Regulatory activities of government: analysis of determinants*

Primož Pevcin

Abstract

International comparisons show that large cross-country differences exist in the overall macro extent of regulation of the economy. In this context, the main purpose of the article is to investigate why such differences exist by identifying and empirically verifying the effect of various factors that could potentially shape those differences. Empirical analysis based on the sample of 32 developed and democratic countries revealed that almost 70% of variation in the macro extent of regulation could be explained with 7 statistically significant explanatory variables. The econometric analysis revealed that the macro extent of regulation decreases with income inequality in society, with the level of economic development, with the size of economy, with the share of transfer spending in GDP and with the share of government employment in labour force. On the other hand, the extent of regulation is positively related to government ownership of enterprises and to presidential political regime.

Key words: Regulation, developed countries, cross-country differences, determinants of regulation, econometric analysis

JEL classification: L51, H10

1. Introduction

Over the past century, a considerable expansion of governmental interventionism occurred in the majority of countries, transforming governmental role from "night-watchman" to the most important economic subject (see e.g., Tanzi and Schuknecht, 2000). Nevertheless, growth in government economic interventionism was not fully symmetrical across countries, indicating that large cross-country differences exist nowadays. In particular, huge cross-country differences exist in the (overall) macro

* Received: 11-04-2006; accepted: 21-11-2006
1 Assistant, PhD in Economics, University of Ljubljana, Faculty of Administration, Gosarjeva 5, 1000 Ljubljana, Slovenija. Scientific affiliation: Economic analysis of law, Public choice theory, Public sector economics. Phone: +386 1 5805 584; Fax: +386 1 5805 541, E-mail: primoz.pevcin@fu.uni-lj.si
extent of regulation of the economy. Still, these differences are usually not directly observable, since they are not directly observable in the amount of government spending and, notwithstanding, the lack of objective and comparable measures exists. Yet, some alternative measures of the macro extent of regulation of economic activities exist, although they are more subjective by their nature. Consequently, the purpose of the article is to use the available data in order to investigate, why one country is more (or less) regulated than the other. In particular, the aim is to theoretically identify various economic, political, social and other factors influencing the variations in the extent of regulation of the economy across countries and to empirically verify the effect of those factors with the use of multiple regression analysis.

2. Regulation as non-budgetary segment of governmental interventionism and its determinants

In the public economic literature, the measurement of the size of government is usually spending based, typically with some government expenditure ratio, the main advantage being that it expresses the size of government in a single number. However, the focus only on expenditure ratio as a measure of the size of government is problematic in practice, as only those government activities resulting in financial flows in government accounts are encompassed. As Posner (1971) stresses, fiscal instruments are only one of two instruments for executing government policy, the other instrument being regulation, described by Leonard (1986) as a form of so-called “quiet” government activity.

As already mentioned, the “non-budgetary” items of governmental interventionism usually appear in the form of various regulatory demands set by government in order to oversee individual behaviour. Formally, regulation refers to the diverse set of instruments by which governments set requirements on enterprises and citizens, and is usually used in order to preserve public interests in markets. In theory and practice, different types of regulation exist. For instance, OECD classification differentiates economic, social and administrative regulation. Governments have long used regu-

---

2 For example, see Gwartney and Lawson (2002).
3 In one of the previous articles (see Pevcin, 2004b), only cross-country differences in the size and composition of government spending have been discussed. However, this article extends the analysis in a way that also cross-country differences in “non-fiscal” or “non-budgetary” segment of governmental interventionism are discussed. Term “non-fiscal” or “non-budgetary” governmental interventionism indicates that this activities are not (directly) observable in the amount of government spending, as it is in the case of regulation. Namely, regulatory activities usually have little fiscal implications, but they have profound economic effects and are, consequently, equally important as spending activities. Therefore, it is important to investigate also the size of “non-budgetary” government, since ultimately this differentiates big from small government.
4 Specifically, the first one describes those regulatory activities that intervene directly in market decisions such as pricing, competition, market entry, or exit; the second one describes those activities that prima-
lations to align better public and private interests in markets and they will continue to be an important tool for preserving and advancing public interests. However, there is a real risk, particularly in a time of profound and rapid change in economic and social conditions, that regulations can become an obstacle to achieving the economic and social well being for which they are intended. Namely, government implementation of regulation, however prudent and well-designed, necessarily imposes burdens on those who are regulated. Increasingly over the last few decades, the emphasis of regulatory efforts has shifted from economic to social and administrative regulation. In particular, small and medium-sized enterprises are hard hit by the cumulative impact of regulation, as they have higher relative compliance costs and less capacity to navigate through the complexities of regulatory and bureaucratic networks than larger enterprises. Besides, as Weidenbaum (1981) argues, the extension of regulation means that the key margin of decision-making in society becomes the access to government influence, the result being usually a significant bureaucratisation of corporate activity. The principle for enterprises in such a case is to shift the focus of the investment of resources into attempts to favourably influence the strategic governmental official or to prevent the enactment of government policies that will adversely affect the interest of groups.

The main purpose of the paper is to investigate the effect of various factors that cause differences in the extent of regulatory interventionism among countries. It should be stressed that there is no generally accepted economic theory about the determinants of government regulation. In particular, the only category of regulation, which has been extensively investigated, is the economic, or more specifically, so-called industry-specific regulation, where the extent of regulation is determined by the necessity of government interventions and constraints in industries with increasing returns to scale, in industries with special features that generate extraordinary economic rents or in industries that are considered vital for national security. However, regarding the determinants of the overall extent of regulation of the economy, the lack of comprehensive research exists. One of rare attempts to identify determinants of regulation was undertaken by Pryor (2001), although his approach was in its essence more expeditious and inductive. He identified several plausible causal factors of determinants of regulation (Pryor, 2001, p. 9):

5 For example, Hopkins (1997) estimates that regulatory costs amount up to 15 per cent of GDP in the United States in 1990’s, notwithstanding the fact that more than 70 percent of these costs are associated with social and administrative regulation. Similarly, Hahn (2000) argues that the general tendency for governments to adopt too much regulation exists, and governments are imposing excessive compliance costs on businesses and individuals, which may amount up to 9 percent of GDP.

6 In other words, enterprises concentrate on bargaining and seeking various “deals” with government. Nevertheless, these are usually “zero-sum games”, as enterprises waist their resources on bargaining rather than on increasing output.
• Size of the economy.

According to Pryor, this factor should have two counteracting influences. Because production in large countries is more difficult to regulate than in small countries, governments may be reluctant in implementing regulation. On the other hand, in a large country, the size of enterprises is generally larger and regulation may be more necessary than in a smaller country. Put differently, size and laissez-faire would be negatively correlated, in some way reflecting a desire by the citizenry in large countries for greater protection against possible excesses of larger (and more influential) enterprises.

• The level of economic development.

This factor also should have counterbalancing influences. Namely, Pryor stresses that it is commonly believed that governmental regulation increases as per capita income increases because the government has more resources to carry out regulatory activities. However, it is also possible that as the level of development rises, the economy increases in complexity and governmental regulation becomes more counterproductive and possibly unnecessary.

• The relative importance of foreign trade in the economy.

Pryor’s hypothesis is that more open the economy, the less able or willing is the government to regulate domestic economic activity. Similarly, Garen and Trask (2001) argue that the scope of government is much larger in less open economies, because they tend to have less government expenditure, but have more government in other forms, such as government ownership of enterprises, price controls etc.

• Income inequality.

It was derived by Pryor that in situations with larger income inequality, the high-income population has relatively more political power and, as a result, fewer regulations can be imposed on their economic activities.

• Governmental ownership of enterprises.

Although the majority of economists see government ownership of enterprises and the extent of regulation of the economy as substitutes, particularly in the relation to the common fable that privatised government enterprises should be extensively regulated in order to prevent them exercising their market power, Pryor argues that governmental regulation and ownership are complements, since both of them are needed to control private economic activity.7

---

7 Pryor’s empirical analysis revealed that statistical confirmation received only two factors, namely the size of the economy and income inequality. His results suggest that the degree of economic laissez-faire is inversely related to economic size and directly related to income inequality. He even
3. Empirical analysis of factors affecting cross-country differences in the macro extent of regulation

3.1. Description and methodology

Based upon above findings, the aim of the analysis is to verify the effect of the aforementioned factors on the cross-country variations in the extent of regulation of the economy in a sample of developed and democratic countries, for which comparable data on the extent of regulation exist. It is worth noting that the purpose of the analysis is on the econometric modelling of variations in the regulatory regime across countries and not on examining the relationship between various variables employed in the analysis. Besides, in line with the Posner’s view of the existence of two types of government executive instruments, the analysis focuses also on determining a relationship between these two types of instruments. Namely, the real issue is whether the use of fiscal instruments affects (and how) the use of regulatory instruments.

Econometric modelling is based on a sample of 32 developed (and democratic) countries for which cross-sectional data on all relevant explanatory and dependent variables could be obtained. The dependent variable in the analysis is the ”EFW indicator” of the total extent of the regulation of the economy (REG), whereas following explanatory variables are used in the analysis:

- Real gross domestic product per capita (GDPC) as a measure of the level of economic development of the country:

As already mentioned, the effect of the level of economic development on the size of non-budgetary government should not be exposed with reasonable certainty due to the countervailing affect of the economic development on the extent of regulation.

- Country size (POP) and trade openness (OPN):

The effect of the country size on the extent of regulation could not be predicted because of two afore mentioned countervailing affects. However, it should be expected that trade openness would negatively affect the extent of the regulation in the economy.

---

8 The sample consists of 27 OECD member countries (out of 30 OECD countries Iceland, Japan and Turkey are excluded), four ex-transitional non-OECD economies (Estonia, Latvia, Lithuania and Slovenia) and Chile as newly industrialised country and most developed country in Latin America.

9 It is worth noting that, besides including variables suggested by Pryor, also some additional variables have been added into the econometric model, for which some theoretical justification to be included in the analysis has been found (e.g., CON, PRES etc.). The inclusion of those variables could potentially assist in explaining cross-country variations in the extent of variations, thereby extending the possibility for research and knowledge about the factors affecting regulatory activities of government.
• Government ownership of enterprises (OWN):

The positive effect of this variable is predicted in the relation to the extent of regulation in the economy, since larger number of public corporations would obviously require larger number of regulatory bodies.

• Income distribution in society, measured with Gini index (GINI).

Higher income inequality is expected to be negatively associated with the size non-budgetary government, since high-income population has relatively more political power and it can impede the imposition of regulation on their economic activities.\(^{10}\)

Besides, supplementary to Pryor’s findings (Pryor, 2001, p. 11), several plausible factors affecting the extent of regulation of the economy could also be identified and are, therefore, included in the analysis. Those factors are:

• General government consumption expenditure ratio (CON), general government transfer expenditure ratio (TRF) and general government employment as percent of total labour force (GEMP).

There is a lack of predictions about the relation between budgetary and non-budgetary government. Intuitively, it should be expected that those two forms of governments should act as substitutes. The possible reason could be the simple mathematical fact; if they could be both transformed into budgetary forms, their sum could not exceed the size that is preferred or demanded by voters or taxpayers – in the worst case the size of government could not exceed the total economy output (Pevcin, 2005). This implies that more of one form of government is associated with the smaller extent of other form, meaning that any form of government spending negatively affects the extent of regulation. Similarly, since government employment represents “visible” government activity, the prediction is also made that it would be negatively associated with the extent of regulation.

• Three political dichotomous dummy variables for country’s regime type (PRES), electoral rule (PLUR) and political decentralisation (FED).

It is expected that presidential political regime and the presence of plurality in electoral rules should positively affect the size of non-budgetary government through income and openness “channel”. In addition, political decentralisation should also positively affect the size of non-budgetary government. The reason should be very clear, since any additional legislator would imply additional government intervention.\(^{11}\)

\(^{10}\) Since only democratic countries are analysed, the inclusion of this variable is appropriate as only in democratic countries the influence of various income groups could be exercised in political process.

\(^{11}\) Regarding so-called income and openness channel, Pevcin (2004a) argues that the greater probability exists of more open and more developed countries having parliamentary political regime and propor-
• Dichotomous dummy variable for countries in transition (TRA).

The purpose of this variable is to identify possible cultural or institutional differences that would imply, on average, different extent of regulation of the economy in this ”region”. Namely, the purpose for separate variable for transitional countries is to identify possible effects of the change in economic system, which largely reduced the role of government. It is to be expected that remnants of past regime would cause the larger extent of regulation in those countries.

Table 1: Variable description and data sources

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Data source</th>
</tr>
</thead>
<tbody>
<tr>
<td>REG</td>
<td>Extent of total regulation of the economy; values between 0 (min) and 10 (max)</td>
<td>Based on Gwartney and Lawson (2002)</td>
</tr>
<tr>
<td>GDPC</td>
<td>Real gross domestic product per capita (in USD)</td>
<td>World Development Indicators (2001)</td>
</tr>
<tr>
<td>OPN</td>
<td>Trade openness (sum of the share of imports and exports in % of GDP)</td>
<td>World Development Indicators (2002)</td>
</tr>
<tr>
<td>POP</td>
<td>Country size (population in millions)</td>
<td>World Development Indicators (2002)</td>
</tr>
<tr>
<td>OWN</td>
<td>Governmental ownership of enterprises; poli-tomous dummy variable, values between 0 (min) and 10 (max)</td>
<td>Based on Gwartney and Lawson (2002)</td>
</tr>
<tr>
<td>PRES</td>
<td>Political regime, dichotomous dummy variable, 1 – presidential political regime</td>
<td>Beck et.al. (2001)</td>
</tr>
<tr>
<td>FED</td>
<td>Structure of government, dichotomous dummy variable, 1 – existence of political decentralisation</td>
<td>Beck et.al. (2001)</td>
</tr>
<tr>
<td>GINI</td>
<td>Income distribution in economy, measured with Gini index</td>
<td>World Development Indicators (2000)</td>
</tr>
<tr>
<td>CON</td>
<td>General government consumption expenditure (% GDP)</td>
<td>World Development Indicators (2001)</td>
</tr>
<tr>
<td>TRF</td>
<td>General government transfers and subsidies (% GDP)</td>
<td>Gwartney and Lawson (2002)</td>
</tr>
<tr>
<td>GEMP</td>
<td>Government employment (% of total labour force)</td>
<td>Schiavo-Campo et.al. (1997)</td>
</tr>
</tbody>
</table>

---

tional electoral rules. More on this issue see Pevcin (2004a).
In the table above, variables employed in the empirical analysis are presented and their data sources are described. Notwithstanding, it should be noted that data for all variables are for year 2000 or closest year available.

### 3.2. Results and discussion

Following, the results of empirical analysis of factors causing differences in the scope of regulation are presented in Table 2.

Table 2: Empirical evidence on factors affecting differences in the extent of regulation

<table>
<thead>
<tr>
<th>Dependent variable REG</th>
<th>OLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONST</td>
<td>7.6970 (8.33, 0.0000)</td>
</tr>
<tr>
<td>GDPC</td>
<td>-0.0000268 (-2.40, 0.0244)</td>
</tr>
<tr>
<td>GINI</td>
<td>-0.0906 (-4.40, 0.0002)</td>
</tr>
<tr>
<td>POP</td>
<td>-0.00435 (-1.85, 0.0769)</td>
</tr>
<tr>
<td>OWN</td>
<td>0.1149 (2.51, 0.0193)</td>
</tr>
<tr>
<td>PRES</td>
<td>1.1141 (2.38, 0.0257)</td>
</tr>
<tr>
<td>TRF</td>
<td>-0.0381 (-2.34, 0.0278)</td>
</tr>
<tr>
<td>GEMP</td>
<td>-0.0423 (-2.65, 0.0140)</td>
</tr>
</tbody>
</table>

12 In Table 2, only statistically significant variables (at 90% margin) are presented, values of t-statistics and p-values being in parentheses. The elimination of variables is based on their statistical insignificance and on the extent they "inflate" variance of the model.
The results presented in Table 2 indicate that almost 70 percent of variation in differences in the extent of regulation across countries can be explained with 7 statistically significant explanatory variables.\(^{13}\) It is shown that the extent of regulation decreases with income inequality in society\(^ {14}\), which is in line with theoretical predictions, with the level of economic development, indicating that obviously the effect of counter productivity of regulation prevails, and with the size of economy, reinforcing the idea that regulation is easier in smaller and less developed countries.\(^ {15}\) On the contrary, it is positively related to government ownership of enterprises, proving the idea that these two are complements.\(^ {16}\) In addition, when observing the effect of extra-added explanatory variables, results obviously indicate that the extent of regulation of the economy is negatively related to transfer spending\(^ {17}\) and government employment, the two measures of “visible” government activity. On the contrary, it is positively

<table>
<thead>
<tr>
<th>N</th>
<th>32</th>
</tr>
</thead>
<tbody>
<tr>
<td>(R^2_{\text{adj.}})</td>
<td>0.6910</td>
</tr>
<tr>
<td>(s_e)</td>
<td>0.4771</td>
</tr>
<tr>
<td>F-stat. (Prob.)</td>
<td>10.90 (0.0000)</td>
</tr>
<tr>
<td>White’s Heteroscedasticity Test (Prob.)</td>
<td>12.41 (0.4945)</td>
</tr>
</tbody>
</table>

Source: Own calculations.

\(^{13}\) This is not a bad result, especially if it is taken into account that cross-sectional data are used. In this case, low values of the coefficient of determination are typically obtained due to the diversity of the units in the sample. Consequently, the stress should be on the logical and theoretical relevance of the explanatory variables and their statistical significance (see Gujarati, 2002). Nevertheless, the obtained overall results of the estimated regression model should be technically acceptable, since F value of the regression is highly statistically significant. Besides, obviously no presence of heteroscedasticity in the regression model could be detected.

\(^{14}\) The calculated values of the regression coefficients of the standardised variables (so-called beta coefficients) show that income inequality in society is relatively the most important variable in explaining why differences in the extent of regulation across countries exist (see Table 2).

\(^{15}\) To some extent, this implies the possibility of existence of economies of scale in regulatory activities, meaning that the same burden of regulation falls on larger number of population.

\(^{16}\) The value of regression coefficient for the variable OPN is highly statistically insignificant, possibly indicating the fact that the effect of the openness on the extent of regulation is irrelevant when comparing developed countries.

\(^{17}\) Econometric modelling revealed that the negative relationship between variables describing non-budgetary (REG) and budgetary government is most evident when using transfer spending, rather than consumption spending, as a measure of the size of budgetary government. This fact should have some relevance, since transfers are a category of government spending that increased the most in developed countries in recent years, so the negative effect on the extent regulation is logically the most profound.
related to presidential political regime, which is in line with predictions about the existence of income and openness channel.

3.3. An inquiry into relationship between the size of budgetary and non-budgetary government

In recent times, governments usually play a significant role in several aspects of economic and social life. Accordingly, the types of government activities could differ. Nevertheless, the results presented in the above table obviously indicate, that the level of government spending activities is negatively related to the level of regulatory activities; in other words, larger budgetary government implies smaller non-budgetary government, meaning less regulation. The reason could be the fact that the existence of small government (in terms of budgetary instruments) indicates that private sector has a very large role in the economy and government oversees its activity through the regulation.

However, this inverse relationship could also be indirect and explained with some sort of “transmission mechanism” that causes changes in forms of government activities. To strengthen this idea, some theoretically and practically consistent relations should be put forward. First of all, it is possible, as suggested by Rodrik (1998), that trade openness positively affects government spending, since government spending is usually used to provide social insurance against the risk of terms trade shocks that open economies face. In addition, it is also evident that openness negatively affects the extent of regulation of the economy (see the above table), possibly through the effect of regulatory inability, as larger openness of the country hampers the ability of government to regulate the economy. On the other hand, the level of economic development could also cause changes in forms of government interventionism. It is worth noting that, as Wagner and Wilensky predicted in their hypotheses (see Lane, 1995), the rising level of economic development should positively affect government spending. As the results in Table 2 suggest, a negative relationship between the level of economic development and the extent of regulation exists, possible reason being counter productivity of regulation in more developed countries, implying the change of governmental policies towards more “visible” activities.

In this context, it could be even argued that the possibility exists that the level of the influence of government on the private activities is a constant. Namely, government can influence activities either visibly through its spending activities or more “invisibly” through regulation of economy.

These relations in forms of so-called transmission mechanisms could present a new form of understanding how government policies and spending are shaped. Still, further research should be done primarily with dynamic modelling, since the findings represent only a rough idea.
4. Conclusion

The main question that tried to be answered in the article is, which economic, social, political and cultural factors shape cross-country differences in the macro extent of regulation of the economy. The multiple regression analysis of the determinants of government size across countries revealed that the problem of multicollinearity between regressors exists. The difficulty is that the problem of multicollinearity is combined with the lack of theoretical knowledge about the relative importance of certain determinants of government size, so the elimination of explanatory variables was subjected to ”technical verification”, since all variables have some theoretical justification to be included in the analysis. Although this approach enables modeling government size with statistically significant explanatory variables, it could, on the other hand, lead to the commitment of a specification bias, which further causes the problem of ”model underfitting”, where some relevant explanatory variables are omitted. Nevertheless, the analysis revealed that the macro extent of regulation decreases with income inequality in society, with the level of economic development, with the size of economy, with the share of transfer spending in GDP and with the share of government employment in labour force, the later two being implicit measures of ”visible” government activity. This obviously indicates, that the size of budgetary government and the size of non-budgetary government move in the opposite direction. On the other hand, the extent of regulation is positively related to government ownership of enterprises and to presidential political regime. Altogether, 7 statistically significant variables help to explain almost 70 % of variation in cross-country differences in the extent of regulation of the economy.

References


Elections around the world (2003), Electionworld.org.


Regulativne djelatnosti vlade: analiza čimbenika

Primož Pevcin

Sažetak
Raspoloživi podaci pokazuju velike razlike u opsegu regulacije gospodarstva među državama. Svrha članka jest utvrditi zašto takve razlike postoje. To znači da je svrha analize predstavljene u članku identifikacija i empirijska provjera učinka različitih čimbenika na razlike u opsegu regulacije. Rezultati ekonometrijske analize temeljene na uzorku 32 razvijenih i demokratskih država pokazuju da 7 statistički signifikantnih odrednica omogućava objašnjavanje gotovo 70 % varijacije u opsegu regulacije gospodarstva među državama. Analiza pokazuje da je opseg regulacije gospodarstva u negativnoj relaciji sa stopom društvene nejednakosti, stopom gospodarskog razvitka, veličinom države, opsegom vladinih transferrnih rashoda i opsegom zapošljavanja u vladinom sektoru. Nadalje, rezultati pokazuju da je opseg regulacije gospodarstva u pozitivnoj relaciji s opsegom vladina vlastištva poduzeća i predsjedničkog političkog sustava.

Ključne riječi: regulacija, razvijene države, međudržavne razlike, čimbenici regulacije, ekonometrijska analiza.

JEL klasifikacija: L51, H10.