Why ruling politicians grow rich faster—Rent-seeking or selection bias?*

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Received: August 06, 2019 • Revised manuscript received: November 29, 2019 • Accepted: November 04, 2019

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ABSTRACT

The high rate of increase of ruling politicians' wealth has been empirically proven many times. However, in the literature it is almost always assumed that politicians grew rich faster due to political rent-seeking or corruption. The aim of this article is to discuss the assumption whether corruption and rent-seeking is indeed the only possible cause, and to present empirical findings undermining the assumption. The results of the analysis of levels and rate of growth of Polish politicians' wealth clearly show that the other explanation is the selection of people exercising authority. Based on statistical analysis of 2024 asset declarations of 689 councillors from Polish voivodeship assemblies from two terms in the period of 2010–2018, the paper demonstrates that the different rates of changes of the value of assets of coalition and opposition councillors are at least partly the effect of the selection bias.

KEYWORDS

rent-seeking, asset declaration analysis, selection bias among politicians

JELCODES

D72, D73

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*Views expressed in this article are those of the author and do not necessarily reflect views of the National Bank of Poland.

1. INTRODUCTION

The wealth of politicians has been studied by political analysts and economists for many decades. It is very often assumed that a high increase of the value of ruling politicians' wealth is the effect of political rent-seeking and the obtainment of financial benefits at the cost of the well-being of society as a whole. This pertains to studies on the wealth of both dictators in authoritarian countries as well as politicians in democratic nations. Although such assumptions are justified in a number of cases, in the literature it is almost always assumed that the cause of the high rate of growth of the value of politicians' wealth are activities which are illegal (corruption, nepotism) or at least unethical (e.g. using information obtained in the course of exercising public authority).

This article discusses and presents empirical results undermining these assumptions. The high rate of increase of politicians' wealth may result from illegal or unethical activities; it may be, however, also an effect of selection bias. Ruling politicians may grow richer more quickly than opposition politicians or the rest of society not due to corruption, but rather due to the existing selection of persons in power. Statistical analysis of asset declarations validates the hypothesis that selection bias is one of the key factors affecting the rate of growth of politicians' wealth.

The process of selection of politicians to exercise authority occurs at many stages. Firstly, self-selection is applied among politicians, as the influence on the decision to join a given political party has many factors. For that reason, certain political parties may be joined by persons with a certain education, wealth, background or personality (see e.g. Caselli – Morelli 2004; Merlo et al., 2009). Secondly, the selection occurs at the level of political parties (e.g. Cerina – Deidda 2017). A decision to accept a given person to a political party and to place them on voting lists is motivated by a desire for the members of a given party to obtain benefits. There may be many factors influencing the decision to accept a new member or to nominate them as a candidate in elections. Apart from the most obvious one (desire to obtain a good result in elections), it may be motivated by a desire to obtain funds for election campaigns or to improve the organisational functioning of the party. Thirdly, the selection of politicians occurs at the level of elections, because voters may be more willing to vote for persons with a certain socio-economic status (e.g. Denny – Doyle 2008).

Due to the multi-layered nature of the selection process, it may be assumed that politicians who win elections may differ from those losing elections in terms of social background, wealth, occupation, family situation, personality traits and other socio-economic characteristics. Differences in the rate of growth of the wealth of politicians of the ruling coalition and of the opposition do not have to be the effect of illegal or unethical activities. They may be caused by the existence of the selection bias and resulting socio-economic characteristics differing between the politicians of the coalition and the opposition.

This article constitutes an empirical attempt to identify the causes of the differences in the rate of growth of wealth of coalition and opposition politicians. Based on 2024 asset declarations of 689 councillors elected via party lists from Polish voivodeship assemblies from two terms in the period 2010–2018, the paper shows that the wealth growth rate of coalition politicians has been higher than in the case of opposition politicians. It has also been demonstrated that politicians of the ruling party at the central level grow richer more quickly than politicians of opposition parties at the central level. Furthermore, an attempt has been made to identify the causes of differences in the rate of growth of politicians' wealth. Party nominees in state-owned companies have been identified. Also, the rate of growth of the wealth of coalition and opposition politicians performing various professions (physicians, lecturers, private-sector

employees) has been compared. An analysis of sub-samples suggests that the cause of differences in the rate of growth of the wealth of coalition and opposition politicians consist not only in rent-seeking, but also in the selection bias among politicians who win elections and exercise authority.

The rest of this article is organised as follows: Section 2 presents a review of literature concerning the issues discussed in this article. Section 3 provides a description of the institutional background of Polish voivodeship assemblies, source of data and variables used for the creation of the models described in Section 4. Section 5 describes the results of model estimations and presents an interpretation of those results, especially the selection bias among politicians. Conclusions are given in Section 6.

2. LITERATURE REVIEW

Political systems, careers of politicians, decisions made by them and results of such decisions have been studied by economists for decades; therefore, the literature is very rich. Researchers have created many models explaining the decisions of citizens to join the political process and stand as candidates in elections.

In the model of [Osborne and Slivinsky \(1996\)](#), the decision of a potential politician to stand as a candidate in elections is a rational decision affected by the benefits of the potential win and by the costs of running. The number of candidates and their views are determined by the preferences of the whole society, and each voter votes for the politician with most similar views to them. In the model of [Caselli and Morelli \(2004\)](#), potential politicians share two traits: honesty and competences. Poorly qualified citizens have better incentives to stand as candidates in elections than well qualified ones, because their pay after taking the office are potentially higher than the pay obtained by them on the market. Due to the differences in comparative costs, the supply of highly qualified politicians may be limited, and in equilibrium authority may be exercised by poorly qualified politicians. In turn, the political agency model with adverse selection and moral hazard presented in the work of [Besley \(2004\)](#) implies that the salaries of politicians affect the selection of that occupation, and their increase may lead to an increase of the quality of exercising authority.

There have also been many empirical studies concerning the influence of the size of politicians' salaries on the effects of their work. Increasing in salaries of members of parliament may lead to an increase in the number of highly qualified women standing as candidates for the parliament ([Kotakorpi – Poutvaara 2011](#)), while higher salaries of mayors may have a positive effect on the effectiveness of their work ([Gagliarducci – Nannicini 2013](#)). The influence of greater salaries of politicians on the increase of political competition has also been demonstrated in the case of elections to the European Parliament ([Fisman et al. 2015](#)). A low level of political competition and a high probability of re-election have a negative effect on the effectiveness of politicians' work in Germany ([Becker et al. 2009](#)) and favour unethical behaviour in politicians in Bavaria ([Kauder – Potrafke 2016](#)) and Czechia ([Palguta 2015](#)). In France, higher activity is demonstrated by MPs from regions in which political competition is stronger ([Gavoille – Varschelde 2017](#)). Pay raises may also have a negative effect on the performance and activity of politicians ([Altindag et al. 2017](#)), and they may not be affected by an election cycle (Kauder et al. 2017). Furthermore, the possibility to perform additional work outside the parliament has a

negative effect on the activity of MPs (Arnold et al. 2014) and provides an incentive to transfer public funds to one's own place of work (Couch et al. 1992).

The rate of changes of politicians' wealth has also been a subject of numerous studies. It has been demonstrated that the wealth of US politicians during the American Civil War (1861–1865) grew at an unusually high rate, the most probable explanation of that phenomenon being the weakening of institutional constraints and freedom of press during the war (Querubin – Snyder 2013). It has been proven that the rate of growth of the wealth of contemporary members of the Congress (Lenz – Lim 2009) and German members of the Bundestag (Peichl et al. 2012) have been higher than the rate of growth of the wealth of the rest of the society. The data implies the existence of insider trading among members of the Congress in the House of Representatives and in the Senate (Ziobrowski et al. 2011; Hall et al. 2017). In addition, the rate of growth of the wealth of British MPs has been higher than in the case of candidates who lost against them by a small number of votes (Eggers – Hainmueller 2009). The existence of a similar winner's premium has been proven among Indian MPs, too (Fisman et al. 2014). The higher rate of growth of the wealth of politicians of the ruling party at the local level has also been proven among state legislature politicians in Florida (Fahey 2017) as well as in local governments in Poland (Olejnik 2019).

Although the amount of salaries and the wealth growth rate of politicians is closely connected with the process of selection of politicians to exercise authority, there have been few studies combining selection bias with the wealth growth rate. In spite of that, the literature concerning the selection for the profession of a politician is very rich. An analysis of an extensive set of data concerning Swedish politicians shows that Sweden features positive selection for the profession of a politician, and the authority is exercised by 'smarter and better leaders than the population they represent' (Dal Bó et al. 2017). Historical data confirms that over time, on the global scale, the authority in democratic countries is exercised by an increasing number of persons with a higher education (Besley – Reynal-Querol 2011). Among politicians, there is also excessive representation of persons who are public sector employees; a similar dependence has been proven in the case of Germany (Braendle – Stutzer 2009) and in the case of politicians from 76 other countries (Braendle – Stutzer 2016). Physical appearance may also influence the decision to join a given party (Berggren et al. 2017). The process of selection of potential politicians also depends on institutional constraints and the possibility to accumulate wealth during the performance of public functions. The decision to stand as a candidate in elections may be affected by the possibility and cost of influencing politicians (Gehlbach et al. 2010), additional revenues and federal transfers to municipal governments (Brollo et al. 2013) as well as anticorruption regulations (Ferraz – Finan 2011). It has been demonstrated in theory that the selection of candidates by political parties is closely connected with the phenomenon of rent-seeking (Cerina – Deidda 2017). An analysis of data concerning Italian MPs shows the existence of systematic differences between MPs of various parties. The differences pertain to sex, age, profession, salaries and many other characteristics of politicians of individual political parties (Merlo et al. 2009).

Although the process of selection for the profession of a politician for the execution of authority has been the subject of numerous studies, there are still research gaps to be found. In studies so far, the most common assumption is that the causes of a faster wealth growth rate of ruling politicians are illegal or unethical activities. However, existing studies usually omit the

fact that it may also result from the process of the selection of politicians, since authority can be assumed by persons with socio-economic factors which contribute to the accumulation of wealth. Furthermore, a vast majority of empirical work pertains to highly developed and stable democratic states, whereas similar processes in other countries (e.g. the countries of Central and Eastern Europe) remain largely unexplored.

3. INSTITUTIONAL BACKGROUND AND DATA

This study presents the results of an analysis of changes in the wealth growth rate of Polish councillors in voivodeship assemblies during two terms: 2010–2014 and 2014–2018. Based on 2024 asset declarations of 689 councillors of voivodeship assemblies, a new and original data set has been created, taking into account the value of the wealth of councillors in individual years as well as information concerning their sex, age and place of work. The use of data from the level of local governments is in line with the methodological approach of ‘scaling down’ (Snyder 2001). Taking into consideration institutional circumstances of the functioning of voivodeship assemblies in Poland, an analysis of political processes occurring locally may be used in analysing political processes in general.

Local government in Poland functions on three levels: voivodeships, powiats and communes. Voivodeships (regions) are the largest units of local governments. In Poland, there are sixteen voivodeships; at the same time, they are NUTS-2 statistical territorial units. None of them have changed borders since 1999. The basic tasks of voivodeships as local governments include matters in the scope of education, health-care, culture, environmental protection, spatial planning, sports, defence and development of infrastructure and organisation of public transport. Voivodeships also play an important role in the allocation of EU structural funds and execution of infrastructure investments.

The authority in a voivodeship is exercised by a voivodeship assembly and the voivodeship executive board. The five-person executive board (voivodeship marshall and other members of the board) is elected by the voivodeship assembly; therefore, councillors of the voivodeship assembly have the highest scope of authority in a voivodeship. The number of assembly councillors depends on the number of residents in a given voivodeship; therefore, in the term 2010–2014, there were 561 councillors in 16 assemblies, while 555 in the term 2014–2018. Assembly councillors are elected for 4-year terms in local elections taking place at the same date across all voivodeships. Assembly elections feature proportional representation in multi-member constituencies, whose number depends on the number of residents, and is in the range from 4 to 7, depending on a voivodeship. Mandates in an assembly are distributed through the D'Hondt method among electoral committees which have exceeded the 5% election threshold in the voivodeship as a whole. Such a manner of distribution of mandates results in voters' casting their votes not only for a given candidate, but also for a given election list. There have been cases when an assembly mandate was obtained by persons who won 0.98% of popular votes in a constituency in contrast to persons who won 6.92% of popular votes and did not obtain a mandate. This allows concluding that the probability of obtaining a mandate is strongly dependent on the candidate's position on the election list as well as on the results of other candidates from the same party, because density of votes show, that voters in Poland usually pick candidates from the top of the list. With such a method of electing councillors, the selection

bias at the party level may be high, because the position of a given person in a party may have a significant effect on the possibility of including them in election lists and consequently increasing their probability of being elected as a councillor.

Each assembly councillor is obligated to submit an asset declaration each year at the start and at the end of their term. As a result, each councillor submits six asset declarations during their 4-year term. Asset declarations of each councillor must be publicly available on the website of the Public Information Bulletin of each voivodeship for at least six years. The reason for introducing the obligation on persons performing public functions in Poland to submit asset declarations was to improve the transparency of Polish public life and to improve the efficiency of citizens' control over authorities. Asset declarations also serve as anti-corruption measures. Providing false information or concealing true information in an asset declaration is an offence punishable by imprisonment of up to 3 years (Art. 233 §1 of the Polish Criminal Code). The possibility of being sentenced to imprisonment is a very strong incentive to provide true information in asset declarations; therefore, they may be considered a highly reliable source of information about councillors of voivodeship assemblies.

In asset declarations, councillors need to include a lot of information about themselves. Apart from the date of birth and profession, they also need to list all their assets, the value of all liabilities and their total gross amount of income. The model includes a variable containing the value of all assets held at a given time. That variable is a sum of the value of all declared assets, i.e. cash in the Polish currency and in foreign currencies, real estate properties, farmsteads, securities, shares in enterprises and all movables with a value over PLN 10,000 (cars, motor-cycles, farming machinery, assets in held enterprises, etc.). The sum of the value of assets has been reduced by the value of liabilities which the councillor declared in their asset declaration. In the case of cash or loans held in foreign currencies, their value has been converted into PLN as per the official exchange rate of the Polish central bank. Due to these reasons, this variable can be described as a stock or level variable. Since the councillors had to declare the value of their assets as on the local election day or 31 December of a given year, the exchange rate from that day has been used. In the years 2010–2018, no large fluctuations of the exchange rate were recorded; furthermore, few councillors declared assets or liabilities denominated in a foreign currency — therefore, exchange rate changes do not distort the conclusions from the study. All councillors receive the same salary for the performance of a public function, so the very fact of being a councillor does not directly cause differences in the rate of growth of the value of wealth of coalition and opposition politicians.

Polish voivodeship assemblies are dominated by members of political parties. In the term 2010–2014 and 2014–2018, only 20 out of 561 and 555 councillors (accordingly) came from outside the four main political parties in Poland. During both terms, in a vast majority of assemblies, coalitions between the councillors of Civic Platform (hereinafter PO) and Polish People's Party (hereinafter PSL) were established. In a small number of cases, PO and PSL established coalitions with the Social Democratic Alliance (hereinafter SLD), German Minority Electoral Committee and Silesian Autonomy Movement. Law and Justice (hereinafter PiS) ruled only in Podkarpackie Voivodeship in 2014–2018. At the central level, after elections to the Polish parliament in 2007 and 2011, the coalition of PO and PSL was in power. In October 2015, PO and PSL lost the parliamentary elections and the power at the central level was taken over by PiS.

Data contained in asset declarations has been used to create a number of control variables. Apart from data concerning the sex and age of councillors, it has been possible to collect data concerning their place of work. Since meetings of voivodeship assemblies are held once or a few times a month (usually at weekends), a vast majority of councillors performed paid work. It was possible to identify the place of work of 92.8% of councillors in the term of 2010–2014, and 92.4% of councillors in the term of 2014–2018. Statistics describing the place of employment of all councillors and councillors from three major parties are presented in [Table 1](#). The data implies that among councillors of all parties there is a high over-representation of persons employed in the public sector (in offices, schools, hospitals, universities, etc.) and persons employed in municipal companies and state-owned companies. This is in line with conclusions drawn from other countries ([Braendle – Stutzer 2009](#); [Braendle – Stutzer 2016](#)). One of the reasons of the over-representation of employees of the public sector among local politicians is the fact that the election turnout among public sector employees is definitely higher, and therefore it is a rational move on the part of political parties to place public sector employees on election lists, because public sector employees will rather want to vote for fellow public sector employees ([Bhatti – Hansen 2012](#)).

The information contained in [Table 1](#) shows that approximately 7.4% of councillors did not provide their place of employment or entered ‘politician’ or ‘councillor’ as their occupation. In the case of councillors from PiS and PSL, also a very high over-representation of men is visible. There were many farmers among PSL councillors. It is not surprising, since PSL is a party which treats the protection of the interests of farmers and villagers as their overriding political objective. In the elections of 2010 and 2014, 561 and 555 councillors were elected, respectively; however, the terms of many councillors were discontinued due to death, illness, waiver of mandate of a councillor or acceptance of another political position (usually being elected to the Polish parliament in 2011 or 2015). In order to maintain the methodological robustness, the study includes only those councillors who performed their function continuously throughout the whole term. As a result, the sample was limited to 469 councillors from the period 2010–2014, and 432 councillors from 2014 to 2018, while 212 persons were councillors for two terms. The reasons why some councillors did not complete their terms were their specific actions and decisions or unfortunate random events which made them stand down and excluded them from amongst other politicians. This raises the question about the course of the process of selection of politicians to exercise authority, which is discussed in Section 5.

4. MODEL

In order to analyse the causes of the differing rate of growth of coalition and opposition politicians’ wealth, first it needs to be demonstrated that such a phenomenon exists. For that purpose, an econometric model has been created. In the model, the independent variable is the logarithm of the assets of a councillor as at the end of their term (expressed in thousand PLN); whereas the dependent variable is the logarithm of the assets of a councillor as at the start of a term. In order to study the effect of political party affiliation on the change of the value of assets, the model includes a dummy variable, which assumes the value of 1 for members of the ruling party or ruling coalition, and 0 otherwise. The model also includes a number of control variables describing the sex, employment in the public sector or SOC and four dummy variables

Table 1. Place of employment of councillors from major parties

	Number of obs.	Average age (in 2014)	Females	Term 2010–2014					Term 2014–2018				
				Public sector	SOC	Private sector	Including farmers:	Not established	Public sector	SOC	Private sector	Including farmers:	Not established
PiS councillors elected in 2010 and 2014	50	52.6	10.0%	34.0%	24.0%	30.0%	4.0%	12.0%	40.0%	40.0%	22.0%	4.0%	12.0%
PiS councillors elected in 2010	114	51.9	21.1%	37.7%	18.4%	37.7%	8.8%	7.9%	–	–	–	–	–
PiS councillors elected in 2014	112	50.4	15.2%	–	–	–	–	–	43.2%	32.7%	23.1%	3.6%	8.0%
PO councillors elected in 2010 and 2014	80	53.6	32.5%	68.8%	13.8%	13.8%	2.5%	3.8%	68.8%	8.8%	30.0%	2.5%	3.8%
PO councillors elected in 2010	181	53.5	32.6%	55.8%	16.0%	26.0%	3.3%	8.3%	–	–	–	–	–
PO councillors elected in 2014	147	51.3	36.1%	–	–	–	–	–	67.3%	15.0%	18.4%	3.4%	7.5%
PSL councillors elected in 2010 and 2014	60	55.8	8.3%	55.0%	11.7%	26.7%	25.0%	6.7%	66.7%	16.7%	11.7%	25.0%	6.7%

(continued)

Table 1. Continued

	Number of obs.	Average age (in 2014)	Females	Term 2010–2014					Term 2014–2018				
				Public sector	SOC	Private sector	Including farmers:	Not established	Public sector	SOC	Private sector	Including farmers:	Not established
PSL councillors elected in 2010	81	55.2	13.6%	55.6%	11.1%	25.9%	25.9%	3.7%	–	–	–	–	–
PSL councillors elected in 2014	135	53.7	20.0%	–	–	–	–	–	66.7%	11.9%	23.0%	25.2%	3.7%
All councillors elected in 2010	469	54.3	23.9%	49.5%	18.6%	19.2%	9.8%	7.2%	–	–	–	–	–
All councillors elected in 2014	432	52.4	22.9%	–	–	–	–	–	58.0%	19.7%	21.0%	11.3%	7.6%

Note: values in columns describing councillors' employment do not sum to 100%, because some of them were employees of two sectors.

Source: aAuthor.

describing the age of councillors. Also included in the model is a variable describing the election result of a candidate (expressed as the percentage of votes cast for the councillor out of all valid votes cast in a constituency). The election result reflects the level of popularity of a councillor, but also their position in the party, their political skill and charisma. All those factors can affect the rate of changes in assets.

The first estimation was made with the use of pooled OLS, without dividing the sample and without taking into account individual and time effects. In the model, councillors from 2010 to 2014 and councillors from 2014 to 2018 were studied as separate observations:

$$\log(\text{wealth}_i(\text{end})) = \beta_0 + \beta_1 * \log(\text{wealth}_i(\text{beginning})) + \delta * \text{Coalition}_i + \beta' X_i + \epsilon_i \quad (1)$$

where $\text{wealth}_{i,t}(\text{end})$ means the value of assets of the i th councillor at the end of a term, $\text{wealth}_i(\text{beginning})$ value of their assets at the start of the term, Coalition_i is a variable describing being a member of the ruling coalition in a given assembly or the ruling party at the central level in a given term (PO-PSL for the term 2010–2014, and PiS for the term 2014–2018). X_i is a vector of control variables. Local elections in Poland were held in November 2014, and parliamentary elections in October 2015. The study of the effect of the membership in the ruling party at the central level uses data about assets of councillors from 2014, because, although PiS councillors were not members of the ruling party at the central level for 11 months, the division of the sample into uneven periods of 2010–2015 and 2015–2018 would generate much bigger methodological problems.

Among 689 councillors included in the study, 212 performed their functions for two terms. This allows the creation of a panel model with Random Effects estimator for t in 2010, 2014 or 2018:

$$\log(\text{wealth}_{i,t}) = \mu + \beta_1 * \log(\text{wealth}_{i,t-4}) + \delta * \text{Coalition} + \beta' X_{it} + \nu_{it} \quad (2)$$

The use of the Fixed Effects estimator is impossible due to the presence of dependent variables with constant values over time and the resulting problem of collinearity. Taking into account the high heterogeneity of the sample and the resulting possibility of the existence of a few potential sub-samples of councillors, as well as the large number of control variables included in the model, the use of the Random Effects estimator may produce efficient and unbiased estimates (Bell et al. 2019). The same method was used for the study of further sub-samples as part of the hypothesis testing of the selection bias among ruling politicians.

The third method applied in studying the causes of changes in the wealth growth rate of politicians is the Propensity Score Matching method (Imbens 2004; Imbens – Wooldridge 2009). In this method, the *average treatment effect* (ATE) measures the difference in average outcomes between units assigned to the treatment group and units assigned to the control group. In this study, ATE is the measure of the effect of being a member of the coalition on the assets of a councillor. One disadvantage of the method is the possibility that the assumption of a completely randomised sample may not be met due to the selection bias among coalition and opposition councillors, and a small number of councillors with certain characteristics (this particularly pertains to the small number of councillors of a young age, which hinders the matching). The five nearest neighbours method has been selected due to the nature of the sample. For councillors who served two terms, the one nearest neighbour method may cause the two observations associated with a councillor to be matched, so the increase of the number of similar observations (both in the main study and in sub-sample study), considered by the method, may provide better results.

5. RESULTS

Estimation results are presented in [Table 2](#) and [Table 3](#). The estimation of the models shows that councillors from a coalition ruling in a given voivodeship assembly accumulated wealth more quickly. Each of the three estimation methods applied is imperfect; however, in all three methods, the variables describing being the member of the coalition are statistically significant and greater than zero, and the values of parameters in all three cases are similar. Less conclusive are the results of the study on the effect of being a member of the political party ruling at the central level; however, it can still be concluded that members of the ruling party accumulate wealth at a greater rate than members of opposition parties.

It needs to be noted that a vast majority of other variables are statistically insignificant. Only in the case of farmer councillors was the rate of growth of wealth statistically higher than the rest. Wealth was accumulated significantly faster also by councillors between 50 and 60 years of age. Most probably, this is caused by two factors. First, taking into account demographic processes, persons of this age often stop supporting their children, because they become self-reliant. Secondly, after taking into account further life expectancy tables, it can be seen that it is at this age that most persons receive inheritance after their deceased parents.

The higher growth rate of the value of assets of coalition and opposition politicians may be the result of many factors. That phenomenon is most often explained through rent-seeking and corruption. Although both those phenomena are linked with each other, and both generate social loss as a result of activities of the political authority, there are certain differences between them ([Aidt 2016](#)). However, it is very difficult in terms of methodology to prove illegal or unethical activities.

Still, an analysis of asset declarations of councillors of voivodeship assemblies from two terms allows finding observations implying the existence of rent-seeking. In the case of 21 councillors, a certain tendency has been identified: during the rule of their party at the central level, they declared the performance of managerial positions in state-owned companies, while employment in a different place during the rule of another party. For instance, in 2014 one of PiS's councillors was a farmer, while in 2018 he was a director at a state-owned company dealing with the management of power lines. Another PiS councillor was the head of a Volunteer Fire Brigade in 2015; yet in 2018, he was in the management board of a state-owned energy company. Before 2015, one of PO's councillors worked in a state-owned chemical company; and after the lost election, she declared employment at a public office governed by the local government.

It is impossible to prove nepotism based on asset declarations; furthermore, there may be many other possible explanations of the phenomenon (e.g. discrimination against PiS members during the rule of PO-PSL or political purge made by PiS after they won elections in 2015). However, the very fact of changing the place of work allows estimating the effect of working at SOC during the rule of one's party on the wealth of a given councillor. [Table 5](#) presents results of the estimation of the model described in Section 4 in Equation (6) with a new dummy variable, which intercepts the effects of 21 councillors holding SOC positions during the rule of their party. During the rule of the opposition, they were employed elsewhere. Estimated parameters show that councillors of the ruling party at the central level who were SOC employees grew richer faster during the rule of their party than during the rule of any other party. This is valid

Table 2. Estimation results

Independent variables	Dependent variable: $\log(\text{wealth}(\text{end}))$					
	(1)	(2)	(3)	(4)	(5)	(6)
Log(wealth (beginning))	0.7580***	0.7387***	0.7432***	0.7821***	0.7657***	0.7743***
	(0.0168)	(0.0182)	(0.0183)	(0.0313)	(0.0332)	(0.0333)
Coalition member	0.1371***	0.1594***	–	0.1174***	0.1383**	–
	(0.0413)	(0.0431)		(0.0541)	(0.0665)	
Ruling party member	–	–	0.0970**	–	–	0.0699
			(0.041)			(0.0634)
Female	–	–0.0533	–0.0332	–	–0.1161	–0.0966
		(0.0479)	(0.0479)		(0.0887)	(0.0886)
Farmer	–	0.2717***	0.3035***	–	0.1606	0.1887*
		(0.0673)	(0.0675)		(0.1123)	(0.112)
Public sector	–	–0.0432	–0.0194	–	–0.0879	–0.0658
		(0.0430)	(0.0428)		(0.0681)	(0.0671)
State owned company	–	0.0192	0.0016	–	–0.0192	–0.0413
		(0.0518)	(0.0518)		(0.0817)	(0.0819)
Age 20–29	–	0.0662	0.0332	–	–0.0970	–0.2030
		(0.1675)	(0.1686)		(0.4785)	(0.4792)
Age 30–39	–	0.0944	0.0977	–	–0.1569	–0.1798
		(0.0691)	(0.0695)		(0.1707)	(0.1718)
Age 40–49	–	0.0808	0.0783	–	–0.0057	–0.0064
		(0.0565)	(0.0568)		(0.0958)	(0.0965)
Age 50–59	–	0.1138**	0.1115**	–	0.0198	0.0216
		(0.0511)	(0.0514)		(0.0786)	(0.0793)
Share of popular votes	–	0.0018	0.0005	–	0.0023	0.0020
		(0.0051)	(0.0052)		(0.0070)	(0.0071)
Member of executive board	–	–0.1391	–0.0837	–	–0.0460	0.0094
		(0.0842)	(0.0832)		(0.1440)	(0.1442)
Second term (2014–2018)	–	–0.0238	0.0040	–	–0.0460	0.0128
		(0.0470)	(0.0482)		(0.0582)	(0.0633)

(continued)

Table 2. Continued

Independent variables	Dependent variable: <i>log(wealth(end))</i>					
	1.6194*** (0.1081)	1.6587*** (0.1261)	1.6741*** (0.1268)	1.4671*** (0.2041)	1.5836*** (0.2307)	1.5867*** (0.2339)
Method	OLS	OLS	OLS	RE	RE	RE
Number of obs,	901	901	901	212	212	212
Number of terms (t)	–	–	–	2	2	2
R-squared	0.6967	0.7224	0.7198	0.6768	0.6857	0.6835
Wald test (P-value)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Note: ***, ** and * denote significance at the 1, 5 and 10 percent levels respectively.
Source: author.

for councillors of PO and PSL as well as PiS. The results of the estimation do not constitute a proof of corruption or nepotism; however, they may suggest the existence of such phenomena.

The observed higher wealth growth rate of coalition and opposition politicians does not need to result only from political rent-seeking and illegal or unethical activities. It may as well be the effect of a bias that results from using non-randomly selected samples (Heckman 1979). The distribution of certain socio-economic characteristics among councillors of the coalition may differ due to the selection bias, which takes place at many stages.

First, there is self-selection. In the models described in Section 2, a decision to join the political life and to stand as a candidate in elections is a rational decision based on a profit and loss account. However, the perception of profits and losses may be subjective and dependent on the traits of a potential candidate; due to this, some persons may have stronger incentives to stand as a candidate in elections (e.g. Caselli – Morelli 2004).

Self-selection also refers to the choice of a given political party. At the start of their careers, potential candidates usually join parties with the closest ideology (Merlo et al. 2009); however, following a given ideology may result from life conditions, social background, family situation or the personality of the potential candidate (Jost et al. 2008). For example, persons from multi-children families may have conservative views statistically more often than persons with a smaller number of siblings. The fact of coming from a given family affects both one's views as well as their wealth (because in case of the death of parents, the inheritance is divided among a greater number of heirs). Persons with a large number of children are more likely to join political parties which advocate an increase of social transfers. Another example is the profession performed by the potential candidate for a party. Entrepreneurs are generally more likely to support decreases of corporate income tax or deregulation than members of trade unions. Thus, one's occupation affects both the amount of wealth as well as views of a given person. In the case of Poland and other post-communist countries, historical developments play a significant role (Hašková – Saxonberg 2016). Persons connected with the communist system before 1989 were

Table 3. Estimation results

Estimator	Propensity score matching			Propensity score matching		
Method of matching	Five nearest neighbours			Five nearest neighbours		
Treated variable	Coalition member			Ruling party member		
Treated observations	575			396		
Control observations	326			505		
	Coefficient	Robust std. err.	P-value	Coefficient	Robust std. err.	P-value
ATE	0.1674	0.0754	0.0260	0.1307	0.0385	0.001
ATT	0.1914	0.0861	0.0260	0.1713	0.0477	0.001
Variable	Percent of bias reduction	T-statistics	P-value*	Percent of bias reduction	T-statistics	P-value*
log(wealth(<i>t</i>))	67.20	0.83	0.408	45.6	0.32	0.749
log(wealth(<i>t</i> -1))	99.60	0.01	0.995	97.0	-0.01	0.994
Female	95.40	-0.15	0.883	66.7	0.26	0.794
Farmer	65.20	-0.87	0.383	49.7	0.69	0.491

Note: * P-value of the *t*-test for equality of treated and control group's means

Source: author.

able to accumulate wealth more quickly due to corruption, while currently they may choose political parties which provide a more lenient assessment of communism than other parties.

Second, the selection takes place at the level of political parties. When deciding whether to accept a new member, leaders of political parties are guided by a desire to obtain benefits for the party. Apart from the most obvious ones (increase of chances to win elections), the benefits may relate to the improvement of organisational or financial functioning of the party. Accepting a given member may benefit some parties more than others. A party whose traditional electorate are entrepreneurs will be more willing to accept entrepreneurs than heads of trade unions, because an entrepreneur may attract more voters than a head of a trade union. That is why persons with significant assets may be drawn to some parties, while persons with smaller wealth to others. The effect of selection at the party level is particularly strong in election systems with proportional representation, because leaders have a big impact on the determination of election lists and consequently on the likelihood of obtaining a mandate by a given candidate (Kunicova – Rose-Ackerman 2005). Such system is applied in Poland in voivodeship assembly elections. Furthermore, the level of competition at the party level may differ. Party members compete with each other for positions on election lists, while the level and methods of competition may differ from party to party. Political parties with a high level of internal democracy may nominate more

competent candidates than parties managed by a single leader who is driven by a desire to fortify his or her leadership.

Third, the selection of politicians for the execution of authority takes place at the election stage. The motives of the voting decision may vary. Such decision may be affected by education, ideological preferences, political interests of the voter (Denny – Doyle 2008) or the personality of the voter (Capara et al. 1999). Voters may be more willing to vote for persons of a given sex, performing certain professions, those who are more resourceful or more experienced. The socio-economic status of a politician affects both the likelihood of winning the election and their wealth growth rate.

The literature review in Section 2 presented the results of empirical works which suggest the existence of selection bias in all three stages listed above. Data obtained from asset declarations of councillors in Polish voivodeship assemblies also constitute a proof of the existence of selection. There are definitely more farmers among PSL councillors than among PO or PiS councillors. PSL treats the protection of the interests of farmers as their overriding political objective, so the over-representation of farmers is the result of self-selection as well as the selection of candidates made by the party and its voters. Among PO councillors, there are many physicians; whereas in PSL there are numerous veterinarians. Persons performing those professions have hundreds of patients or clients, which guarantees their high recognisability. It was due to the performance of professions which guarantee high recognisability that those persons were more likely to be entered into election lists. In local elections, high recognisability is one of the key factors for the winning of votes.

Differences between councillors from different parties also pertain to occupation and place of employment (Table 1), as well as the percentage of women among councillors, while the average age of councillors remains similar. Furthermore, the value of assets appears to confirm the hypothesis of a significant selection bias among councillors who performed their functions through an entire term. Table 4 contains average values of assets of coalition and opposition councillors. The wealth growth rate of coalition councillors was not only higher than that of opposition councillors, but already at the start of the term (in 2010 and 2014), the average value of assets of coalition councillors was significantly higher than the average value of assets of opposition councillors.

Out of 212 councillors who performed their functions continuously for 8 years, 25 persons gained or lost authority due to elections and coalition changes. Among those persons, there were a few who switched political parties and were elected from the list of a different party in the 2014 election. Party-switching is a common phenomenon in Polish politics. Usually, the literature provides three reasons for such behaviour: vote-seeking, policy-seeking and office-seeking (McMenamin – Gwiazda 2010). Since the same councillors were 4 years in the opposition and 4 years in the coalition, it is possible to study the effect of being a member of the coalition. In the case of such persons, the selection bias is much weaker, as it can be assumed that for 8 years those persons held the same skills, education, personality, etc. This constitutes a methodological framework allowing the assessment of the effect of being a member of the coalition on the rate of growth of assets. Although the data contained in Table 4 indicates a higher rate of accumulation of wealth while being a member of the coalition, the results of the estimation of the models (5) and (6) with additional variables show the insignificance of the dummy variable for coalition switchers. Those results show that the very fact of obtaining or losing power has no significant effect on the increase of wealth of councillors. Throughout the period, coalition switchers had similar possibilities to accumulate wealth, and the very fact of being a member of the coalition

Table 4. Average value of assets of coalition and opposition councillors

	<i>n</i>	2010	2014	2015	2018
All councillors (2010–2018)	212	962.2	1,291.7	1,221.8	1,389.8
All councillors (2010–2014)	469	832.8	1,069.0	–	–
All councillors (2014–2018)	432	–	1,088.3	1,133.0	1,226.4
Opposition councillors (2010–2018)	67	766.6	829.9	947.4	961.5
Opposition councillors (2010–2014)	186	619.4	712.2	–	–
Opposition councillors (2014–2018)	140	–	1,071.4	1,134.6	1,248.9
Coalition councillors (2010–2018)	145	1,054.2	1,508.8	1,348.5	1,591.2
Coalition councillors (2010–2014)	283	973.1	1,303.6	–	–
Coalition councillors (2014–2018)	292	–	1,096.5	1,132.2	1,215.6
Coalition (2010–2014), opposition (2014–2018)	12	879.8	1,114.1	1,252.1	1,142.6
Opposition (2010–2014), coalition (2014–2018)	13	502.0	591.1	625.9	743.7

Source: author.

did not significantly affect the increase of value of their wealth. This allows claiming that in their case, the selection process was of greater importance than the rent-seeking phenomenon.

Councillors declared the performance of over 100 different professions, which makes it very difficult to create descriptive statistics and precise comparisons. However, a comparison can be made between the coalition and opposition councillors who declared the performance of the same professions. Out of 212 councillors from two terms, 24 persons performed the profession of a physician (out of which 17 were coalition councillors), and 20 persons worked as university lecturers (out of which 10 were coalition councillors). Table 5 presents the results of model estimations with new dummy and interaction variables. The results of the estimation show that the party affiliation of physicians and lecturers did not have a significant effect on the growth rate of the value of their assets. Doctors and lecturers belonging to the coalition accumulated wealth at the same rate as doctors and lecturers in the opposition. The comparison of persons performing the same professions significantly limits the selection bias, because such persons have the same education and similar income-earning opportunities. This suggests that in the entire sample of 689 councillors, the rate of changes of the value of assets of coalition and opposition councillors is at least partly the effect of the selection of persons performing public functions. Among coalition councillors, there may simply be a higher percentage of persons performing more profitable professions or having socio-economic characteristics facilitating the accumulation of wealth.

Further dummies and interaction variables in models (1)–(4) pertain to councillors who were employed solely in private enterprises during both terms. In the period 2010–2018, none of them worked in the public sector or at a company co-owned by the state. Even private sector

Table 5. Estimation results

Independent variables:	Dependent variable: log(wealth(t))						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Constant	1.7308***	1.7458***	1.7321***	1.7235***	1.5865***	1.5865***	1.5605***
	(0.1524)	(0.1543)	(0.1535)	(0.1551)	(0.2247)	(0.0326)	(0.2245)
log(wealth(t-1))	0.7329***	0.7318**	0.7383***	0.7387***	0.7679***	0.7681***	0.7686***
	(0.0182)	(0.0183)	(0.0182)	(0.0183)	(0.0325)	(0.0326)	(0.0325)
Coalition member	0.1632***	0.1483**	-	-	0.1391**	0.1341**	-
	(0.0432)	(0.0608)			(0.0432)	(0.0608)	
Ruling party member	-	-	0.0973**	0.1098**	-	-	0.1091***
			(0.0432)	(0.0608)			(0.0507)
Female	-0.0502	-0.0489	-0.0325	-0.0312	-0.1179	-0.1172	-0.1126
	(0.0477)	(0.0477)	(0.0477)	(0.0479)	(0.0878)	(0.0881)	(0.0878)
Farmer	0.2927***	0.2923***	0.3231***	0.3231***	0.1588	0.1597	0.1647
	(0.0674)	(0.0675)	(0.0676)	(0.0677)	(0.1109)	(0.1113)	(0.1112)
Public sector	-0.1413	-0.1380	-0.0970	-0.0969	-0.0884	-0.0879	-0.0853
	(0.0986)	(0.0994)	(0.0985)	(0.0988)	(0.0679)	(0.0680)	(0.0679)
State owned company	-0.0156	-0.0173	-0.0207	-0.0206	-0.0203	-0.0218	-0.0409
	(0.0848)	(0.0849)	(0.0852)	(0.0854)	(0.0814)	(0.0823)	(0.0875)
Age 20-29	0.0874	0.0860	0.0514	0.0541	-0.0985	-0.1025	-0.0834
	(0.1671)	(0.1673)	(0.1682)	(0.1687)	(0.4727)	(0.4744)	(0.4723)

(continued)

Table 5. Continued

Independent variables:	Dependent variable: $\log(\text{wealth}(t))$						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Age 30–39	0.1200*	0.1205*	0.1175*	0.1188*	−0.1545	−0.1551	−0.1494
	(0.0691)	(0.0692)	(0.0696)	(0.0698)	(0.1696)	(0.1699)	(0.1685)
Age 40–49	0.0970*	0.0967*	0.0908	0.0917	−0.0048	−0.0048	−0.0041
	(0.0565)	(0.0566)	(0.0569)	(0.0572)	(0.0946)	(0.0947)	(0.0945)
Age 50–59	0.1253**	0.1252**	0.1220**	0.1227**	0.0199	0.0202	0.0206
	(0.0512)	(0.0513)	(0.0514)	(0.0516)	(0.0778)	(0.0779)	(0.0775)
Share of popular votes	0.0015	0.0014	0.0003	0.0003	0.0029	0.0029	0.0030
	(0.0051)	(0.0051)	(0.0051)	(0.0052)	(0.0069)	(0.0069)	(0.0069)
Member of executive board	−0.0967	−0.0917	−0.0401	−0.0399	−0.0753	−0.0753	−0.0769
	(0.0854)	(0.0867)	(0.0845)	(0.0847)	(0.1369)	(0.1371)	(0.1369)
Lecturer	0.1395	0.1776	0.1093	0.1308	−	−	−
	(0.0996)	(0.1371)	(0.0996)	(0.1231)			
Coalition member * Lecturer	−	−0.0874	−	−0.0588	−	−	−
		(0.1959)		(0.2032)			
Physician	0.1919***	0.2573***	0.1958***	0.1958**	−	−	−
	(0.0739)	(0.1334)	(0.0743)	(0.0956)			
Coalition member * Physician	−	−0.0924	−	0.0027	−	−	−
		(0.1566)		(0.1455)			

(continued)

Table 5. Continued

Independent variables:	Dependent variable: log(wealth(<i>t</i>))						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Private sector	−0.0692	−0.1086	−0.0496	−0.0366	-	-	-
	(0.1059)	(0.1159)	(0.1063)	(0.1123)			
Coalition member * Private sector	-	0.0701	-	−0.0308	-	-	-
		(0.0901)		(0.0862)			
Coalition-opposition switchers	-	-	-	-	−0.0175	−0.0296	-
					(0.1000)	(0.1378)	
Coalition-opposition switchers * Coalition	-	-	-	-	-	0.0225	-
						(0.1761)	
Politically affiliated managers in state owned companies	-	-	-	-	-	-	0.0844**
							(0.0412)
Method	OLS	OLS	OLS	OLS	RE	RE	RE
R-squared	0.7251	0.7256	0.7224	0.7225	0.6855	0.6855	0.6917
Number of observations	901	901	901	901	212	212	212
Wald test (<i>P</i> -value)	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Propensity score matching (five nearest neighbours method)							

(continued)

Table 5. Continued

Independent variables:	Dependent variable: log(wealth(t))						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ATE of being coalition member	0.2134**	0.2304**	-	-	0.0940**	0.1009**	-
ATE of being ruling party member	-	-	0.2161**	0.1695**	-	-	0.1836*
P-value	0.039	0.015	0.035	0.018	0.036	0.014	0.056
Robust std. Error	0.0993	0.0945	0.1023	0.0718	0.0449	0.0409	0.0963

Note: ***, ** and * denote significance at the 1, 5 and 10 percent levels respectively.

Source: Author.

employees can make use of political connections (by being contractors in tenders or public procurement); therefore, only those councillors who were not employed in a company performing public procurement contracts have been selected. Since the data on the results of tenders in Poland is publicly available, the checking of a few dozen companies did not pose a challenge. The councillors included employees of telecommunications companies, transport companies, farmers, an owner of meat processing plants, a watchmaker, two owners of grocery stores, etc. The results of model estimations indicate that there is no significantly higher wealth growth rate for coalition and opposition councillors. Those results, combined with the insignificance of variables relating to being employed in the public sector and SOC, allow concluding that the wealth growth rate of councillors is affected by other factors than being employed in a specific sector.

6. CONCLUSIONS

The activities of politicians have been the subject of research for decades. So far, researchers have created many theories and empirical works in an attempt to answer the question: who becomes a politician? The study of the value of politicians' assets constitutes a separate research theme. Until now, numerous works have been devoted to the topic; however, the most commonly assumed explanation for the increase in the value of politicians' assets has been corruption or political rent-seeking.

This research discusses this assumption. A higher wealth growth rate of ruling politicians does not need to be the effect of illegal or unethical activities. It may result from the selection for the profession of a politician. It needs to be remembered that the selection for the profession of a politician occurs at many stages of political career. Apart from self-selection, the leaders of political parties and voters also decide whether a given person will be granted authority. Additionally, elections select winners and losers, which makes it possible for them to be very different from each other.

This paper presented a quantitative analysis of data obtained from 2,024 asset declarations of 689 councillors of voivodeship assemblies in Poland. On that basis, the higher wealth growth of coalition politicians compared to opposition politicians, previously observed in many other countries, has been confirmed. Such effect also applies to members of the ruling party at the central level, although it is slightly weaker.

The estimation of the value of assets of councillors in individual sub-samples provides interesting results. It has been found that a significant number of councillors held positions in state-owned companies during the rule of their party, but worked in a different place when another party was in power. This suggests the existence of political nepotism. However, the comparison of the sub-group of physicians with other physicians and the sub-group of lecturers with other lecturers does not show a statistically significant effect of political affiliation. Furthermore, the comparison of persons switching between political parties does not allow concluding the occurrence of a higher wealth growth rate for persons connected with the party which rules in a given assembly. The comparison of the value of assets of persons employed in the private sector at companies which are not connected with politics shows that coalition councillors were more wealthy at the start of their terms, but they did not grow richer significantly faster.

The results suggest that the wealth growth rate of councillors is not only the effect of rent-seeking, but also results from a selection bias. Due to a lack of data, it is impossible to conduct more thorough research in the scope of voivodeship councillors in Poland. It may be very difficult to obtain such data in other countries as well. However, the continuation of studies on the effect of the selection bias on the amount of wealth may significantly expand the knowledge about the selection for the profession of a politician. Especially, the high share of politicians employed in the public sector or in state-owned companies could be a topic for new research.

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