, which means that more subvention is needed by the region. The effect of the adjusted GRDP per capita is also supposed to be negative for the similar reason as the expected sign on the wage. The share of the area can have an ambiguous effect. It can be negative, because we expressed the subvention in per capita terms and the area of the oblast is positively correlated with its population (which is in the denominator of the per capita subvention). However, the bigger is the region, the more infrastructural projects it needs, so the sign can be positive. The unemployment lag is supposed to have a positive sign, because the higher the unemployment rate in the region was in the last year, the more reasons are to support the social and economic development of the region in the next year (the regions with high unemployment rate are assumed to have low social and economic development).

The dummy on the Donetsk and Luhansk regions after 2014 is assumed to have an ambiguous effect, as, on the one hand, there are war activities and investments in the infrastructure of these oblasts seems likely to be destroyed, but on the other hand these regions need more money to rebuild the infrastructure.

The dummy on the decentralization is assumed to have a negative sign, because decentralization means that more money will be spent from the local budget and, therefore, less money will be given to regions through subventions. The interaction term of the decentralization and the coalition dummy is supposed to

have a negative sign, as the decentralization might reduce incentives to spend subventions for political reasons.

To control for serial correlation, I use the Beck and Katz (1995) method of computing standard errors. As mentioned in their article, this method of controlling for serial correlation is applicable especially for political economics panel data.

Chapter 4

DATA DESCRIPTION

The key subvention, which is used as a measure of the pork barrel is the subvention on the social and economic development. It is not determined by any formula. The allocation of funds is the decision of the MPs and government (the degree of their responsibility about the subvention allocation varied in different years, but almost always it was adopted by the government with approval from the Parliament). For some years the only general amount of subvention to the whole oblast was announced while for other years the subvention was given for the exact activities, which were specified by the government (even in 2015-2017, when the decentralization already started). So for those years, when the specific activities were defined, the respective amounts were summed up to get total for each oblast in order to have the homogeneous data.

Also in order to control for socio-economic and demographic variables I make use of the amount of the oblast population, the share of area in the total Ukraine's area, Gross regional domestic product, lagged region's unemployment, the average wage of the region for three months before the decision of the subvention was made and the dummy on the year when the elections took place. It should be mentioned that there is a variation in all of these variables, even in the share of the area, because of the war activities in Donetsk and Lugansk regions and annexation of the Crimea. The approximate Ukrainian losses of the territories in Donetsk and Lugansk regions were constructed by subtracting from the area losses announced by the President⁴ and dividing the remainder by 2 (the losses of Donetsk and Lugansk regions are approximately equal). Then those values were subtracted from the oblast official area. The area of the Crimea was

⁴ https://dt.ua/POLITICS/poroshenko-ozvuchiv-ploschu-okupovanih-teritoriy-186203_.html

dropped from the dataset since 2014. The change in the variable Share of oblast in the total area of Ukraine in 2014 is shown in the Table 1.

Table 1. Descriptive of the share of oblast in the total area of Ukraine before and since 2014.

Variable	Mean	Standard deviation	Min	Max
Share of oblast area in the total area of Ukraine before 2014	0.037	0.014	0.0013	0.055
Share of oblast area in the total area of Ukraine since 2014	0.040	0.014	0.0014	0.060

In order to estimate the “pork barrel” effect, 2 dummies were created:

1. Whether the leading party at the local government is the same as the 1st party of coalition in Parliament.
2. Whether the leading party at the local government is the same as any other party of coalition.

The sum of these two dummies was also used for the analysis. We should mention here that after re-introduction of the mixed electoral system under which half of the deputies are elected under proportional representation and half under single-mandate (SMD) or majoritarian to the Parliament the SMD deputies are claimed to be the most interested in using the subvention on social and economic development on their districts.⁵ However, the partisanship of the elected deputies of the oblast is very often the same as the majority in the local

⁵http://news.liga.net/ua/articles/politics/14786640-rozpod_1_subvents_y_deputati_mazhoritarniki.htm

Parliament. This means that we can use the dummy on the same ruling parties at the central and local level.

Since the decentralization reform was announced in 2014 and there were some changes to the law at the end of 2014, the decentralization dummy takes on value of 1 for the years after 2014 and 0 otherwise.

The total number of observations is 262. The data are unbalanced panel for years from 2007 until 2017 (except 2009, because there was no subvention on social and economic development of that year). For the years before 2014 Crimea and Sevastopol are taken into account, but since 2014 they were annexed by Russia, so for these years they were excluded from the dataset.

The Subvention and first lag of GRDP were taken in per capita terms and adjusted for inflation with GDP deflator. The average wage for 3 months before the decision on the subvention amount was made was adjusted for inflation with the CPI. In addition, dummy on the Donetsk and Luhansk regions after 2014 is included to control for the war activities effect on the subvention allocation.

The basic descriptive statistics is presented in Table 2.

Table 2. Descriptive Statistics

Variable	Mean	Standard		
		deviation	Min	Max
Adjusted subvention per capita (hryvnias of 2017)	65.481	83.396	0.000	853.839
Adjusted GRDP per capita lag (thousand of hryvnias of 2017)	60.766	37.015	14.715	253.030
Adjusted real wage (average for 3 months before subvention approving, hryvnias of 2017)	5229.723	1223.058	3194.331	11176.610
Unemployment in period t-1	8.202	2.008	3.100	16.000

We should also consider that although the subvention on the social and economic development is only about 1.5-5.5% of the medical subvention in the last years, it is the 5-7th highest subvention for the majority of years in the sample. 80% of subventions are less than subvention on social and economic development in the budget for most of years.

There is considerable variation in the level of per capita subventions across time (Figure 1).

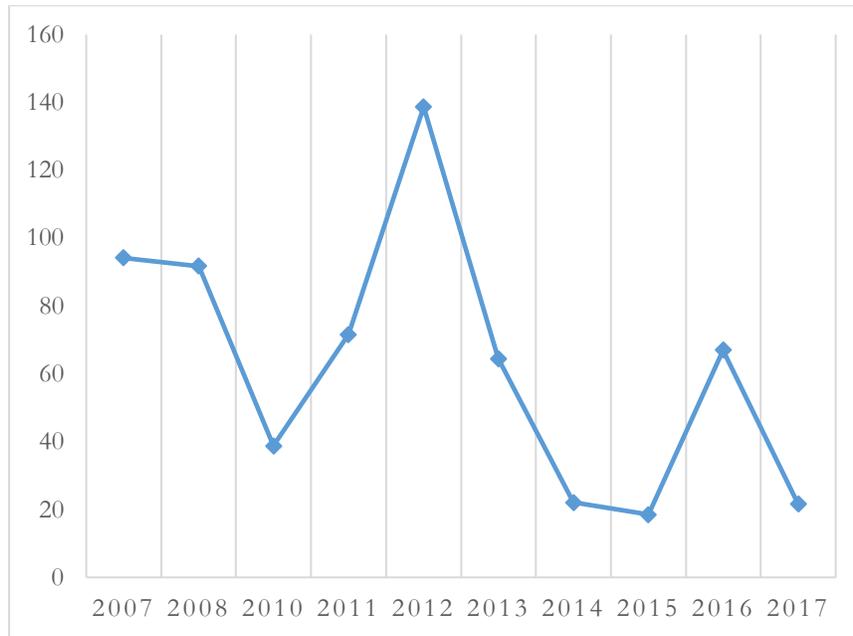


Figure 1. Subvention on social and economic development per capita (UAH of 2017)

Also we can look at the quantities of regions where the party of coalition was in power. We can see that for on average their quantity is about a half of all Ukrainian regions. However, in years of changes in the central power (for example, 2014) their quantity falls down. (Figure 2)

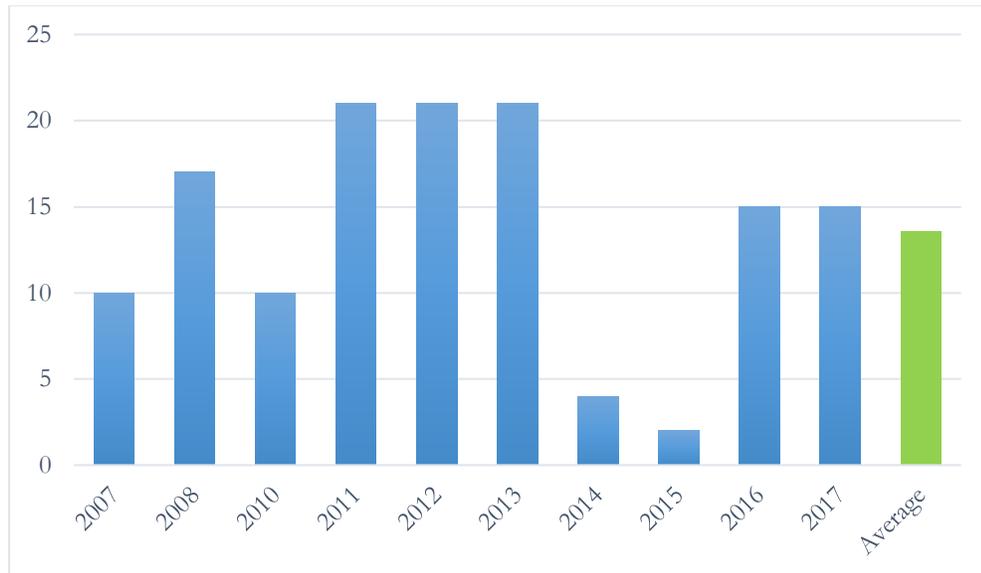


Figure 2. Number of oblasts where the coalition party was in power

To finalize data description, we can look on the correlation matrix (Appendix A, Table 9). As we can see, the correlation between variables included into regression is between 0 and 0.76. The maximum value of the correlation is unique case (between lagged GRDP and lagged average wage of the region). The rest of correlations are less than 0.6. This means that the problem of multicollinearity (or autocorrelation with dependent variable) is unlikely in further estimations.

Chapter 5

EMPIRICAL RESULTS

The empirical results of the political effects on the subvention distribution estimation are discussed in this section.

First, I present the results of the main model estimated by the twoway fixed effect method (Table 3).

Table 3. Results of fixed effect estimation

VARIABLES	Real subvention per capita
Share of area	-8389.400*** (2700.500)
Adjusted GRDP per capita lag (millions of hryvnias of 2017)	-536.060 (352.220)
Adjusted wage (average for 3 months before subvention approving, hryvnias of 2017)	0.017 (0.013)
Dummy on the coalition party	31.685** (12.400)
Elections	52.730** (21.539)
Decentralization	59.095 (84.542)
Dummy on the coalition party after decentralization	-16.226 (25.239)
Unemployment lag	-16.621*** (5.705)
Donbass after 2014	-32.921 (31.085)
R ²	0.12

Notes: Standard errors in parentheses. **- significant at 5% level, ***- significant at 1% level

The significant effects are found in such variables as coalition dummy, elections, share of area and lagged unemployment rate. From the regression results we can see that if the local party of the region is the same as any coalition party this region gets on average 31.69 UAH (real 2017 hryvnias) per capita more in subvention than those whose local party winner does not belong to the coalition. This is actually almost a half of the mean of the real subvention per capita. This means that it is the political effect that is really quite high. The effects of both decentralization and of the interaction term are insignificant, which means that we cannot observe decentralization influence on the subvention amount and distribution. Moreover, in the years when elections (either parliamentary or local) took place, the amount of subvention was on average 52.73 UAH (real 2017 hryvnias) per capita higher. This is in line with other studies that find the presence of electoral cycles in the pork barrel transfers (e.g. Grossman and Helpman (2005) or Drazen, Eslava and Marcela (2006)).

The sign of the oblast share in the total area of Ukraine is negative (with significant coefficient). This means that the first assumption about the direction of this effect was true. The area is correlated with population, which is in the denominator of the real subvention per capita. The effect from the number of infrastructure projects that could have been connected with the area seems to be eliminated by using per capita terms. Donbass after 2014 has expected negative sign, however, it is insignificant. The same we can say about the sign of the coefficient on adjusted GRDP per capita lag. This means that the main economic indicator seems to have little influence on the subvention allocation. This finding supports our hypothesis of political fund distribution. The signs of the adjusted wage and unemployment lag are unexpected: positive for wage and negative for unemployment. Even though the coefficient of wage is insignificant, which gives us an opportunity to claim that it is just equal to zero, the coefficient on unemployment lag is significant and means that 1 percentage point increase in

unemployment in the previous year reduces the subvention amount to the region in the current year on 16.62 UAH of 2017 per capita. Such a surprising result can be an indirect evidence of rather political than socio-economic allocation of funds, however, it needs to be researched further.

We used Wooldridge test in order to check whether there is a serial correlation in the estimated model. As we can see, the absence of serial correlation is marginally significant (p-value = 0.067). That means that we cannot reject the hypothesis of the absence of serial correlation in the regression. So different standard errors should be used in order to determine how important the problem is, if it is present. Also using King and Wu test to check for cross-sectional effect shew us that the heteroscedasticity is unlikely in the model (p-value=0.1).

Table 4. Results of fixed effect estimation with Beck and Katz standard errors

VARIABLES	Real subvention per capita
Share of area	-8389.400*** (2892.600)
Adjusted GRDP per capita lag (millions of hryvnias of 2017)	-536.06 (357.48)
Adjusted wage (average for 3 months before subvention approving, hryvnias of 2017)	0.017 (0.012)
Dummy on the coalition party	31.685** (12.875)
Elections	52.730** (25.405)
Decentralization	59.095 (153.640)
Dummy on the coalition party after decentralization	-16.226 (22.708)
Unemployment lag	-16.621*** (5,795)
Donbass after 2014	-32.921 (24.646)

Notes: Standard errors in parentheses. **- significant at 5% level, ***- significant at 1% level

To obtain robust standard errors of the panel data regression Beck and Katz (1995) standard errors were used, as they are constructed especially for political economics studies. The results are in the Table 4.

As we can see, there are no changes in the significance of coefficients, which means that serial correlation is not a major problem in the data.

We also tried to estimate a similar regression, but with division of the coalition dummy on the first party of coalition and any other party of coalition. However, we got insignificant (or just marginally significant) coefficients on both of the variables in both regressions: with and without using robust standard errors (Table 5). This means that the political effect is common for all coalition parties and we do not need to divide them into the first and other parties of coalition.

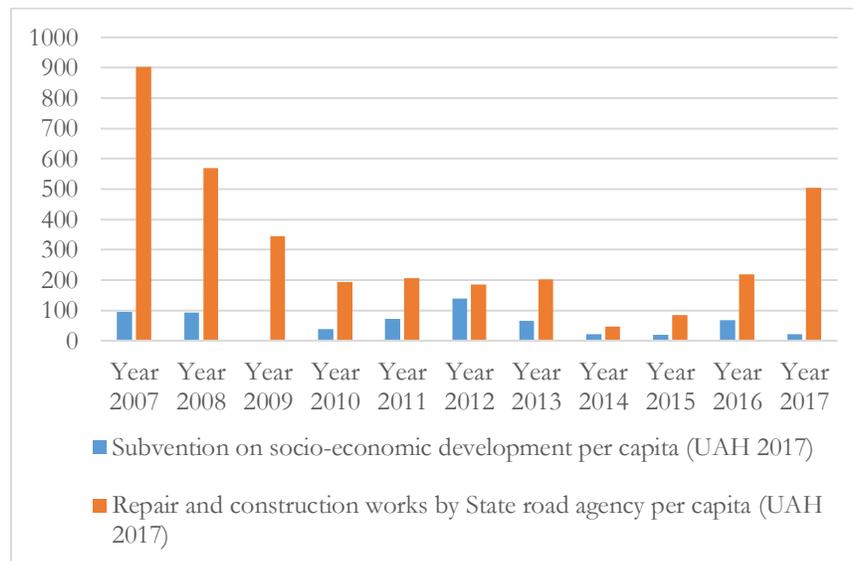
Table 5. Results of fixed effect estimation with and without Beck and Katz standard errors for different hypothesis

VARIABLES	Real subvention per capita fixed effect estimation	Real subvention per capita fixed effect estimation with Beck and Katz standard errors
Share of area	-9616.300*** (2704.191)	-9616.300*** (2771.023)
Adjusted GRDP per capita lag (millions of hryvnias of 2017)	-613.36* (353.61)	-613.36* (361.54)
Adjusted wage (average for 3 months before subvention approving), hryvnias of 2017	0.020 (0.013)	0.020 (0.012)
Dummy on the first coalition party	17.621 (12.011)	17.621 (13.228)
Dummy on any other coalition party	47.360* (27.889)	47.360* (24.189)
Elections	43.706** (21.645)	43.706* (24.929)
Decentralization	40.376 (81.146)	40.376 (156.001)
Dummy on the first coalition party after decentralization	5.596 (22.848)	5.596 (20.674)
Dummy on any other coalition party after decentralization	47.314 (57.535)	47.314 (45.464)
Unemployment lag	-17.344*** (5.828)	-17.344*** (5.966)
Donbass after 2014	-37.370 (31.265)	-37.370 (24.374)
R ²	0.12	

Notes: Standard errors in parentheses. * - significant at 10% level, ** - significant at 5% level, *** - significant at 1% level

In order to make the robustness check of the model, the data on the regional allocation of the fund on the repair and construction works by State road agency of Ukraine was taken to use them as a dependent variable⁶. The fund for roads' repair and construction was also distributed discretely until 2017. (Decree of CMU #1731 2003 (Ukraine)) In 2017 there was an attempt to formalize the distribution of the fund, however it was made only partially. Therefore, there are still elements of discrete allocation even in 2017. (Decree of CMU #1085 2017 (Ukraine)) Due to the similarity of the road fund to the subvention on the social and economic development by the discretion criteria the similar model for testing the political effects and decentralization influence on them was made as a robustness check.

The magnitude of the fund on the repair and construction works by State road agency is bigger than the magnitude of subvention on social and economic development. (Figure 3).



⁶ The data about road fund expenditures was taken by request to State agency of roads

Figure 3. Comparison of means of dependent variables in the main model and robustness check

The descriptive statistics for the dependent variable of the robustness check is given in the Table 6. We should mention that in 2009 subvention on the social and economic development was absent in budget, but the expenditures on the repair and construction works by State road agency were present. So 2009 is included into robustness check.

Table 6. Descriptive statistics of the dependent variables of two types of the robustness check model

Variable	Mean	Standard deviation	Min	Max
Adjusted fund on the repair and construction works by State road agency per capita (hryvnias of 2017)	317.256	366.491	0	3174.715
Adjusted fund on the repair and construction works by State road agency per 1000 km of roads (mln hryvnias of 2017)	84.694	122.695	0	1113.575

Looking at the results of the robustness check (Table 7), we can see that the effect from coalition dummy is marginally significant (p -value = 0.09). For the regions where the ruling party is the same as any coalition party the road fund allocation per capita is greater on 76.16 UAH of 2017. As in the previous model, the decentralization effect is insignificant. Usage of Beck and Katz standard

errors does not change the significance of the results. So we find support for the main finding of the main model about the political influence on the “pork barrel” allocation which persists even after decentralization.

Table 7. Results of fixed effect estimation with and without Beck and Katz standard errors of the robustness check model

VARIABLES	Real fund on the repair and construction works (UAH 2017) by State road agency per capita fixed effect estimation	Real fund on the repair and construction works (UAH 2017) by State road agency per capita fixed effect estimation with Beck and Katz standard errors
Share of area	-10595.875 (8047.500)	-10595.875 (9.466.450)
Adjusted GRDP per capita lag (millions of hryvnias of 2017)	-672.09 (808.5)	-672.09 (1795.9)
Adjusted wage (average for 3 months before subvention approving), hryvnias of 2017	0.031 (0.047)	0.031 (0.047)
Dummy on the coalition party	76.160* (45.866)	76.160* (45.959)
Elections	-9.321 (82.945)	-9.321 (74.962)
Decentralization	-53.881 (312.974)	-53.881 (281.755)
Dummy on the coalition party after decentralization	-29.461 (108.965)	-29.461 (108.965)
Unemployment lag	3.006 (21.969)	3.006 (21.997)
Donbass after 2014	-202.173 (140.734)	-202.173 (140.734)
R ²	0.03	

Notes: Standard errors in parentheses. * - significant at 10% level

Table 8. Results of fixed effect estimation with and without Beck and Katz standard errors of the different robustness check model

VARIABLES	Real fund on the repair and construction works (mln UAH 2017) by State road agency per 1000 km of road fixed effect estimation	Real fund on the repair and construction works (mln UAH 2017) by State road agency per 1000 km of road fixed effect estimation with Beck and Katz standard errors
Share of area	2918.400 (3668.800)	2918.400 (5277.100)
Adjusted GRDP per capita lag (millions of hryvnias of 2017)	-1804.365*** (665.494)	-1804.365** (720.598)
Adjusted wage (average for 3 months before subvention approving), hryvnias of 2017	0.071*** (0.017)	0.071*** (0.017)
Dummy on the coalition party Elections	36.538** (16.755)	36.538** (14.934)
Decentralization	-29.683 (30.698)	-29.683 (29.023)
Dummy on the coalition party after decentralization	103.720 (110.110)	103.720 (72.827)
Unemployment lag	-24.932 (45.495)	-24.932 (36.580)
Donbass after 2014	5.727 (8.858)	5.757 (7.713)
R ²	-129.34 (53.75)	-129.34 (50.99)
	0.13	

Notes: Standard errors in parentheses. * - significant at 10% level, ** - significant at 5% level, *** - significant at 1% level

We tried to estimate the model with the fund on the repair and construction works by State road agency expressed not in per capita terms, but in per 1000 km

of road terms⁷ (Table 8). We used data for 2007-2016, as there has not been information about road length of 2017 on the State service of statistics yet. The political effect is still present in the model. Moreover, the coalition dummy becomes significant on the 5% level. For the regions where the ruling party is the same as any coalition party the road fund allocation per 1000 km is greater on 36.54 mln UAH of 2017. The interaction term of the decentralization dummy and the coalition dummy is insignificant as in all previous models. However, overall goodness of fit of the model increases substantially (R^2 becomes 0.13 against 0.03 in the model with per capita terms of the dependent variable). Also coefficients on some other variables (adjusted lagged GRDP per capita, adjusted average wage per capita and dummy for Donbass since 2014) become significant. Beck and Katz standard errors again shew almost no changes in coefficients' significance (the only lagged GRDP per capita decreased its significance from 1% level to 5% level).

⁷ The data of the road length were gotten from the Ukrainian service of statistics.

Chapter 6

CONCLUSIONS

The aim of this paper was to find out whether decentralization has changed the principles of the “pork barrel” allocation in Ukraine. It was supposed that when regions become more financially independent from the center, politicians have less incentives to support preferable regions. The empirical data of the subvention on social and economic development for 2007-2017 were analyzed by the twoway fixed effect method and the main conclusions from the model is the following. There is a “pork barrel” allocation due to the political support of the regions where the leading party is the party of coalition in the Parliament. This effect was not eliminated or even reduced after the policy of decentralization had started at the end of 2014. This means that decentralization has not changed the behavior of politicians to allocate the “pork barrel” due to political rather than economic reasons.

The other important political effect, which was found out in this thesis is the presence of electoral cycles in the budget cycles. If the parliament or local elections take place in some year, it is likely that in this year every region will receive more “pork barrel”. People will see that politicians of the ruling parties “care” of them. So these politicians will maximize the number of votes for them at the elections, which take place in that year.

Considering the fact that such political allocation of “pork barrel” is claimed to be economically inefficient (since regions get the support not because they really need as much of it as they get, but because of political conjuncture), further policies should be implemented in order to eliminate this political “pork barrel” allocation. The absence of any formula or rule of distribution of any subvention should not be the case of the budget process.

In this particular case there could be two possible policy implications about the subvention on the social and economic development. The first one is to introduce some formula or rule about the subvention's distribution as it was in 2005 (Decree of CMU 2005 (Ukraine)). However, there is a fund with a very similar aim as the subvention on the social and economic development – State fund of regional development (Budget codex of Ukraine 2010 (Ukraine)). The money of the fund is distributed by the rule, which is based on the population size of regions and their Gross regional domestic product. 80% of the fund is distributed due to the population size and the other 20% of the fund is distributed among those regions where gross regional domestic product per capita is less than 75% of the average gross regional domestic product per capita in Ukraine. Within the region the fund is distributed between projects on the competitive basis by the decision of the competition commission. So the second option to the policy implication could be to cancel the subvention on the social and economic development and increase funding of the State fund of regional development.

Talking about Road Fund, introducing the proportional distribution either due to the population size of regions or due to the road length in the region fraught with the risks that the amount of money received by each region will not be enough for the big repairing of roads. Therefore, alternative policies should be considered in order to introduce the efficient fund allocation. For instance, middle-term targeted budget planning can help to introduce more efficient spending of the Road Fund. This means that politicians will not be able to change the distribution of the fund every year, because they will have to be consistent with previous plans in their decisions. As a result of such policy, political effect of “pork barrel” allocation to those regions where ruling party is the same as any coalition party in the Ukrainian Parliament could be reduced a lot.

Further research should consider the advantages and disadvantages of the possible policies that could be implemented in order to eliminate the political effects on the “pork barrel” spending in Ukraine and make the allocation of funds between regions more efficient.

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Table 9. Correlation matrix

APPENDIX A

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	Adjusted subvention per capita (hryvnias of 2007)	Dummy on the coalition party	Adjusted real wage (average for 3 months before subvention approving), 2007 hryvnias	Adjusted GRDP per capita lag (millions of hryvnias of 2007)	Area as % of total Ukraine's area	Elections	Dummy on the coalition party after decentralization	Decentralization	Donbass after 2014	Unemployment in period t-1
Adjusted subvention per capita (hryvnias of 2007)	1	0.250	-0.119	-0.058	-0.049	0.006	0.053	-0.191	-0.113	-0.160
Dummy on the coalition party	0.250	1	0.090	0.050	0.051	-0.313	0.356	-0.122	-0.186	-0.058
Adjusted real wage (average for 3 months before subvention approving), 2007 hryvnias	-0.119	-0.090	1	0.764	-0.198	-0.164	0.128	0.078	0.118	-0.252

Table 9 - Continued

	Adjusted GRDP per capita (hryvnias of 2007)	Dummy on the coalition party subvention per capita (hryvnias of 2007)	Adjusted real wage (average for 3 months before subvention approving), 2007 hryvnias	Adjusted GRDP per capita lag (millions of hryvnias of 2007)	Area as % of total Ukraine's area	Elections	Dummy on the coalition party after decentralization	Decentralization	Donbass after 2014	Unemployment in period t-1
Adjusted GRDP per capita lag (millions of hryvnias of 2007)	0.058	0.050	0.764	1	-0.245	0.028	0.072	-0.020	-0.097	-0.456
Area as % of total Ukraine's area	-0.049	-0.051	-0.198	-0.245	1	0.000	-0.029	0.081	-0.072	0.095
Elections	0.006	-0.313	-0.164	0.028	0.000	1	-0.326	-0.211	0.000	-0.164
Dummy on the coalition party after decentralization	-0.053	0.356	0.128	0.072	-0.029	-0.326	1	0.590	-0.066	0.282
Decentralization	-0.191	-0.122	0.078	-0.020	0.081	-0.211	0.589	1	0.182	0.496
Donbass after 2014	-0.113	-0.186	0.118	-0.097	-0.072	0.000	-0.066	0.182	1	0.336
Unemployment in period t-1	-0.160	-0.058	-0.252	-0.456	0.095	-0.164	0.282	0.496	0.336	1

APPENDIX B

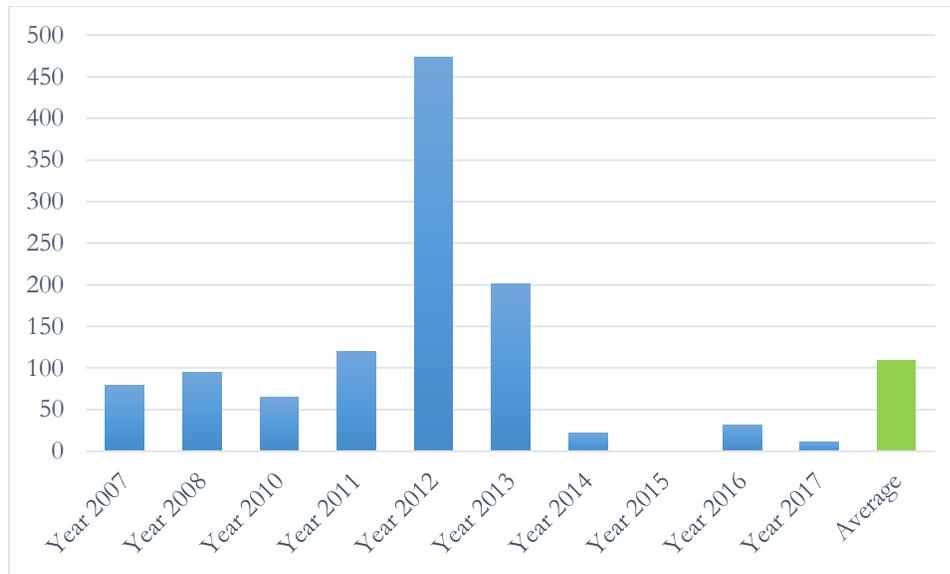


Figure 4. Subvention per capita for Donetsk region in hryvnias of 2017