DEMOCRACY AND GROWTH: IS THE EFFECT NON-LINEAR?

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Abstract

The paper provides a survey of theoretical and empirical literature on non-linear impact of democracy on economic growth. First, it looks at two main approaches to the non-linearity: the U-shape and the inverse U-shape. Then it proceeds by looking at the specifics of hybrid regimes and tries to understand, whether the results could be driven by specific features of some semi-democracies and semi-autocracies. Finally, it discusses the opportunity to test the growth-and-democracy nexus using sub-national data, and considers the first results of this approach.

Keywords: Democracy, Economic growth, Hybrid regimes, Non-linear effects, Bureaucratic autocracies

JEL classification: D72, D78, O43

1. Introduction

The relation between democracy and economic growth belongs to the most controversial fields of political economics and political science. The consensus seems to be that there is an inconclusive relationship between democracy and growth, depending upon the specifics of channels observed, regions and countries, although the recent meta-regression analysis literature challenges this result, replacing it by "no direct impact" and "significant indirect impact" of democracy on economic growth (Doucouliagos and Ulubasoglu, 2008). One of the possible interpretations of differences in economic impact of democracy may be that there is a significant difference in impact of varieties of non-democracies, democracies and hybrid regimes on economic growth, although traditionally economics (unlike political sciences) ignores the issue of variations of non-democracies (Haber, 2006). In particular, if one is able to provide some ordering for political regimes from a "pure democracy" to a "pure autocracy", the effect of shifts along this ordering on the economic growth may be non-linear. Generally speaking, nonlinearities are crucial for the understanding of the growth logic for different theories (Henderson et al., 2008); it may as well be true for democracy.

This paper surveys some recent literature providing theoretical arguments and empirical evidence for non-linear effects of democracy on economic growth. First, I assume the "ordering" of regimes mentioned above as naturally given and as identical to that underlying the popular indices of democracy applied in empirical research. Obviously, "non-linear" may imply a huge variety of effects: John von Neumann once referred to the term "non-linear function" as equivalent to "non-elephant animals" (Page, 2006:90). Therefore I first present two conflicting approaches to non-linearity: the U-shape and the inverse U-shape of the effect of democracy on growth. Then I proceed by looking at the details of ordering; in particular, trying to identify the varieties of hybrid regimes and their impact on economic growth. This logic may be more helpful in understanding the reasons of non-linearity, but it also provides additional difficulties for empirical research. The last section explores the options for the analysis of sub-national variation of democracy.

There are two main conclusions to be made from the survey. First, numerous papers indeed suggest the existence of non-linear relation between growth and political regimes. Second, non-linear effects are associated with numerous other variables, also related to economic growth: quality of bureaucracy, power to tax, stability of property rights etc. Third, however, the exact shape of effect is debatable: there is evidence for both U-shape and inverse U-shape in the literature, partly related to the heterogeneous nature of what literature describes as "intermediate" or "hybrid" regimes. Fourth, the evidence of non-linear effects is also present on the sub-national level, where, however, the literature has been by far more limited.

2. "Natural ordering" of political regimes

The simplest way to look at potential non-linear effects of democracy on economic growth is to assume that there exists a kind of "natural ordering" of political regimes from the most democratic to the least democratic, and then look at how the shifts at this scale affect economic growth (in a potentially non-linear way). The approach is attractive, because if allows the direct application of the existing indices of democracy. It has, however, a clear disadvantage: it assumes that all dimensions of democracy are correlated to each other. Or, put it differently, it is impossible to achieve higher freedom of elections without, say, guaranteeing the reasonable checks and balances in the political system or freedom of the media. It may be true that most developed democracies (as well as most developed autocracies) combine all the features mentioned; but for the hybrid regimes different combinations of individual dimensions become possible, leading to a multitude of "democracies with adjectives", which are, in turn, often contradictory and unclear (Collier and Levitsky, 1997). Taken together with other problems related to the measurement of democracy, especially if it implies the construction of a unique scale or index (Inkeles, 1991), it makes the interpretation of empirical regularities a very difficult task. It is therefore not surprising, that different approaches presented bellow often have quite different dimensions of differentiation of political regimes in mind – and therefore present different hypotheses. The existing literature mostly considers two types of potential non-linearities of impact of democracy on economic growth, though more sophisticated relations resulting from detailed studies of autocracies (Besley and Kudamatsu, 2008) and democracies (Persson and Tabellini, 2006) are possible, which I will discuss in the following subsections. Both

concepts discussed can be tested with parametric methods; however, there has been some research on interaction of political institutions and growth recently applying non-parametric techniques and suggesting the highly non-linear relation (Huynh and Jacho-Chavez, 2009).

2.1. Inverse U-shape

Under this hypothesis, regimes with intermediate level of democracy grow faster than pure democracies and pure autocracies. The descriptive statistics in the favor of this idea have been presented by Dick (1974), but the econometric results were provided by Barro (1996) for an international cross-section. Barro (1996:14) himself explains the inverse U-shape by the fact that "in the worst dictatorship, an increase in political rights might be growth-enhancing because of the benefit from limitations on governmental power. But in places that have already achieved a moderate amount of democracy, a further increase in political rights might impair growth because of the intensified concern with income redistribution". Thus the "moderate" democracy appears to be the optimal choice in the trade-off between governmental rent-seeking and public desire for redistribution and solve the "Madison dilemma" (Wu, 2004:24). In a similar way Plumper and Martin (2003) consider the impact of political participation on growth. In a semi-democracy as opposed to a pure autocracy, government is unable to use rents as an instrument to achieve political support anymore due to larger selectorate. Thus the rent-seeking goes down. However, in a democracy the government tends to overinvest in the provision of public goods and therefore reduces growth rates. Comeau (2003) and Plumper and Martin (2003) also provide empirical evidence in favor of the inverted U-shaped relation between economic growth and democracy (and the latter paper also demonstrates a U-shaped relation between democracy and government share of GDP), though this effect was rejected for productivity growth (Faust, 2007). Murphy et al. (2005) give some evidence in favor of inverted U-shaped relation between democracy and economic reforms for the post-Soviet countries. This argument could be compared to the idea of the "institutional possibility frontier" (Djankov et al., 2003), which describes a political regime as a trade-off between "costs of dictatorship" and "cost of anarchy", where a moderate democracy could also be a preferred solution (depending upon the distance of the institutional possibility frontier from the origin). Anyway, the idea is that a hybrid institution may provide a balance between virtues of both extremes in terms of generating economic growth.

The study of Barro (1996) has been heavily criticized for ignoring the problem of sensitivity of outcomes to model specification, sample heterogeneity and the treatment of time dimension (de Haan, 2007). Similar criticism can, however, be attributed to many (and maybe even all) papers discussed here. An additional problem is picked up by Aron (1997), who claims that the results may be driven by (formerly) pure autocracy, which have exploited the catch-up and enter in a slower phase of economic growth, which (alongside with exposure to international community) may trigger demand for democracy. However, Minier (2001) has shown that the demand for democracy is increasing in income per capita up to a certain threshold, and therefore the fast-growing autocracies may are more likely to pass the threshold, than the slow-growing ones.
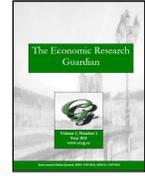
2.2. U-shape

The idea of this approach is, of course, exactly the opposite: the hybrid regimes are unable to gain advantages of pure institutions and just combine their weaknesses. A somehow similar approach of U-shaped reaction of growth on institutional system comes from the sociological literature on varieties of capitalism. It claims, that the regimes "at the corners" of distribution can achieve higher growth rates because of their comparative institutional advantages, than mixed regimes with inconsistent institutions (Amable, 2004). This literature, however, does not address political systems. In terms of political regimes, there are four main factors able to make hybrids less favorable for economic growth than both pure autocracies and pure democracies: implementation of reforms, instruments of control, degree of political competition and non-linearity of effects of policy instruments.

Survival of regimes: First, Acemoglu and Robinson (2006) relate the potential U-shaped effect to the desire of the government to implement economic reforms, which differs for different regimes. Economic reforms in democracies may appear as a result of electoral competition, restricting the ability of the government to ignore economic problems; in autocracies reforms are pursued to improve economic situation and therefore increase the rents. However, in hybrids the public pressure to implement reforms is lower, and the threat of power loss from changes of economic institutions and therefore redistribution of wealth and bargaining power is significant, so, the reforms are postponed. Second, however, hybrid regimes are shown to be less stable than pure democracies and non-democracies (Gates et al., 2006). Then on the one hand, the countries where hybrid regimes happened to be just a transitory phenomenon between democracy and non-democracy (regardless of the direction) may suffer from the uncertainty causing under-investment. Even if the expectations of the democracy are associated with expectations of better property rights protection (which is by the way a completely not self-evident fact), there is still a large class of investors which will postpone their activity because of expectations of democratic transition – the "politically connected" firms, which are often established exactly by weak autocracies (Thum and Choi, 2009) and are able to capture a substantial share of economic assets. On the other hand, if one is talking about the sequence of hybrid regimes, it is likely that the often shifts of political power result into the permanent cycles of redistribution (and maybe even violence and destruction of asset – in particular, semi-autocracies are expected to experience more civil unrest than pure regimes) with negative conclusions for economic growth. Argentina is probably the classical example when permanent political instability and disastrous effects for economic performance for almost a century (see also Alesina et al., 1996).

Instruments of control: The second argument assumes that in a hybrid regime the government is rather limited in its ability to use direct coercion (which is at least one of the foundations of a pure autocracy), however, is still able to manipulate economic institutions to eliminate the threat of development of potential alternative power centers. In this case weak economic institutions could become an instrument of "taking hostages", i.e. making any business activity dependent on the loyalty to the ruling group and reducing economic autonomy of potential political actors, thus maintaining control over politics (McMann, 2006). For example, intransparent tax system could make tax evasion the necessary condition of survival. For this purpose a company requires support

from the public agencies, which can use their power to "blackmail" businesses in order to extract rents, but, what is especially important, to prevent any support of opposition (Darden, 2001, 2008; Barsukova, 2006). The experience of government-business relations in the shadow of *Yukos* in Russia is a good example of this "blackmail" tactics. "The blood of the regime" in this case is not repressions, but corruption (Mau et al., 2007:100). Acemoglu et al. (2004) show that inefficient regimes based on bribes can be quite persistent. However, low-quality economic institutions as substitutes for direct violence have a negative effect on economic growth.

Degree of political competition: While the previous two arguments focused on the way hybrid regimes shape economic institutions (and produce worse outcomes than pure democracies and non-democracies), the final argument is related to the specifics of political competition in the hybrid regimes as a factor directly influencing the behavior of economic and political agents relevant for economic growth. Kenyon and Naoi (2011)) claim that hybrid regimes combine polarized political competition with deficit of information, thus increasing uncertainty (which has a negative effects on firms' investments decisions and therefore on economic growth). Mohtadi and Roe (2003) argue that in semi-democracies due to limited political competition rents may be higher than in both democracy and non-democracy, and therefore the growth follows the inverted U curve. Interestingly enough, Hausken et al. (2004) produce the opposite result, focusing on a different aspect of the rents – not as an instrument of direct utility maximization for the ruler, but as a source of redistribution to maintain power. They claim that in an autocracy rents are the main instrument to ensure political survival; transition to democracy makes rents more expensive and increases the role of public expenditures. Hence, both autocracy and democracy have higher level of public spending than hybrid regimes; however, from the point of view of this paper one should not forget that the impact of public spending on economic growth is yet another empirical puzzle.

Non-linearity of effects of policy instruments: Finally, the non-linearity may result not from democracy itself, but from the instruments which may be preferred by democratic as opposed to non-democratic regimes. Of course, if this assumption is true, it just shifts the real problem to the next level of discussion (why the instrument has a non-linear effect on growth?), but does not really solve it. However, it may be still reasonable to consider these effects, at least to understand the empirical findings. Fidrmuc (2001) provides a very special case, considering the growth-and-democracy nexus for transition economies. He shows that the democracy has a positive effect on economic liberalization, while the liberalization has a curvilinear effect on growth: high and low liberalization levels are better than the intermediate ones. This result may however reflect the specifics of transition economies.

From the empirical point of view, several studies established a U-shaped (in the sense that the worst outcomes are associated with intermediate regimes) relation between democracy and parameters of institutions and economic behavior able to influence economic growth, although there has been no reported evidence in studies involving economic growth directly. *Table 1* summarizes the main results.
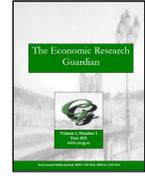
Table 1: U-shape hypothesis for correlates and determinants of economic growth

Paper	Dependent variable	Measure of democracy	Estimation	Sample
Leonida et al., 2007, 2007a	Economic liberalization	Polity IV	GMM-difference	82 countries, 1980-2003
Kenyon and Naoi, 2011	Political uncertainty as perceived by firms	Polity IV	Ordered probit, OLS	10,000 firms in transition countries of Europe and CIS and Germany, Greece, Ireland, Portugal and Spain
Petrova and Bates 2011	Risk of predation	Polity IV	FE, IV	123 countries, 1982-2003
Hegre et al., 2001	Civil wars	Polity III	Cox hazard model	169 countries, 1816-1992
Vreeland, 2003	Civil wars	"Continuous" measure of democracy	OLS	150 countries
Montinola and Jackman, 2002	Corruption	ICPSR	OLS, re-weighted least squares	66 countries, 1980-1983, 1988-1992
Rock, 2007	Corruption	Polity IV	GLS, two-stage GLS	About 100 countries, 1996-2003
Baeck and Hadenius, 2008	Administrative capacity	Aggregation of Freedom House and Polity IV	Pooled OLS, FE	125 countries, 1984-2002

The results are obviously not free of criticism. To start with, they work with indirect indicators, which may influence economic growth. The relation can, however, be more sophisticated, than just a linear one, thus making the predictions problematic. For example, the effects of corruption on economic performance are themselves a field of discussion for the "grease the wheels" and "sand in the wheels" corruption hypotheses. Moreover, institutions may have impact on statistically observed economic growth rather than the real growth dynamics including shadow economy (Dreher at al., 2007); this problem, however, is present for studies directly regressing economic growth on democracy as well (although, unlike the economic institutions, there have been no investigations of this problem yet). Finally, there may be a more sophisticated form of non-linearity than just the simple U-shape: Treisman (2007) and Sung (2004) report this result for corruption.

3. Nature of hybrid regimes

Obviously, the assumption of perfect correlation between different dimensions of democracy is very problematic. Therefore the results of the "natural ordering" approaches reported above may just come from the fact, that regimes identified as "hybrids" by particular indices have one predominant feature driving the results, but not necessarily covering all variations of what one may call a "semi-democracy". To give just one example with respect to the most established results – the non-linear effect of democracy on civil wars: Vreeland (2008) reports that the effect may be an outcome of the composition of Polity index, which already includes political violence. So, the estimations do not actually pick up the effect of "semi-democracy" on civil wars: they rather show that the regimes described as "semi-democratic" by a particular index have higher level of political violence (by construction of the index), and political violence is relevant for the outbreak of civil conflicts. Therefore a more reasonable approach could be to look at individual dimensions of "semi-democracies", which may trigger the non-linear results. Basically, the hypotheses presented above (like the degree of the political competition or probability of regime survival) already look at particular features of semi-democracies. This section rather aims to provide an overview of empirical results specifically considering these dimensions.

3.1. Bureaucracy and rule of law

The first factor potentially influencing the results for semi-democracies is that under this category may fall authoritarian political regimes, where government restricts its repressive activity (regardless of the reasons) and constructs a well-defined bureaucratic apparatus, which operates under at least some well-defined norms (and the decisions are therefore not completely voluntarily). To put it differently, economic performance is triggered by high quality of public administration. The relations between politicians and bureaucrats can be crucial for understanding the predatory or market-enhancing behavior of the governments in emerging economies (Dixit, 2006). The main idea of the so-called "economic governance" (Ahrens, 2008) literature is exactly that development of good bureaucracy and implementation of economic institutions may be more important for development than the political transition. On the other hand, semi-democracies may be as well the "democracies with weak rule of law", where existence of political freedom and open competition is combined with extremely weak protection of property rights and chaotic regulation. While bureaucratic autocracies may outperform pure dictatorships based on violence, democracies with weak rule of law may actually perform worse than both democracies and non-democracies. And, once again, as bureaucratic autocracies often refrain from extreme repressions and coercion (and that is why appear to be "hybrids" for observers), democracies with weak rule of law have deficits not only in economic, but also in political institutions – and therefore actually fail to meet the requirements for pure democracies, once again falling under the category of hybrids (actually, many democracies with weak rule of law, listed, say, by Polterovich and Popov (2007) may be re-defined as autocracies, looking at their institutional features more closely).

There is some evidence on relatively good performance of bureaucratic-authoritarian regimes. Jamali et al. (2007) in a cross-country study for the 1990s show that bureaucratic regimes (which codify law and allow for limited participation in political process) and democracies significantly outperform pure autocracies, but the growth of democracies and autocracies has been similar. Sloan and Tedin (1979) estimate the impact of these three regimes on growth for 20 Latin American countries in 1960-1979, and find that bureaucracies perform better than both autocracies and democracies. Saurabh (2007) also reports better performance for bureaucracies than autocracies and democracies for a cross-country sample in 1990s; however, he also estimates individual regressions for three continents (Africa, Latin America and Asia) and region-specific variations of impact of political regimes on economic growth: "autocracy in Africa, bureaucracy in Latin America and democracy in Asia fosters economic growth significantly". Moreover, he also looks at political freedom (including the dummies for "free", "partly free" and "not free" regimes) and does not find any statistically significant difference for them. It once again confirms the suspicion that the development of the bureaucratic apparatus and the rule of law is the key feature to be considered in the analysis. A somehow similar idea is proposed by Pereira and Teles (2008), who apply a dyadic measure of democracy and claim that "political institutions" (say, elections system or federalism) can effectively "overcome" the negative impact of autocracies on growth (say, acting as a commitment device – an idea investigated by Gehlbach and Keefer, 2011). Basically, the paper looks at yet another dimension of "rule of law" in autocracies, applying it to political scene. On the other hand, Polterovich and Popov (2007) look at the economic performance of democracies with the weak rule of law (once again, in an international cross-section) and find that these regimes perform much worse than both autocracies with strong rule of law and democracies with strong rule of law. In this case rule of law is decisive for the outcomes of economic development. Therefore the rule of law and bureaucracy argument provides evidence in favor of both U-shape and inverse U-shape hypotheses, as well as some linear relations (with a possible jump between democracies and bureaucratic autocracies on the one hand and non-bureaucratic autocracies on the other). Hanson (2011) claims that state capacity and democracy can serve as substitutes in terms of ensuring the quality of public service provision. Oberg and Melander (2010), finally, show that high-quality of bureaucracy is strongly associated with higher civil peace in autocracies.

Unfortunately, this way of arguing is also not without flaws. The choice of a specific level of the rule of law and of the quality of bureaucratic apparatus may as well depend upon the political regime. Moreover, identical bureaucracies (in terms of their quantitative characteristics) may have different effects on economic growth depending on the political institutions. In a theoretical model, Dixit (2010) claims that authoritarian rulers are likely to end up in a less efficient equilibrium attempting to solve the principal-agent problem with the bureaucrats, than democratic regimes because the former are less interested in giving up rents. Moreover, different regimes are likely to hire different bureaucrats, and bureaucrats appointed by autocracies are usually worse than those in democracies. Egorov and Sonin (2011) also point out the low quality of bureaucrats in autocracies, but focus on the power struggle rather than principal-agent problem. Charon and Lapuente (2010), furthermore, show that the effect of political regime on the quality of governance is conditional on economic development. Rivera-Batiz (1992) also suggests that democracy has positive impact on growth only if it leads to higher quality of governance, but also argues that democracies are likely to ensure better governance than autocracies.

3.2. Veto players

Next, the semi-democracies may turn out to be non-democratic political regimes with a large number of (vaguely speaking) veto players, originating from both formal system and (more importantly) informal power relations in the society. In this case the autocracies with high number of veto-players may be similar to democracies in terms of their impact on economic growth. On the other hand, it is possible to construct the argumentation for the U-shape hypothesis. Hybrid regimes share with democracies the problem of slow decision making and reform deadlocks if consensus is impossible. A strong autocrat can ignore the constraints present for his weaker counterpart. But, on the other hand, they have a lower transparency in relations between veto players, able to create distortions in economic development. Obviously, the question is whether it is possible to correctly identify the veto structure for a political regime based on informal relations.

The empirical literature dealing with related problems provides ambiguous results. Several studies directly looking at the impact of veto player structure on economic performance. For example, Henisz (2000) demonstrates that the number of independent branches of government with veto power is positively correlated with economic growth. Henisz and Zelner (2001) and Henisz (2002) show that similar results hold for growth of telecommunications and electricity infrastructure and infrastructure investments. Henisz and Zelner (2006) show, that the veto points reduce the sensitivity of politics to lobbying. However, this approach suggests that the "autocratic" systems with multiple veto-players do not differ from "democratic" systems; though the democracy is included in regressions, it is used as just an alternative institutional indicator. Andrews and Montinola (2004) show, that the increasing number of veto players increases the quality of the rule of law in a sample for emerging democracies, but they do not control for the level of democratization.

A more interesting problem is whether the veto player structure is directly interacted with political system. Frye and Mansfield (2003) demonstrate that in the post-Socialist world autocracies with higher number of veto players (fragmented regimes, i.e. "semi-autocracies") are more likely to liberalize foreign trade, while consolidated autocracies are characterized by protectionist trade policy. Henisz and Mansfield (2006) argue that smaller number of veto players is more likely to increase trade protectionism under bad macroeconomic conditions, but the impact of the number of veto players per se is lower in non-democracies (so, even large number of veto players may be irrelevant for politics in countries close to non-democratic pole). Li (2009) claims that political constraints reduce the threat of expropriation of FDI in both democracies and autocracies, but the effect is more pronounced in democracies. Hence, there seems to be no evidence in favor of a U-shape relation.
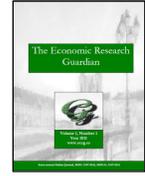
3.3. Tinpots and totalitarians

In addition, the difference between semi-authoritarian and authoritarian regimes may be an outcome of different motivation of authoritarian leaders. The approach most reasonable in this framework is the distinction between tinpots and totalitarians developed by Wintrobe (1990): while totalitarian leaders maximize power, tinpot leaders maximize their rents given the power is preserved. Hence, tinpot are per definition more likely to make political concessions and introduce certain elements of participation, if it increases the size of rents, although the imitation of democracy may also come from the desire to increase the probability of survival (Gandhi and Przeworski, 2006, 2007, Desai et al., 2009). It is possible that the shift on the democratization scale just reflects the movement from totalitarians to tinpots. However, totalitarian and tinpots may differ in terms of economic effects. Once again, it is possible to construct a U-shape relation, assuming that tinpots (due to more active rent-seeking) underperform totalitarians and democracies (where rent-seeking is lower). Unfortunately, the empirical literature dealing with distinction between tinpots and totalitarians is virtually non-existent. Islam and Winter (2004) address the reverse relation between the degree of freedom and economic growth for three regimes (tinpots, totalitarians and democrats) and do find significant differences in impact of positive or negative growth on the political freedom for three regimes. The difference in economic between tinpots and totalitarians has not been addressed so far.

3.4. Power to tax

A further aspect differentiating regimes and leading to the non-linear impact of political regimes on growth may be related to the non-linear effects of political regimes on the power to tax and tax revenue. The observation that autocratic and democratic regimes differ in terms of their ability to extract revenue from their subjects or citizens has been made in the literature by a number of papers (e.g. Cheibub 1998; Gould and Baker 2002; Profeta et al 2009); several recent contributions, however, show that the impact of political regimes in this respect might be non-linear as well. Mutascu (2011) and Garcia and von Haldenwang (2011) indeed demonstrate using panel data for 2002-2008 and 51 states and 1990-2008 and 193 states respectively that the relation between political regime and taxation follows a U-shaped pattern: autocracies and democracies are more likely to extract higher taxes than hybrid regimes. The theoretical literature discussed and summarized in these studies indeed provides reasons for this type of considerations. Democracies might achieve better results due to higher citizens' compliance and higher quality of public goods and services; autocracies, on the other hand, can extract larger revenue using coercion in a rather unconstrained fashion, and may be more compelled to do so due to the predatory interests of the governments and lack of official development aid more likely to be received by democracies.

A number of related papers should be mentioned here as well. Kenny and Winer (2006) show that the political regimes have a non-linear impact on the structure of taxation as well. On the theoretical level, a related discussion is provided by Acemoglu (2005), who, however, looks primarily at the distinction between weak and strong states in terms of power to tax rather than political regimes themselves. Rigolini (2003), finally, shows the presence of non-linear effects of inequality on political

activism of people in the countries, which translates into variation of redistribution, in turn affecting economic growth.

Nevertheless, in order to link these results to the main topic of this paper (the non-linear effect of political regimes on growth) several further issues should be addressed. First, the increase of tax revenue does not necessarily translate into an increase or decrease of economic growth. This topic received a very strong attention in scholarly literature, attempting to quantify the growth effects of tax reforms and reduction of taxation and to trace the possible channels of impact (e.g. Wang and Yip 1992; Engren and Skinner 1996; Myles 2000 among many others). Of course, if changes in tax pressure have differentiated impact on growth, so do political regimes causing differences in tax burden. The results may become more differentiated if one looks not merely at the "black box" of the GDP but individual aspects of improvement of human well-being. There is a large debate on this topic as well – for example, whether political regimes are instrumental in terms of poverty alleviation (e.g. Ross 2006).

Second, the importance of tax revenue as a source of income for governments may also differ in different political regimes. The way how tax revenue is disposed of is of course related to the constraints imposed on the government. In non-democracies, one could speculate, governments are less likely to use tax revenue for public goods provision and more likely to merely spend it for private consumption and luxury goods. Deacon (2009) reports that the provision of public goods in non-democracies is much smaller than in democracies, and Aidt et al. (2006) find that increase of franchise in Europe over 1830-1938 caused growth of public sector as well, though the effects are different for different policies. Boix (2001) demonstrates that economic development, resulting in greater demand for transfers, leads to larger growth of public sector in democracies than in non-democracies. But it is also possible that pressured by populist sentiments democracies are driven into excessive and economically inefficient public goods provision, although Lee (2003) shows that tax pressure on the rich does not necessarily grow in democracies. Furthermore, there have been cases of non-democracies, which were more successful in public goods provision, at least up to a certain limit: for example, the Socialist regimes actually improved on public goods provision at least in some developing countries of the world. Public goods provision may increase as a by-product of willingness to ensure greater control over society: if one wants to use schooling as a tool of indoctrination and propaganda (and many non-democracies are eager to do that), it is necessary to ensure first that schooling is available to and mandatory for all subjects. An interesting paper from the point of view of this discussion is that of Remmer (2007), who approaches this problem using sub-national data for Argentine provinces, and shows that the degree of political competition has a U-shaped effect on patronage spending and inverse U-shape on social spending: thus, if the political dominance of the leading party is very high or very low, spending on central administrative personnel is higher than for intermediate levels of competition.

Third, the relation between regimes and taxation becomes even more sophisticated if one considers the fact that taxation has an impact on the evolution of political regimes as well: the famous "No Taxation without Representation" thesis suggests that people in countries with higher tax burden are more likely to develop higher levels of requirements towards the accountability of the government and hence aspire more democracy (Libman et al. 2012 summarize the key contributions to this literature). Possibly, the specific forms of taxation (e.g. less visible 'at source' taxation of income vs.
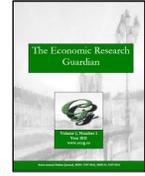
more open self-declared income taxation) might impact the extent to which "No Taxation without Representation" thesis applies empirically. Furthermore, since the tax evasion is influenced by the regimes as well, a causal loop could come into existence, with *de-facto* tax burden influenced by political regime and willingness to change the regime influence by the *de-facto* tax burden. Summing up, non-linearity of effects of political regime on the power to tax and tax burden might be a powerful factor explaining the non-linear effects summarized in this paper, but it may depend upon numerous additional factors taken into account.

4. Sub-national variation of democracy

The analysis of international data, which seems to constitute the largest part of the current research, has at least several significant problems: it is often very difficult to ensure compatibility of data and avoid self-selection problems. Moreover, democracy seems to be particularly subject to region-specific effects: Krieckhaus (2006) shows that regional political context for democracy matters a long for its impact on economic growth, and Mainwaring and Perez-Linan (2004) conclude the same for the democracy diffusion influenced by income per capita. One possible solution may be to look at the sub-national variation of democracy (for a general discussion of sub-national comparison see Snyder, 2001). In fact, a quite common feature of federations in the developing world is that they include regions with different degree of democratization. The first source of the variation is the (relative) weakness of the federal centre, often unable to control the development of regional political institutions and therefore limit the diversity of regional political equilibria (McMann, 2006). The second source is the need to compromise with regional elites in the process of democratic transition, leading to "pockets" of democracy or autocracy. In several cases the very ability to carry out the democratic transition may be associated with an "implicit contract" with regional elites, maintaining their autocratic rule. Finally, economic and ethnic differences among regions lead to strong differentiation of the bargaining power of individual actors; in a world where actors bargain not only within rules, but foremost about rules, it leads to differentiation of political institutions. This trend has been observed all over the world. Hence, it is possible that further research of intra-national variation of democracy could provide helpful evidence in order to understand the nature of possible non-linear interaction between democracy and growth.

For example, most Latin American federations, like Mexico, Brazil or Argentina, as well as federations outside the region, like Spain and India, exhibited step-by-step democratization with authoritarian enclaves in several regions, which could preserve their power for decades (Gibson, 2004, McMann, 2005). In several cases sub-national jurisdictions established a significantly different economic system like the Communist-led West Bengal in India (Chen and Sil, 2007). In fact, one should not necessarily be looking for developing countries and weak democracies to find examples of different political systems in one federal structure. Quite a few of the U.S. states in the early 20s century were controlled by powerful political machines eliminating any free competition at the elections; the dominance of the Democratic party in the U.S. South was based on various voting restrictions (like literacy test), introduced to undermine the electoral basis of the opposition (see Besley et al., 2007, for a survey of anecdotal evidence).
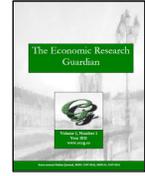
Another interesting example of sub-national variation of political regimes is Russia. One could probably claim that the first differences in the structure of political systems in Russian regions occurred even before the transition started: in the Soviet Union several national republics were able to establish a de-facto higher autonomy in exchange for loyalty to the central government, which, however, did not intervene in the local political process. After the collapse of the USSR, due to extreme weakness of the federal government, Russian regions obtained the opportunity to pursue their own transition path. Factors like ethnic and economic legacies of the Soviet period, specifics of regional leadership and particular effects of economic transition for individual regions seem to have a profound impact on the paths of formation of political systems (Hale, 2003). Further variables like political culture, initial economic development and proximity to the EU could also have influenced the diversity of political systems in Russia as well (Obydenkova, 2007). The outcomes of the regional regime transition process differed substantially (Gel'man, 1999). In several regions a dominant actor was able to establish a near-monopoly and therefore create a quasi-authoritarian system similar to those of Central Asian countries or Belarus. The most well-known examples of these groups are regions where the old Soviet elites maintained their dominance behind the new ideological facade. For example, in Tatarstan the leadership of the local Communist party was successful in shifting its power first to the Supreme Soviet (regional parliament), and then to the office of regional president Mintimer Shaimiev, which than created a successful political machine dominating regional and federal elections. In Bashkortostan the collapse of the party power caused competition between the Supreme Soviet and the regional government, ending up in the formation of a stable autocracy following the example of Tatarstan. In other regions, like Mordovia or Mariy El, regional elites failed to consolidate their power in spite of attempts to catch up with Tatarstan (Matsuzato, 2004). On the other hand, in Kalmykia the newcomer Kirsan Ilyumzhinov successfully challenged the existing regional elites, only to establish its own version of regional authoritarianism with strict control over political processes and economic assets in the region. Other regions provide examples of an elite settlement based on a compromise of main conflicting groups over the crucial aspects of policy (Nizhniy Novgorod), while the competition between clans remained an important factor of regional politics (Sharafutdinova, 2007). Yet another outcome suggests that conflicting regional elites develop institutions to avoid the "winners take all" outcomes (Udmurtia). The range of different political systems in Russia varied from pluralist democracies (St. Petersburg) to autocracies and even "warlordism" (Primorie, see Kirkow, 1995). The variety of political systems reflected itself in the variety of formal institutions (although Russian politics diversity is much higher than that of formal structures): from presidential republics to parliamentary systems (Udmurtia, Khakassia) and more complex organizations with a governing council comprised of representatives of different ethnic groups (Dagestan) (Kozlov and Popov, 1999:185-194).

Therefore the formation of political systems in Russian regions throughout the 1990s has been an outcome of competition and conflict between several centers of influence: governor, regional legislature, heads of largest municipalities (e.g. capital of the region). Towards 1999-2000 these conflicts diminished significantly, and a political equilibrium was achieved (Turovskiy, 2003). It does not imply, that the incumbents could always win the elections (although there seems to be a trend to lower turnover of governors starting with 1999, see Nureev and Shulgin, 2006; Titkov, 2007), but rather means, that the structure of veto players and of the formal and informal rules, i.e. governing the way (and the possibility) of power transition was set. However, in the 2000s the external environment for the regional regimes changed due to the new policies of the federal administration;

under Vladimir Putin it concentrated on reducing the extent of regional autonomy. Several measures of the federal sector (e.g. federal regulation of regional elections since 2002, see Konitzer and Wegren, 2006) seem to have influence the political systems in different regions (though the ability of the federal center really determine the electoral outcomes remained relatively weak, see Chebankova, 2005, 2006, 2007, 2008), but failed to dismantle the local varieties of political systems. The situation changed after 2004, when free elections of regional governors were replaced by their appointment by the president and especially after 2010-2011, when the old powerful incumbents were replaced by new federal appointees, yet even under these conditions, as Obydenkova and Libman (2012) argue, certain level of regime variation among Russian regions does persist.

There are several attempts to study the sub-national variation of political regimes as factors of economic growth. Libman (2012) applied the Russian data for the Putin period and showed that there is a robust U-shaped relation between democracy and short-term growth, even controlling for potential effects of democratic apparatus. The result is observed to four dimensions of democracy: freedom of elections, freedom of media and independence of municipalities, as well as structure of regional elites. Moreover, bureaucracy has a significant negative impact on growth. On the other hand, if the bureaucratic machine is large, increase of democracy seems to hamper economic growth. Hiskey (2005) looks at the Latin American experience, in particular, at the democratization process in Mexico (after almost seventy years of the dominance of Institutional Revolutionary Party PRI) and the recovery from 1995 economic crisis. He also finds a U-shape relation: regions with high and low PRI voting rates seem to recover better than intermediate regions. Finally, Parnerkar (2004) considers the variation of political institutions among Indian states and examines the impact of four regimes identifies on economic performance (although does not test explicitly for non-linear effects). Nevertheless, the sub-national variation of democracy remains an interesting field for further studies.

5. Conclusion

The aim of this paper was to survey the literature dealing with non-linear effects of democracy on economic growth. So far the evidence has been mixed: there is some support for both weaker and stronger performance of hybrid regimes as opposed to pure democracies and non-democracies. One of the reasons for this fact may be that different dimensions of what is usually conceptualized as "democracy" and measured by continuous democracy indices should not necessarily correlated to each other. Although both pure democracies and pure non-democracies are characterized by certain combinations of features of political systems, different hybrid regimes may include different combinations of these elements, thus producing different results. For example, hybrid regimes may be both bureaucratic autocracies and democracies with weak rule of law; autocracies with larger number of veto players; tinpots as opposed to totalitarians. There could also exist variations in the power to tax between democracies, autocracies and hybrid regimes. Hence, a reasonable analysis requires exact clarification of dimensions of democracy considered.

On the other hand, the existing literature has mostly focused on international variation of political regimes. An interesting field of studies could be to look at how differences of economic systems on
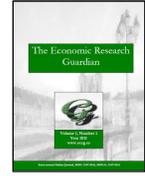
the sub-national level influence economic growth, since most federations in the developing and transition world include political entities with different degree of democratization. There are some results obtained for Mexico and Russia, suggesting the existence of U-shape relation. However, even in this case the question of generalization appears: democracy effects seem to have strong regional specificity. Moreover, it is necessary to understand the relevant dimensions of democratization considered in the analysis, as in case of international data. It may also be simpler at the national level than for an international comparison, where the country-specific knowledge required for the understanding of features of particular hybrid regimes may be absent.

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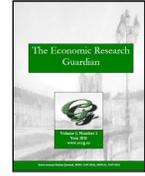
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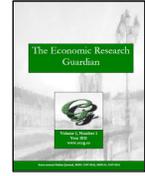
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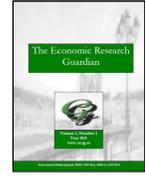
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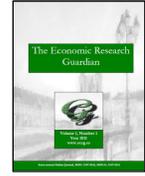
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