Constitutional Property Rights Protection and Economic Growth: Evidence from the Post-Communist Transition

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Abstract: This paper seeks to estimate the economic growth effect of constitutional provisions for property rights protection. It does so using the unique situation in formerly communist countries in Central and Eastern Europe and the Caucasus where all but two introduced new constitutions after the fall of the Iron Curtain. The effects of implementing different constitutional provisions can therefore be observed in a group of countries with the same formal starting point. Estimates provide no evidence of positive effects and mainly point towards a negative conclusion: the introduction of constitutional protection of property rights is not associated with economic development in the long run, but tends to impose costs during a period of institutional transition and implementation proportional to the constitutional change.

Keywords: property rights, constitutional political economy, transition

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1. Introduction

A voluminous literature has documented that the protection of private property rights is a main determinant of economic growth (North and Weingast, 1989; Keefer and Knack, 1997; Aron, 2000; Rodrik et al., 2004; Acemoglu et al., 2005). Much progress has been made in understanding the association between the rule of law and growth, but as Haggard and Tiede (2011) note in their recent survey, major challenges associated with measuring the rule of law and the protection of property rights remain. Salient questions include if the quality of existing measures is sufficient, if they are measuring a theoretically relevant concept, and if so, what is the dimensionality of the measure and the underlying concept? In addition, if one documents a robust effect of property rights protection, can one draw any policy conclusions from that finding?

Most indicators are subjective to various degrees and aim at capturing elements of *de facto* enforcement of property rights. Yet, de facto measures all rest on subjective assessments of the quality and independence of legal systems. A small emerging literature therefore instead explores indicators of objective, *de jure* enforcement of property rights as a potential fix for measurement problems. However, this literature in general suggests that de jure protection does not affect de facto enforcement of property rights. In their pioneering work, Feld and Voigt (2003) demonstrate that the relation between de jure and de facto measures of judicial independence is fragile at best. In addition, a set of growth regressions in Feld and Voigt (2003) show that only de facto measures are robustly correlated with economic performance. More recent studies document two further complications.

First, Voigt (2011) and Justesen (2011) both examine whether formal institutions protecting property rights are credible in the long term, finding that de facto enforcement of property rights tends not to promote growth unless accompanied by veto institutions that ensure the longer-term credibility of property

rights promises. In other words, if property rights protection is subject to regular politics, it can be changed whenever electoral or economic circumstances provide political incentives to do so, making it unlikely to contribute to growth. Without effective veto institutions, even such basic policies are subject to time-inconsistency problems similar to other policy areas that undermine their efficacy (cf. Kydland and Prescott, 1977; Barro and Gordon, 1982). The same type of problem would apply if formal rules include politically defined limits on or requirements for the use of property.

Second, formal rules entailed in either constitutions, statutes or ordinary legislation may arguably be without consequence if constitutional and judicial norms are not in line with the formal provisions (cf. Hayek, 1973; Voigt, 1999). Third, Berggren et al. (in press) note that any path towards good institutions requires a period of change and instability (cf., Kingston and Caballero, 2009). They thus address the issue of whether processes of changing legal institutions necessarily come with transitional costs that depress growth in the short to medium run.

However, none of the latter problems can be properly answered without solving the former: better measures of institutional quality (cf. Glaeser et al., 2004; Voigt, 2009; Berggren et al., in press). A main problem in this respect is arguably the development of legal and constitutional norms that may drive a wedge between de jure provisions and de facto enforcement, i.e. between what is legislation and what is law (Hayek, 1973; Ginsburg et al., 2009). Since the existence of strong legal norms within an independent judiciary may yield substantially better or worse enforcement than mandated by formal rules, it complicates the measurement of the quality of the institutional framework and de facto enforcement. Legal and constitutional norms are difficult to conceptualize and even more difficult to measure, and therefore tend to be partially subsumed by de facto indicators.

In the present paper, I alleviate this problem by revisiting the association between de jure property rights and economic growth in a sample of countries with a specific history: Central and Eastern Europe

and post-Soviet Caucasus. This choice allows for three specific innovations of this paper, relative to existing literature. First, as almost all post-communist countries in the region implemented new constitutions and reformed their judiciaries during or after transition, their experience provides a special setting. Within this group of countries, the judiciary had the same type of education and ideological schooling, such that constitutional norms and other unwritten provisions were similar; immediately after transition, new constitutional norms have arguably not had time to form. In this setting, it is in principle possible to study the pure effects of the introduction of constitutional provisions intended to protect property rights. Second, the timing of the constitutional change implies that a major part of the ever present endogeneity problem is solved in this particular setting. It therefore also allows for estimating any short to medium run costs of changing the basic institutional framework protecting private property rights. Finally, part of the innovation is a simple additive coding of the strength of de jure constitutional provisions to protect property rights, but with additional details of constitutional use restrictions taken into account.

Analysing annual growth rates of GDP and labour productivity across Central and Eastern Europe and post-Soviet Caucasus between 1990 and 2009 shows that the strength of such provisions, measured in a simple way as the logarithm to a count of their mention in the constitution, is negatively associated with growth during institutional transitions: the stronger de jure property rights protection is implemented in the new constitution, the deeper is the transitional trough that countries tend to go through. However, these effects lose significance following a period of transitional costs and reputation building and most likely last, on average, no more than six to eight years. After this period of institutional transition, there are no consequences of the varying strength of de jure provisions. Further results suggest that these consequences only arise in countries in which the constitution does not mention special use restrictions on property.

The rest of the paper is organized as follows. Section 2 first briefly describes the constitutional history after transition in Central and Eastern Europe. Section 3 outlines the data and estimation strategy. Section 4 provides descriptive statistics of economic growth in Central and Eastern Europe following transition and following constitutional change. Section 5 provides empirical estimates, which section 6 discusses and concludes upon.

2. Constitutional provisions in Central and Eastern Europe

During the interwar period, Central and Eastern Europe was almost as economically diverse as the western half of the continent. Several countries were stable democracies and Czechoslovakia in particular counted among the richest and most industrialized countries in the world. That all changed when, in the words of Winston Churchill, an Iron Curtain was lowered across Europe. Most of Central and Eastern Europe ended up on the wrong side of the curtain and languished behind it for more than four decades following World War II. Even before the war, the main part of the Caucasus region had either joined the Soviet Union or been forced to do so. All formal institutions, with very few exceptions, were effectively Soviet transplants, and what failed to work in Russia also failed in the rest of the communist bloc.

With the collapse of the Soviet Union, the approximately 30 countries emerging out of the bloc were given a unique chance to refurbish their institutional framework. Not least, almost all of these countries chose to write new constitutions, as reported in Table 1, to replace the communist framework forced upon them by occupying Soviet forces. The only exceptions to the rule of writing new constitutions were Hungary and Latvia. Latvia had a dormant, democratic constitution from 1922, which the country reinstated and amended through the 1990s, and which therefore effectively worked as if it had been a newly devised constitution. The Hungarian constitution from 1949 was likewise heavily amended before being reintroduced in October 1989. Table 1 documents how different constitutional solutions these

countries eventually chose by reporting the central proxy in this paper: the number of distinct mentions of private property rights protection in the constitution. The table also reports the rule of law indices from World Governance Indicators (WGI) Rule of Law Index and the Heritage Foundation, two of the most used measures of de facto enforcement of property rights (Kaufmann et al., 2008; Heritage Foundation, 2012) and the number of use restrictions.

Even though the new constitutions were negotiated and written within a relatively short time span, the formerly communist countries made very different constitutional choices. With respect to property rights, some countries such as Estonia, Moldova and Ukraine, provided apparently very strong constitutional provisions, but also included clauses that prescribe limits to the use of private property. Other countries chose much fewer, shorter and seemingly weaker constitutional protection of property rights. At the extreme, the Czech Republic is a case in point as the only country in which the constitution mentions neither private ownership nor property rights; Czech private property rights are protected almost only by statute and judicial norm.[1]

Insert Table 1 about here

Interestingly, the Czech Republic also stands out as one of the countries with the weakest formal protection of the independence of the judiciary (Feld and Voigt, 2003). Yet, despite these apparent institutional shortcomings, it tends to fare extremely well on most de facto measures of protection, compared to the rest of this group of countries. The Czech Republic has most years been one of the three

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[1] Technically, the Czech constitution refers to the United Nations Charter of Fundamental Rights and Basic Freedoms in article 112.1. As this is merely a reference to an international convention subject to change through simple political negotiation and reinterpretation, I do not count it as a constitutional provision. However, no results in the following are affected by counting this inclusion as a constitutional provision formally protecting property rights. I thank Annamaria Kubovcikova for pointing out this detail to me.

best-rated countries in the WGI within the present sample (as shown in the table), has developed some of the strongest political veto institutions of the region (Henisz, 2002), and is one of the economically most successful countries in the region.

An additional point of importance reported in the table is that the present group of countries did not implement constitutional changes at the same time. The timing of constitutional changes in general falls in four groups. Between 1989 and 1991, i.e. early in transition, Hungary, Croatia, Bulgaria, Romania, and Slovenia changed their constitutional frameworks. A group of 13 countries – Mongolia, Turkmenistan, Estonia, Lithuania, Slovakia, Latvia, the Czech Republic, Uzbekistan, Kyrgyzstan, Russia, Belarus, Moldova, and Tajikistan – followed suit between 1992 and 1994. Seven countries postponed their constitutional process until relatively later in their transition process, between 1995 and 1997: Armenia, Georgia, Kazakhstan, Azerbaijan, Bosnia and Herzegovina, Ukraine, and Poland. Finally, Albania, Macedonia, Serbia, and Montenegro implemented new constitutions after the general economic and political transitions were finalized.

As in Feld and Voigt (2003), the present data document the almost non-existent long-run association between de facto and de jure protection. Figure 1 exemplifies this by depicting the relation between the number of constitutional provisions and the WGI de facto measure. The correlation between the two measures is -.29; the correlation is -.17 between the measures across the 16 countries with restrictions on the use of property is (the rectangles); and the correlation is -.36 across the rest (the triangles). These results are almost identical when using the alternative rule of law measure from the Heritage Foundation. The figure thus makes the same point as much of the literature: that the long-run relation between de jure and de facto measures seems weak and the two types of measures tend to capture different aspects. This occurs even though one takes into account that some countries impose restrictions on the use of private property, which would limit the potentially positive effects of protecting property (Demsetz, 1967).

However, this non-relation does not necessarily imply that constitutional de jure provisions are without consequences. First, the imposition of restrictions and specific demands on the use of property tends to leave the discretionary power of politicians and government unchanged, as they imply the existence of a 'rubber band' of interpretation. Second, the implication is merely that de facto enforcement is a different concept than de jure legislation and original, official intentions. Whether de jure provisions as expressed in the constitution do have observable consequences and whether specific institutional details matter for these consequences is explored in the following. I next turn to the data.

3. Data

All data in the following cover the period 1990 to 2009, after which there are no comparable economic data available. In addition, GDP data are available from the mid-1980s for a number of countries already independent in 1990. The data therefore cover the entire transition from communism to varying degrees and configurations of market economy, up to the 2008-2010 financial crisis. In the central estimates, the dataset includes 29 Central and Eastern European countries with GDP growth as the dependent variable, and 28 when the growth of labour productivity is the dependent variable, as Montenegro lacks the latter data; all are listed in Table 1 above.

To account for the strength of constitutional protection of property rights, I count the number of distinct mentions of property or ownership rights in the constitution in which it does not refer to public property or state ownership. All constitutional texts are translated into English, thereby providing a

common understanding of the terms 'property' and 'ownership', and primarily derive from ICL (2011).[2] As such, I ensure that the provisions counted refer to *private* property rights. A potential complication is that a number of constitutions not only provide de jure protection of property, but also includes requirements or limitation on its use. While the Hungarian constitution merely allows for differential enforcement in case of major disasters or foreign attacks, which I do not count as a use restriction, a standard formulation is, for example, from the Kazakhstani constitution: "Property shall impose obligations, and its use must simultaneously benefit the society. Subjects and objects of ownership, the scope and limits of the rights of proprietors, and guarantees of their protection shall be determined by law." Likewise, the Moldovan constitution (article 9.2) includes the equally ambiguous restriction that "No property may be used to encroach upon or damage the rights, liberty and dignity of people."

A number of constitutions include such clauses that in principle offer politicians considerably leeway in defining what, for example, the benefit of society or socially acceptable usage consists of. In addition, some constitutions also include clauses on intellectual property rights and define specific limitations on the property rights of foreign nationals. These characteristics are captured by dummy variables in the following.

The economic data all derive from the Penn World Tables, Mark 7 (Heston et al., 2011). I first draw data on GDP per capita and GDP per worker (labour productivity), both in purchasing-power adjusted 2007 US dollars. These data are reported as initial levels in logarithms and annual growth rates over the period 1990-2009; the latter are the dependent variables in the following. Penn World Tables also include shares of GDP devoted to investment and government final consumption, which are added as control

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[2] In four cases – Kazakhstan, Kyrgyzstan, Moldova and Montenegro – the ICL does not provide an English translation of the constitution. In those cases, I use information in the 'Constitution Finder' provided by the University of Richmond School of Law (University of Richmond, 2011).

variables. In addition, I construct two count variables: 1) the years since transition started; and 2) the years since the constitution was implemented. I also add a full set of annual fixed effects; only the constitutional results are shown in tables.[3] All are included to account for J-curve effects of transition. All data are summarized in Table 2.

Insert Table 2 about here

In a set of further tests, I add three sets of variables. First, I interact the level of constitutional provisions with either the time since the implementation of the constitution, or dummies capturing either a two, four, six or eight-year window after the implementation. The inclusion of these interactions effectively allows for some time before constitutional changes take effect and thus provide information on the likely size and timing of transitional costs associated with changing constitutional provisions. Second, I add Henisz's (2002) PolCon V measure of the strength of political veto players. As such, I allow for differential effects in countries in which veto players are likely to stop practices that violate de facto property rights protection (cf. Justesen, 2011; Voigt, 2011). I also provide tests with an interaction with a dummy for whether or not a country imposes use restrictions on property. With all models including interaction terms, effects are calculated by the delta method and main effects of interactions with continuous variables are depicted including 95% confidence intervals (Brambor et al., 2006).[4]

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[3] By controlling for common effects of the collapse of the Soviet Union through the annual fixed effects as well as country-specific transitional costs, as transition is considered specific to each country, I distinguish between two types of transitional costs. Transition is counted from the year a country gained its full independence or, in the case of Ex-Yugoslavia, from the year the civil war seized. The dating is identical to that used in Bjørnskov and Potrafke (2011).

[4] In addition, one might want to control for potential problems associated with the absence of a unit root in this type of data. While it cannot directly affect the main estimates, it could in principle affect results through omitted variables bias. In a set of estimates including a lagged dependent variable estimated with the Bruno (2005) estimator that deals with the problem of Nickell Bias (not shown but available upon request), the central estimates remain unchanged.

Third, in an appendix I employ the Heritage Foundation (2012) index of rule of law as a de facto measure of property rights protection, as well as its two components – protection of property rights and freedom from corruption. As this index is only available from the 1995 report, which reports data for 1993, an analysis of the determinants of constitutional change and its potential effects on de facto protection necessarily start in 1993. With these analyses, I also add Vreeland's (2008) 'xpolity' measure of democracy, a correction to the standard Polity IV measure, which excludes civil violence proxies associated with anocracy. I also use these data in a set of estimates of the introduction of constitutional provisions where I add the average growth rate three years prior to any year, and dummies for countries that used to be part of the Soviet Union and Yugoslavia, and those with borders to Western Europe.

The estimation strategy throughout all growth regressions is generalized least squares estimates with country and annual fixed effects. As such, time-invariant features often associated with long-run growth such as geography, social trust, pre-communist history and in this particular case education, are captured by fixed effects.[5] While one of the challenges in the literature on institutions and growth is how to deal with endogeneity, this approach alleviates such problems, as all countries came from a situation of similar institutions and virtually identical property rights regimes but chose different constitutional paths. In addition, the fact that countries implemented constitutional changes at different times that do not coincide with the time of their economic and political transitions from communism allows for identification of not only post-implementation effects but also of transitional costs. As such, the choice of focusing on Central and Eastern European constitutional transitions alleviates a number of econometric challenges in previous

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[5] Education can in this group of countries be considered an approximately time-invariant characteristic. The reason is that major changes to educational systems take at least ten years from inception to fruition – the time it takes for the first new students to finish their education. The consequences are therefore not likely to be seen within the 19 years considered in the present paper.

studies. I nevertheless include a set of Heckman two-step estimates to document that constitutional changes in this particular group of countries can be treated as approximately exogenous.

As such, the main growth specification is kept relatively simple. Many more variables could in principle be added, yet two immediate reasons exist for not doing so. First, a number of additional variables that one would ideally want to add to a growth specification are not available in the first years after transition, which would invalidate the specific identification benefits of the paper. Second, other institutional indices might also be added, but including factors such as subjective de facto measures of institutional quality or the EBRD transformation indices in all analyses would arguably pick up some of the main effects of de jure provisions: if de jure provisions work as intended, they ought to affect de facto protection while transformation indices might also be directly measuring transitional costs. The simplicity of the specification is therefore dictated by the main research question: whether the introduction of constitutional de jure protection of property rights affects the economy.

4. Growth after transition and constitutional change

A complicating factor in dealing with Central and Eastern Europe is the well-known transitional problem. After 40 years of command economy, and for the former Soviet Union considerably longer, a large part of the economy and industry was essentially run-down and of little value. The transition towards implementing a market economy and the vast reallocation of resources towards more productive uses also entailed major costs that resulted in a period of negative or very slow growth.

4.1. Growth and transition patterns

Figure 2 clearly illustrates the J-curve like transitional costs, sometimes known as the 'valley of tears', borne by virtually all Central and Eastern countries. The bottom occurs three years into transition, after which

growth tends to resume and turn positive in the fifth year. One nevertheless has to keep in mind that part of the activity lost in the first years came about as the large military-industrial complex of the Soviet Union was dismantled. In addition, while GDP took more than five years to reach its pre-transition level, private consumption grew faster and most citizens gained access to far more and better goods and services than under communism.

Insert Figure 2 about here

Apart from the transitional costs of reforming a command economy, there might also be costs associated with implementing a new constitution. This type of transition is illustrated in Figure 3, which rather clearly shows a different pattern than in Figure 2. Most constitutional changes are accompanied by a two-year period of negative or zero growth. After two years, growth increases steeply for the next two to four years. Six years after constitutional change, the trends in figures 2 and 3 appear very similar.

Insert Figure 3 about here

This picture is not markedly different if, for example, countries are separated into groups of early starters versus late reformers, i.e. roughly between countries opting for a big bang transition versus those choosing a gradual transition approach (cf., Bjørnskov and Potrafke, 2011). Purely economic and political transitions can therefore clearly be separated from formal institutional and constitutional transitions.

4.2. Property rights change – when and what?

A related question is if constitutional changes to property rights protection, i.e. de jure changes, also affect de facto protection. Feld and Voigt (2003) find no evidence of an association between levels of de facto and de jure protection in a sample primarily consisting of middle-income and high-income countries and the simple plot in Figure 1 suggests no long-run association. However, the present group of countries provides a different test of the potential importance of introducing formal protection of private property.

The inclusion of country fixed effects in regressions take care of most of the potential problems relating to countries selecting specific constitutional choices based on, e.g., history, cultural characteristics or other approximately time-invariant factors. However, one may worry that a choice of strong constitutional property rights protection might be a response to specific problems in early transition.

As outlined above, in established, stable regimes, judicial norms and constitutional interpretation may have formed independently of the intentions of constitutional provisions (Elkins et al., 2009; Voigt, 2009). To test whether constitutional changes in general have had any effects on de facto enforcement of private property rights, I use the Heritage Foundation (2012) index of rule of law. This index, which is composed of a property rights component and a corruption component, is the only choice with almost full coverage of the formerly communist countries that extends sufficiently far back. Heritage started to publish their institutional indicators in 1995, and as published indicators rely on data collected from on average two years prior to publication, the rule of law data series effectively starts in 1993 and extends to 2010.

To ensure that the choice of the strength of constitutional property rights protection can be considered exogenous to economic development, I first provide a set of simple estimates of the timing and type of constitutional choice made by these countries. I do so within the framework of a Heckman two-step estimator, in which the first stop captures whether or not a country changed its constitution, and the second step captures the strength of formal protection in the new constitution. Yet, Table 3 reports the results of first estimating a simple fixed effects specification with the log to constitutional strength as the dependent variable, and a simple set of control variables joint to fixed effects and Heckman estimates consisting of democracy, the log to the number of years since transition began, and the average growth rate across three years preceding a constitutional change. As such, the specification includes the level of economic performance immediately before and during a process of designing and negotiating a new constitutional.

Insert Table 3 about here

First, the fixed effects estimate in column 1 suggests that prior growth affected constitutional choices. In particular, the estimate suggests that countries that did relatively poorly before their implementing a new constitution implemented stronger constitutional protection of property rights. This would be problematic in the following by invalidating the assumption that the specific constitutional choice made by countries is exogenous to economic growth. However, the Heckman two-step estimates in columns 2-5 tell a rather different story. The apparent association between prior growth and specific constitutional choices does not occur because poor performance causes stronger property rights protection. Instead, after years with relatively poor performance countries were more likely to implement a new constitution. In addition, the estimate on the time since transition merely shows that countries tended to implement new constitutions relatively early in transition. Given that a new constitution was implemented, the Heckman estimates show that prior growth was not associated with the specific choice of constitutional property rights protection. Only democracy at the time of implementation, and having either a history as part of the Soviet Union (positive) or Yugoslavia (negative) are significant and relatively weak predictors of the specific constitutional choice when a new constitution was implemented.

As such, the Heckman estimates imply that the potential worry that particular constitutional choices were responses to particular economic problems, which would create an endogeneity problem, is unfounded. In other words, constitutional timing and choice when it comes to private property rights protection in the present group of countries in Central and Eastern Europe and the Caucasus can be considered exogenous shocks to the institutional framework.

5. Regression results

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Simple correlations between de jure and de facto protection, as well as a set of estimates reported in an appendix, suggest that there may be a consistent picture of no or directly negative consequences with respect to de facto protection of property rights. However, the possibility remains that constitutional provisions may have effects over and above the expectation that private property rights are going to be respected and enforced. Having such rights strongly embedded in constitutional institutions could, for example, provide more certainty of the level of de facto protection, thereby creating stability, or provide certainty that property rights are also protected in the foreseeable future by creating a credible constitutional veto. As shown in the previous section, the particular constitutional choice can be considered exogenous to economic performance in the years before the time of implementation. A set of estimates controlling for country fixed effects are therefore likely to be unbiased.

Controlling for the initial GDP per capita, the partial correlation between economic growth and the count of property rights provisions is weak at .22, but significant at $p<.01$. The corresponding partial correlation between the growth of labour productivity and the count is .26, also significant at $p<.01$. Whatever the evidence looks like in the long run, any association is therefore likely to be weak and could reflect underlying stable country characteristics. In the following, applying a fixed effects estimator allows a solid identification of what happens to growth when introducing new constitutional provisions.

5.1. Main results

Table 4 reports the main results, which first of all exhibit some well-known, standard associations. Initial GDP per capita and per labour unit (labour productivity) are both strongly negatively associated with growth, investment rates are positively so, and government expenditures are not in the short run (cf. Bergh and Henrekson, 2011). The table also shows considerable support for the choice of country fixed effects and annual fixed effects that are always jointly significant, suggesting a common business cycle. In addition,

the table shows a substantial positive effect of moving away from having a communist constitution of between four and six percentage points, all other things being equal. Finally, reaching membership of the European Union in 2004 seems to have been associated with a significant *decrease* in growth.

Insert Table 4 about here

Turning to the central estimates, the strength of de jure provisions protecting property rights turns out to be negatively associated with both GDP and labour productivity growth. These estimates are moreover significant at $p<.10$ or better. As such, averaged across the period after which a new constitution was implemented – which on average is 14 years in the present sample – the effect of strengthening the constitutional provisions protecting property rights appears to be negative.[6]

5.2. Conditional findings

However, the results in Table 4, columns 1 and 4, include both immediate effects of constitutional rules that could take the form of substantial transitional costs as well as longer-run consequences. Columns 2 and 5 therefore include an interaction term with the logarithm to the number of years since the constitution was implemented; columns 3 and 6 instead include an interaction between Henisz's PolConV measure of the strength of veto players and the de jure strength. The former tests allow for a situation with short-run transitional costs but long-run positive consequences of de jure rules while the latter allows for a

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[6] A potentially important caveat is that the overall length of constitutions differs between 51 articles (Bosnia) and 259 articles (the Yugoslav constitution in place in Serbia prior to 2006), and 3,953 words (Albania) and 29,401 words (the former Yugoslavia). As such, the relevant measure of constitutional strength may be number of provisions *relative* to overall length. However, I report all results without any controls for constitutional length / garrulity since tests showed such measures never approach significance. I thank Jerg Gutmann for pointing out this potential complication to me.

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situation in which veto institutions provide credibility to the constitutional promise of property rights protection (cf. Justesen, 2011).

The interaction results provide substantial support for the former type of effect but very little for the latter; the interacted effects are illustrated in Figures 4 and 5. Figure 4 first plots the moderating effect of the time since implementing the constitution on the growth consequences of constitutional provisions. The plot suggests that the effects of constitutional property rights provisions are increasing in the time since implementation, although from a significantly negative association in the first two years. The results also suggest that the effects turn significantly positive after 11 years, i.e. for the average country in the sample in the last three years of the present period. Although not illustrated by a figure, results are almost identical when the growth in labour productivity is the dependent variable. Conversely, the plot in Figure 5 suggests that the effect of constitutional provisions do not depend on the strength of veto institutions. However, the figure also shows the wide confidence interval and how provisions are only significant at $p<.05$ between values of Henisz's PolConV index between .1 and .5.

Insert Figures 4 about here

Insert Figure 5 about here

As such, the results in Figure 4 depict the same basic pattern as in Figure 4 with significant institutional transition costs in the very first years after a change, associated with a new constitution, that are increasing in the strength of de jure property rights provisions. However, these results crucially depend on the assumption of a log-linear interaction effect. The estimates reported in Table 5 therefore allow for a non-linear interaction that instead depends on transitional 'windows' of varying length.

Insert Table 5 about here

The results in the table document the importance of short-to-medium run costs of institutional transitions, but do not exhibit support for any long-run gains as were suggested by results in Table 5. On

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one hand, the reported non-interacted figures on the log to de jure constitutional provisions are all estimates of the effect *after* a transitional window. None of these estimates are significant and three out of eight are negative. On the other hand, effects *within* the transitional windows – periods ranging from two to eight years from the implementation of new constitutional rules – are all significantly negative and sizable; full interacted estimates are shown in the bottom panel.

While interaction results in Table 4 (illustrated in Figure 5) suggest that de jure protection exerts a positive effect after an 11-year implementation and transition period, even the choice of an eight-year transitional window in Table 5 shows no positive consequences outside the window. In other words, the more flexible estimates in the table suggest the strongly significant existence of major transitional costs. The estimates suggest that the difference between moving from a de facto pre-transition communist constitution with no property rights protection to either 1) the average de jure strength or 2) a de jure strength one point higher, is associated with an annual growth decrease of roughly one percentage point within a transitional window, all other things being equal. While the interaction estimates as shown do not differ significantly between windows of two to eight years, they become insignificant when choosing windows of ten years or longer and tend to show the largest and statistically most precise estimates of costs when assuming a window of approximately six years.

5.3. Restrictions on property use

The final issue deals with a potentially important detail in the constitutional protection of property rights. 16 of the 29 countries in Central and Eastern Europe implemented clear constitutional provisions, which nonetheless also place some form of restriction or requirement on the use of private property. As such, their provisions protecting property rights violate Demsetz's (1967) requirement that owners be free to dispose of property as they perceive to be best. These restrictions tend to be relatively vague, imposing

unspecific demands on owners of property and restrictions on its use, which leaves politicians substantial leeway in defining and redefining what is meant by, e.g., effects on 'dignity' or various benefits to society as a whole.

Such provisions leave a potentially offsetting effect of de jure protection on growth. As countries' initial point of institutional departure was a situation in which politics had precedence over judicial decisions, a main element of the constitutional process in most countries was an intention to separate politics and constitutional and judicial decisions. Including vague restrictions on the use of property may leave the de facto status of property rights protection unchanged, as restrictions can work as 'rubber' articles that leave the influence of politics unchanged. In other words, given that use restrictions are sufficiently undefined, it is up to a continual process of political bargaining to decide the contents of such restrictions, and therefore the actual degree of protection of private property rights.

Table 6 addresses the question whether such use restrictions somehow undermine the effects of de jure protection in two ways. First, columns 1 and 4 simply add a dummy capturing whether or not the constitution mentions use restrictions or requirements. Second, columns 2 and 5 add an interaction term between a dummy for use restrictions and the de jure index, leaving out the interaction between de jure protection and the six-year window. Finally, columns 3 and 6 add both interaction terms.

Insert Table 6 about here

The additional results in columns 2 and 5 suggest that de jure protection that includes use restrictions is positively associated with the growth of labour productivity, but not significantly so with GDP growth. However, the results in columns 3 and 6 suggest otherwise. While the interaction with use restrictions is positive, its size is such that it simply offsets the negative direct effects of having use restrictions when the strength of de jure provisions exceeds a fairly low level. As such, as is illustrated in Figure 6 that plots the consequence of introducing use restrictions conditional on the level of other property rights provisions,

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what use restrictions appear to do is to entirely neutralize any effects of constitutional protection of property rights.

Insert Figure 6 about here

Although not shown, the results outlined in this section are broadly robust to a series of robustness tests. Not least, they are robust to excluding the Czech Republic – arguably the odd country in this sample since the Czech constitution does not mention property rights – and Armenia, Azerbaijan and Moldova, in which the de jure constitutional property rights protection seems particularly strong. Other tests such as restricting the sample to not including single years or adding potential control variables also suggested that the main results are robust.[7] With this in mind, I proceed to discuss the significance of the results and conclude.

6. Conclusions

This paper has investigated the relation between growth rates of GDP per capita and per worker (labour productivity), and a de jure measure of the strength of property rights protection mentioned in the constitution. Starting from the assumption that the new constitutions in Central and Eastern Europe and post-Soviet Caucasus represented a clean break with a communist past, but that new constitutional and judicial norms and reputations had arguably not had time to form, the present approach would be likely to capture the pure effects of constitutional provisions. In addition, knowing the exact time of implementing

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[7] In particular, adding openness – the most obvious additional variable – does not change the main estimates. Although openness, measured by trade volumes, is sometimes significantly negative in the present specifications, further tests showed that it is a strongly positive predictor of investment rates. The combined effect is insignificantly negative and inconsequential to the estimates on constitutional provisions. Likewise, adding the de facto measure from the Heritage Foundation also leaves the central estimates unchanged. These tests are available upon request.

property rights protection after a country deposed of its communist institutional framework arguably alleviates the ever present endogeneity problem when combined with country fixed effects.

In a panel of 29 formerly communist countries observed between 1990 and 2009, an objective measure of de jure constitutional provisions to protect property rights turns out to be a significant predictor of growth within a window of institutional transition. However, this influence is negative, supporting Feld and Voigt's (2003) finding that while de jure property rights protection does not have long-run consequences, countries that implemented stronger de jure provisions tended to bear larger transitional costs of implementing the new constitution. Further results also suggest that the main results only pertain to countries in which the de jure protection does not also imply restrictions on the use of property or specific demands on owners.

If anything, the introduction of stronger de jure protection of property rights thus seems to be associated with transitional costs but no long-run economic gains. One might ask how these findings can be interpreted or reconciled with the apparent constitutional intention of protecting private property rights. While several are in principle possible, two interpretations stand out as consistent with the present evidence and recent thinking.

First, any transition from an economic and political system that has been in place for decades must necessarily entail substantial transitional costs. When observing that countries that implemented stronger de jure provisions suffer larger transitional costs, such choices might reflect the depth of their problems and thus the likely size of transitional costs. However, the correlation between the number of years a country was communist and the de jure protection of property rights is merely .38 and sensitive to the inclusion of countries in the Far East. Furthermore, the correlation between the number of years and de facto protection, as reported in Table 1, is a more sizeable and robust -.65. The latter correlation indicates the existence of deeper factors, consistent with the notion of de jure choices reflecting the size of the

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problem, but also consistent with the existence of more persistent problems that would not merely be captured in a purely transitional costs. Such problems would, in this setting, be likely to be subsumed by the country fixed effects and thus not affect the central estimates.

Another way of understanding the results derives from the importance of constitutional norms (Voigt, 1999; Ginsburg et al., 2009). De facto protection of property rights depends on resources, judicial independence as well as whichever norms develop in the judiciary (cf. North and Weingast, 1989). After a massive constitutional change such as that which Central and Eastern European countries underwent when implementing new constitutions, the new judiciary presumably not only needs time to establish a reputation, but also to form judiciary norms and habits. This process would seem to have been relatively smooth in the Czech Republic, which chose not to mention property rights in the constitution that was signed in December 1992. Conversely, the estimates can be interpreted as reflecting substantially longer periods of uncertainty before reputation and norms had formed in countries that implemented stronger de jure provisions protecting property rights.

It remains a possibility consistent with the estimates that clearer and more detailed constitutional provisions stand in the way of an efficient establishment of effective constitutional norms. As such, the findings may invalidate a popular policy interpretation of the standard finding that strong de facto property rights protection is associated with better economic performance. Many economists and political scientists draw the conclusion that countries can and should implement stronger property rights legislation as a way to get stronger de facto protection. Yet, as the present findings suggest, even implementing such protection in the constitution may be counterproductive.

Appendix

Insert Table A1 about here

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Table 1. Constitutions in Central and Eastern Europe

Country	# provisions	Date	Rule of Law	Country	# provisions	Date	Rule of Law
Albania	6	Nov. 1998	-0.52 / 34	Macedonia	2 (1)	Nov. 2001	-0.22 / 38
Armenia	8	Jul. 1995	-0.4 / 28	Moldova	7 (2)	Jul. 1994	-0.45 / 35
Azerbaijan	8	Nov. 1995	-0.81 / 22	Mongolia	3 (1)	Jan. 1992[f]	-0.39 / 29
Belarus	6 (2)	Mar. 1994	-0.94 / 23	Montenegro	3	Oct. 2007	0.04 / 39
Bosnia	1	Dec. 1995	-0.39 / 26	Poland	4	Apr. 1997	0.68 / 57
Bulgaria	3	Jun. 1991[a]	-0.05 / 33	Romania	6 (1)	Nov. 1991[g]	0.10 / 39
Croatia	1 (3)	Dec. 1990	0.22 / 41	Russia	6	Dec. 1993[g]	-0.77 / 23
Czech Republic	0	12-1992[b]	0.96 / 58	Serbia	1 (1)	Nov. 2006[h]	-0.41 / 38
Estonia	6 (1)	Jun. 1992	1.13 / 73	Slovakia	4 (1)	Oct. 1992[b]	-0.65 / 47
Georgia	3 (1)	Aug. 1995	-0.17 / 39	Slovenia	2 (1)	Dec. 1991[a]	1.11 / 62
Hungary	1 (1)	Aug. 1949[c]	0.82 / 59	Tajikistan	4	Nov. 1994[f]	-1.22 / 21
Kazakhstan	3 (1)	Aug. 1995	-0.56 / 35	Turkmenistan	4	Apr. 1992[b]	-1.37 / 13
Kyrgyzstan	4	May 1993[d]	-1.29 / 20	Ukraine	6 (2)	Jun. 1996[i]	-0.73 / 27
Latvia	3 (1)	Nov. 1922[e]	0.83 / 47	Uzbekistan	2 (1)	Dec. 1992[f]	-1.22 / 16
Lithuania	5	Oct. 1992	0.72 / 55				

Note: a) four subsequent amendments; b) five subsequent amendments; c) heavily amended in October 1989 and five time since; d) amended four times and replaced by a new constitution in June 2010; e) eight subsequent amendments since 1990; f) subsequently amended twice; g) amended once; h) replacing constitution from 1990; i) the Ukrainian constitution has been amended twice, once in 2004 and once in 2010 after the Constitutional Court ruled the amendments unconstitutional. Numbers in parentheses in columns 2 and 6 denote provisions that restrict the use of private property. The rule of law scores are WGI first, Heritage second. WGI scores are from Kaufmann et al. (2008), which is distributed globally between approximately -2.5 and 2.5; Heritage scores are from Heritage Foundation (2012) and distributed from 0 to 100.

Table 2. Descriptive statistics

Variable	Average	Standard deviation	Observations
Log initial GDP	8.639	.786	500
Log initial productivity	9.418	.742	469
Government expenditures	11.279	4.239	529
GDP growth	2.835	8.533	500
Labour productivity growth	2.724	8.149	469
Investment rate	21.011	7.834	529
EU member	.116	.320	638
Not communist constitution	.793	.405	638
Log de jure provisions	1.122	.747	633
Log time since constitution	.1506	1.099	638
Political constraints V	.433	.336	557
Two-year window	.091	.288	638
Four-year window	.182	.386	638
Six-year window	.269	.444	638
Eight-year window	.354	.479	638
Use restriction	.440	.496	638
Prior growth, 3-yr	-.362	2.497	638
Soviet	.517	.500	638
Yugoslav	.207	.405	638
Border with EU	.345	.476	638
Democracy	3.117	4.368	575
Heritage Rule of Law	36.892	14.437	437
Rights	41.339	16.681	437
Corruption	32.446	14.462	437

Table 3. Determinants of constitutional choice

	Strength 1	Constitution 2	Strength 3	Constitution 4	Strength 5
Prior growth, 3-yr	-2.513***	-20.202***	3.474	-19.637***	
	(.692)	(2.898)	(6.688)	(2.844)	
Log time since transition	.544***	-.275**	.003	-.202*	
	(.021)	(.124)	(.196)	(.115)	
Democracy	-.041***	.042	.059*		.065**
	(.009)	(.034)	(.034)		(.029)
Soviet		-.257	.784**		.857**
		(.325)	(.357)		(.307)
Yugoslav		.419	-.636*	.452*	-.655*
		(.311)	(.340)	(.246)	(.349)
Border with EU		-.328	-.274		
		(.269)	(.278)		
Observations	575		575		575
Censored observations			547		547
Chi squared / F stat	221.82		23.54		21.59
R squared (within)	.553				

Note: *** (**) [*] denote p<.01 (p<.05) [p<.10].

Table 4. Main results, linear interactions

	GDP growth			Labour productivity growth		
	1	2	3	4	5	4
Log initial GDP	-17.909***	-18.380***	-16.009***			
	(2.023)	(1.983)	(2.039)			
Log initial productivity				-18.762***	-19.583***	-16.705***
				(2.102)	(2.053)	(2.074)
Government expenditures	.094	.189	.080	.158	.249	.162
	(.158)	(.156)	(.155)	(.162)	(.159)	(156)
Investment rate	.112**	.128***	.114**	.156***	.176***	.150***
	(.050)	(.049)	(.049)	(.053)	(.052)	(.050)
EU member	-5.300***	-3.626**	-5.394***	-4.314***	-2.534*	-4.519***
	(1.452)	(1.499)	(1.387)	(1.501)	(1.531)	(1.407)
Not communist constitution	4.391**	6.424***	6.363***	4.082**	6.323***	5.592***
	(1.917)	(1.932)	(2.112)	(1.948)	(1.954)	(2.079)
Log de jure provisions	-2.292**	-4.329***	-2.835*	-1.999*	-4.258***	-2.829**
	(1.158)	(1.226)	(1.474)	(1.151)	(1.217)	(1.429)
Log time since constitution		-3.964**			-4.152**	
		(1.646)			(1.669)	
Political constraints V			1.579			2.819
			(3.946)			(3.793)
De jure * time		3.069***			3.286***	
		(.657)			(.656)	
Log de jure * constraints			1.059			1.315
			(2.314)			(2.234)
Fixed country effects	Yes	Yes	Yes	Yes	Yes	Yes
Fixed annual effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	500	500	481	469	469	454
R squared (within)	.487	.511	.494	.455	.486	.471
F statistic	16.25	16.54	14.83	13.31	13.95	12.69
Hausman test	82.78***	124.51***	77.22***	91.00***	148.66***	64.95***

Note: *** (**) [*] denote p<.01 (p<.05) [p<.10].

Table 5. Results, transitional windows

	GDP growth				Labour productivity growth			
	1	2	3	4	5	6	7	8
Log de jure provisions	-1.388	.227	.637	-.329	-.958	.537	1.114	.269
	(1.311)	(1.362)	(1.379)	(1.401)	(1.288)	(1.338)	(1.356)	(1.385)
Two-year window	.524				1.359			
	(2.194)				(2.225)			
Four-year window		5.324**				5.439**		
		(2.151)				(2.117)		
Six-year window			7.205***				7.739***	
			(2.113)				(2.083)	
Eight-year window				4.751**				5.270**
				(2.099)				(2.081)
Log de jure * two year	-2.616*				-2.943**			
	(1.364)				(1.359)			
Log de jure * four year		-4.247***				-4.395***		
		(1.221)				(1.202)		
Log de jure * six year			-4.312***				-4.655***	
			(1.147)				(1.131)	
Log de jure * eight year				-2.846**				-3.316***
				(1.137)				(1.129)
Observations	500	500	500	500	469	469	469	469
R squared (within)	.496	.501	.504	.495	.465	.472	.477	.466
Wald / F statistic	15.60	15.87	16.05	15.47	12.84	13.19	13.46	12.88
De jure in two-year window	-4.004***				-3.900***			
	(1.378)				(1.385)			
De jure in four-year window		-4.020***				-3.858***		
		(1.247)				(1.242)		
De jure in six-year window			-3.675***				-3.541***	
			(1.202)				(1.192)	
De jure in eight-year window				-3.176**				-3.047**
				(1.203)				(1.195)

Note: *** (**) [*] denote p<.01 (p<.05) [p<.10]. All regressions include the full baseline with country and year fixed effects.

Table 6. Effects of use restrictions

	GDP growth			Labour productivity growth		
	1	2	3	4	5	6
Log de jure provisions	.637	-2.515**	.474	1.114	-2.300*	.812
	(1.379)	(1.266)	(1.497)	(1.356)	(1.253)	(1.467)
Six-year window	7.205***		6.906***	7.739***		7.307***
	(2.113)		(2.116)	(2.083)		(2.075)
Log de jure * six year	-4.312***		-4.157***	-4.655***		-4.397***
	(1.147)		(1.151)	(1.131)		(1.129)
Use restriction		-13.015**	-11.259**		-19.560***	-17.464***
		(5.679)	(5.626)		(6.118)	(6.041)
Log de jure * restriction		8.511**	6.956*		12.865***	11.080***
		(4.069)	(4.039)		(4.276)	(4.231)
Observations	500	500	500	469	469	469
R squared (within)	.504	.505	.508	.477	.468	.488
Wald / F statistic	16.05	15.54	15.19	13.46	12.97	13.04
De jure in six-year window	-3.675***		-3.683***	-3.541***		-3.585***
	(1.202)		(1.292)	(1.192)		(1.277)
De jure with restriction		5.996	7.429*		10.564**	11.892***
		(3.967)	(3.937)		(4.197)	(4.143)

Note: *** (**) [*] denote p<.01 (p<.05) [p<.10]. All regressions include the full baseline with country and year fixed effects.

Table A1. De jure effects on de facto property rights protection

	Heritage Rule of Law				Rights	Corruption
	1	2	3	4	5	4
Log initial GDP	-1.922	-2.014	-2.365	-2.408	-3.579	-.469
	(2.674)	(2.666)	(2.618)	(2.637)	(3.076)	(2.769)
Government expenditures	.269	.173	.172	.163	-.106	.298
	(.211)	(.206)	(.208)	(.205)	(.239)	(.215)
EU member	5.526***	6.950***	4.701***	6.778***	8.083***	4.292**
	(1.714)	(1.666)	(1.687)	(1.667)	(1.930)	(1.737)
Not communist constitution	10.365***	7.151***	7.726***	7.268***	2.493	6.727**
	(2.494)	(2.483)	(2.507)	(2.503)	(2.926)	(2.633)
Log de jure provisions	-4.929***	-4.872***	-1.978	-5.503***	-.491	-3.421*
	(1.665)	(1.609)	(1.752)	(1.887)	(1.977)	(1.779)
Log time since constitution	7.654***	11.397***	12.843***	11.346	18.488***	15.694***
	(1.434)	(1.718)	(1.805)	(1.719)	(2.384)	(2.145)
Use restriction	7.284***	7.044**	6.138**	6.799**	4.615	6.555**
	(2.856)	(2.797)	(2.805)	(2.833)	(3.246)	(2.921)
Political constraints V		3.188			12.406***	.225
		(3.459)			(4.058)	(3.652)
Log de jure * time since constitution			-3.844***		-4.850***	-3.366***
			(.842)		(.955)	(.859)
Log de jure * constraints				1.815		
				(2.090)		
Fixed country effects	Yes	Yes	Yes	Yes	Yes	Yes
Fixed annual effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	498	479	498	479	498	498
R squared (within)	.600	.641	.618	.641	.618	.616
F statistic	26.64	29.16	27.56	29.15	25.39	25.15
Hausman test	.61	23.75	4.90	22.50	15.80	38.61*

Note: *** (**) [*] denote p<.01 (p<.05) [p<.10].

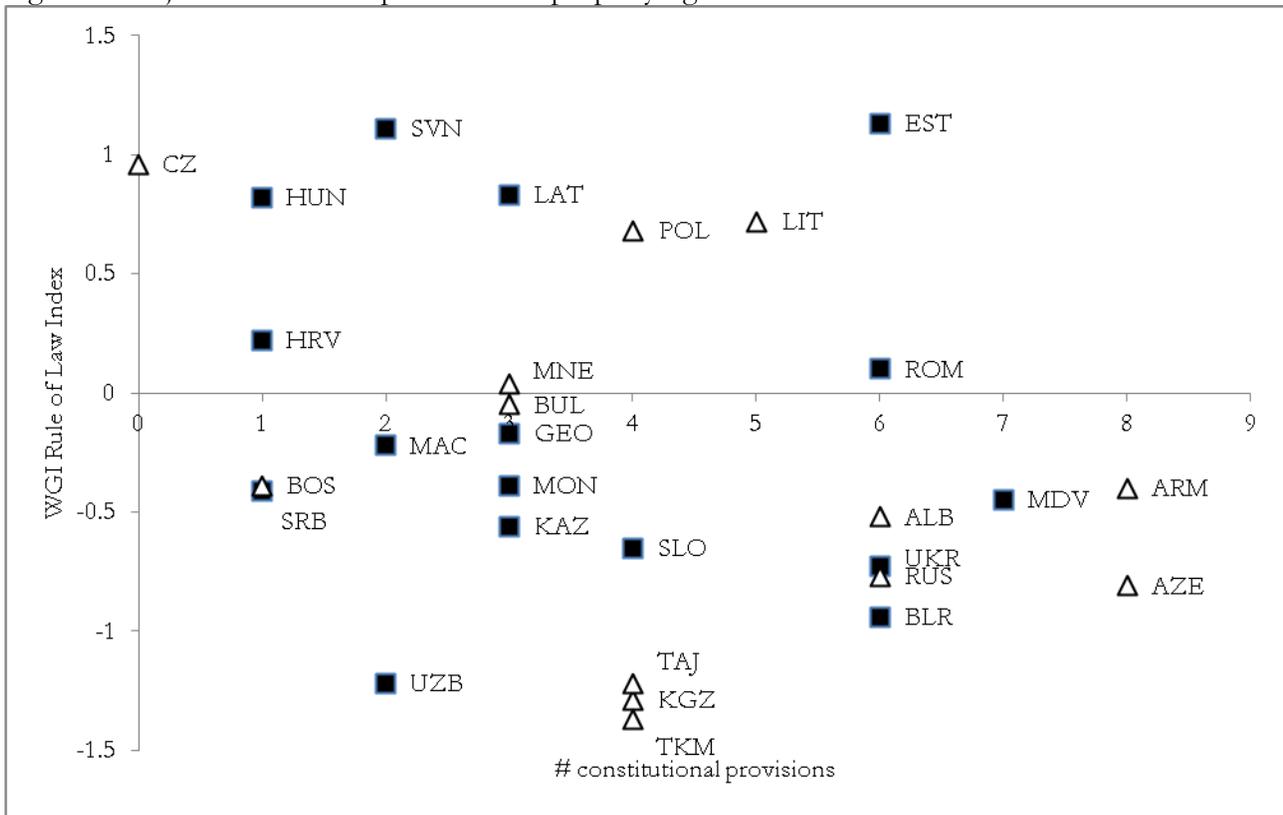Figure 1. De jure and de facto protection of property rights
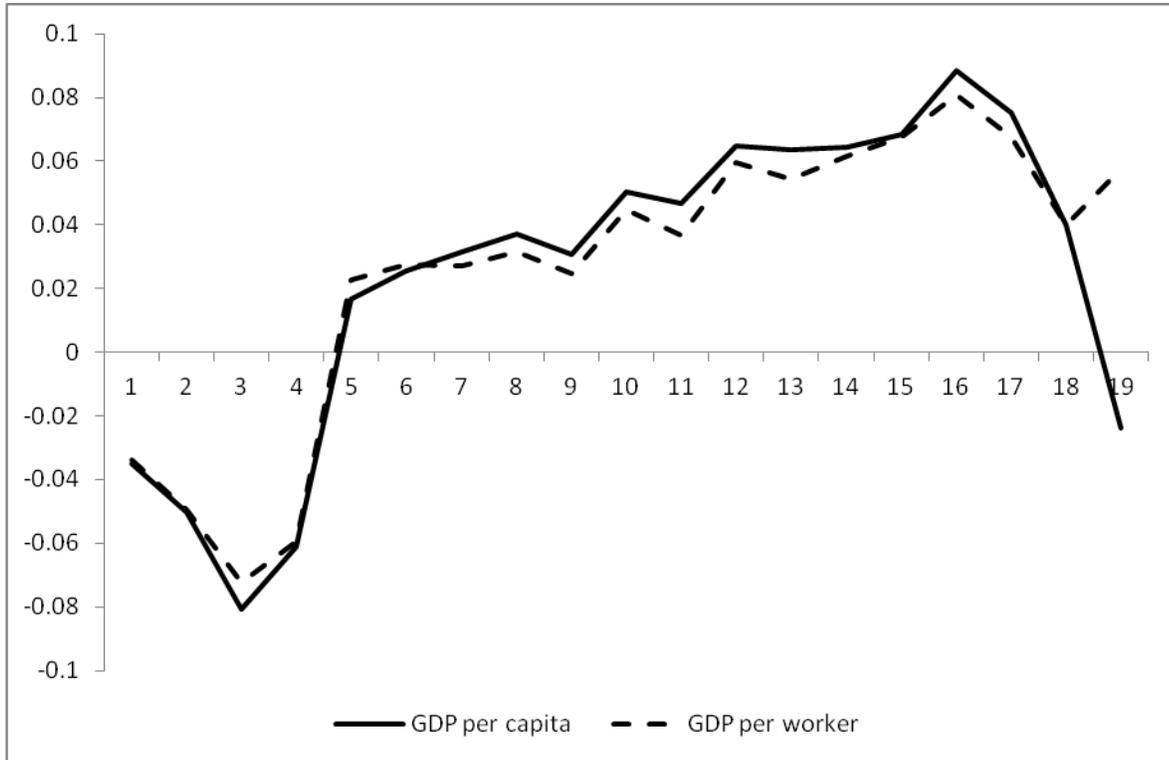
Figure 2. GDP growth after transition

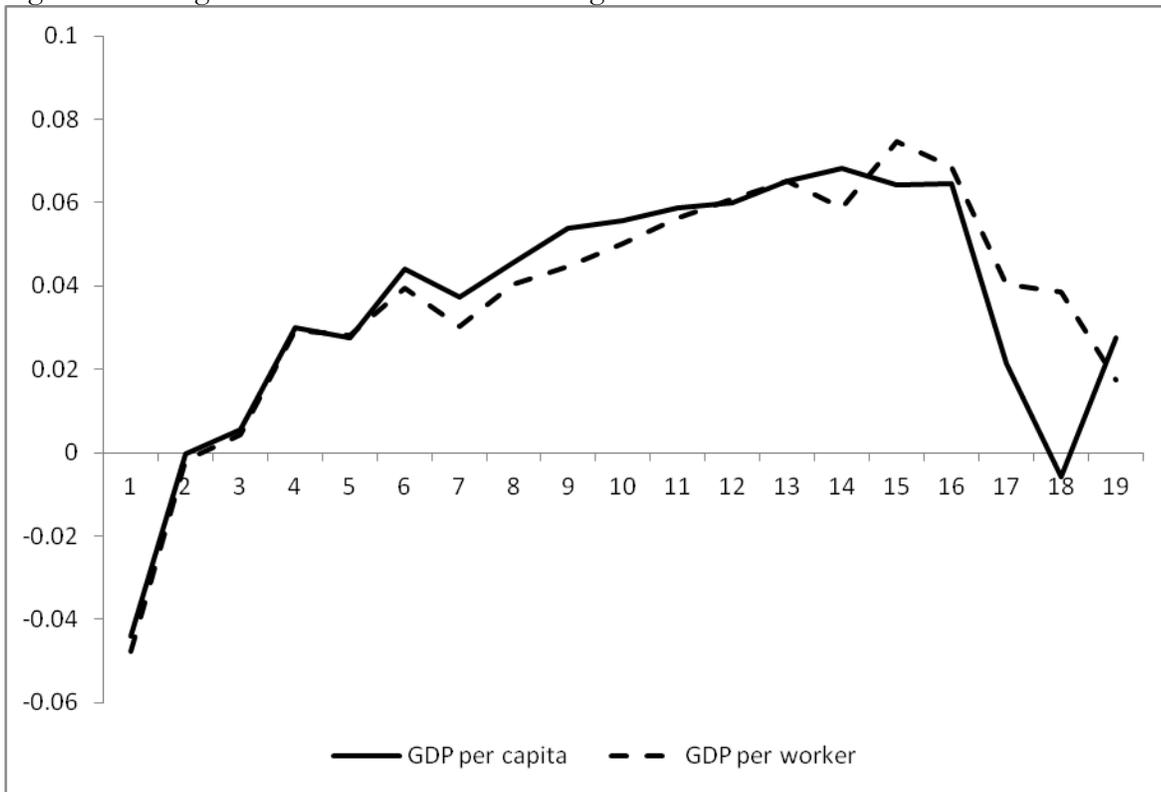Figure 3. GDP growth after constitutional change

Figure 4. Effect of constitutional provisions, given time since implementation
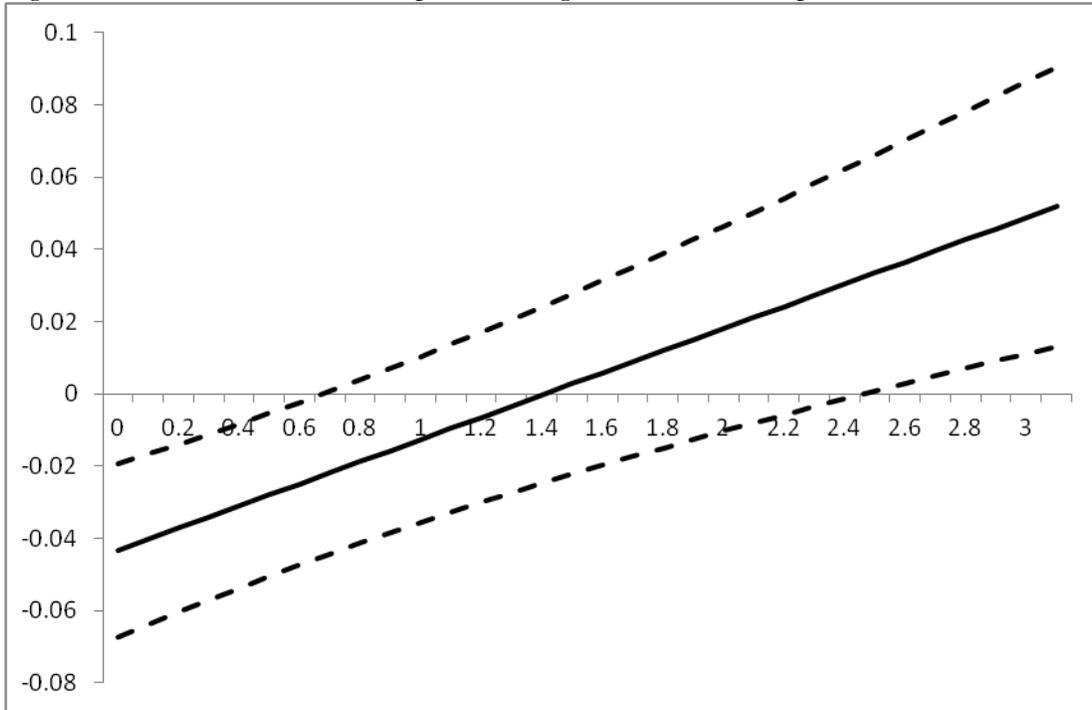
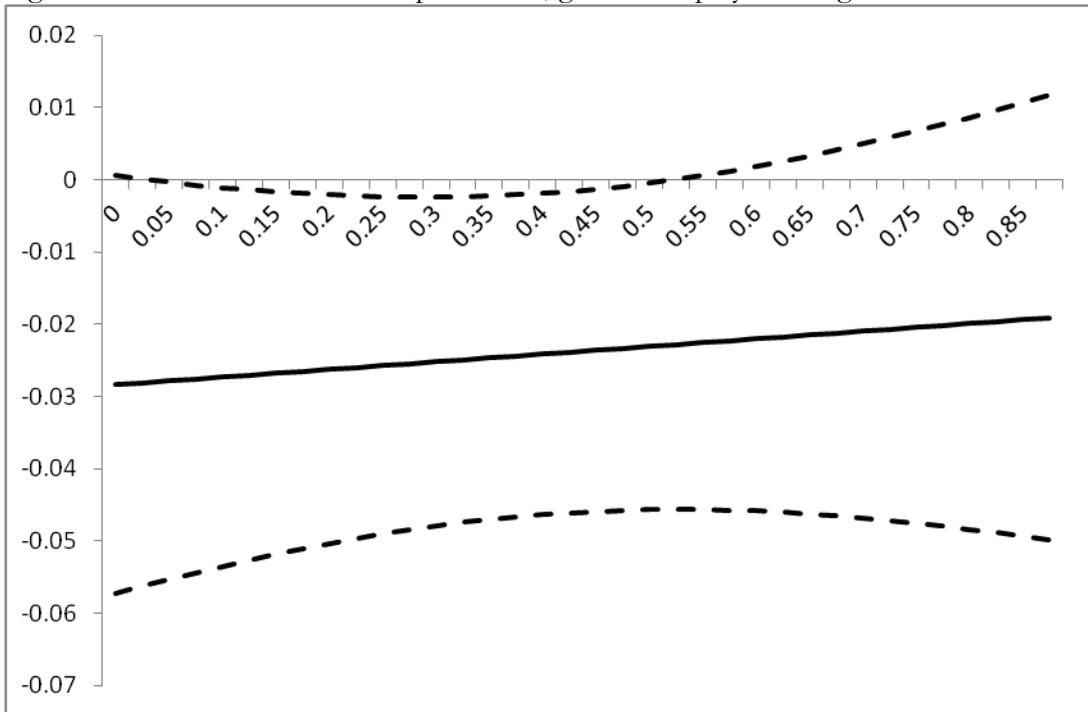Figure 5. Effect of constitutional provisions, given veto player strength

Figure 6. Effect of use restrictions, given constitutional provisions