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Digital Strategies for the Social Sciences

Rule it, Reap from it? An analysis of countries' economic regulation

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1 Introduction

As we become more and more globalized, a pressing question stands about what can be done to reduce global inequality, to essentially provide individuals, regardless of their origin, culture and home country, with equal opportunity. One of the major causes of global inequality is differential rates in growth and economic performance across nations, which are known to vary widely internationally. One idea is that a narrower gap between differential levels of economic growth would equalize living standards of citizens globally. While a country's economic performance is the product of countless factors, ranging from a nation's geographical landscape, its international relations, climate and history, to name a few, it might also be affected by its amount of regulation. This stance follows a recent trend in research that identified excessive regulation as a major cause in European poor economic performance during and after the 2008 financial crisis (Blanchard and Giavazzi 2001). Similarly, the World Bank (2005) has identified regulation as the door through which governments can exert influence on their investment climates, thus driving growth and reducing poverty. Central to this idea is the fact that governments need to work hand in hand with private companies to benefit society as a whole, given that only a minority of the population is employed in the public sector, and that businesses provide crucial goods and services to all, as well as most of tax revenues which are then used to sustain our public health system, education, and so on (World Bank 2005). According to those holding this view, to provide firms with an optimal landscape for prosperity and competition countries need to promulgate regulation that positively affects the investment climate. To shape such climate, governments can decrease the cost of doing business, so that firms can utilize their resources to make investments that foster competition, profit and create jobs. Providing businesses with more freedom is what essentially is said will positively impact profit and reducing unemployment.

As a result of this argument, many countries have rushed to deregulating their markets and utility sectors. Scholars have thereafter attempted to clarify the effect of regulation on economic performance (Conway et al. 2006; Nicoletti and Scarpetta 2005). For example, Bourlès et al (2013) argue that anticompetitive economic regulations have negatively impacted growth in the past fifteen years for twenty OECD countries. Yet, speaking of regulation in generic terms does not help us fully understand how its existence might affect a nation's economic performance. If anything, if we were to think of regulation as a set of rules and its accompanying modes of control and enforcement, existing to protect society, the idea that its removal is required to promote welfare is rather counterintuitive. What has become apparent, though, is that the last decades have been dominated by a rapid introduction of new goods and markets (i.e. within the field of ICTs), and a government ability to reform and adapt to changes could significantly help economic players operate in a profitable and competitive environ-

ment. This can be somewhat understood in terms of a Schumpeterian process of creative destruction, where, for markets to survive, evolution through replacement, restructuring and resource reallocation is key. In terms of the dimensions in which reformation has been performed, the most noticeable ones in the past few decades have been privatization, liberalization and promulgation of pro- competitive regulation (Nicoletti and Scarpetta 2005). In short, countries with good (less and updated) regulation are advantaged from an economic growth perspective in their being in sync with the continued dynamism of the economy, compared to nations with bad (large amounts of and outdated) regulation.

The aim of this paper is to provide an overview of the extent to which countries are economically regulated, and to unveil what aspects of the economy are more heavily protected by rules. Throughout, I will discuss whether there are general trends across countries in regards to regulating particular sectors over others. The rationale for this paper is that to assess whether economic growth is impacted by regulation and how, we first need to have a solid understanding of the current international landscape in economic regulation. And before that, we need to have an ontological grasp of economic regulation. Thus, far from implying any effect of regulation on economic performance, this paper instead clarifies for the reader the structure of regulatory systems internationally and displays how they differ across nations. The paper is structured in four sections. In the first part I will describe how regulatory systems are built. I will then proceed to describe the data utilized to perform this analysis. Then I will explain the method behind the classification of countries into clusters of analogous regulation modes. Finally, I will reflect upon the results and indicate opportunities for further developments, as well as considering the limitations of this study.

2 The measure and structure of economic regulation

Several attempts have been made to measure the amount of regulation across countries. In this research, we avail of Koske et al (2015)'s 2013 version of the OECD indicators of Product Market Regulation (PMR), which were first introduced in 1998 (Nicoletti et al 1999), and subsequently updated in 2003 (Conway et al 2005), and finally in 2008 (Wölfl et al 2009). The indicators have served as measures of regulatory practices in OECD and in 2013 of non-OECD countries as well, and provide a tool to explore the effect of regulation on economic performance (Koske et al 2005).

PMR is an umbrella term that incorporates all regulation pertinent to the economy, that is, that facilitates or impedes, essentially controls, the creation of labor and circulation of goods. Governments regulate the economy in several ways, by choosing who participates in markets, determining quality standards for products, restricting firms location, ruling how products and services can or should be

delivered. The OECD 2013 PMR indicators have been used to measure the economic regulatory environment in 34 OECD countries and, for the first time, of 22 non-OECD countries as well. Critically, however, not all data is available for all countries, thus I have removed those countries for which most of the data was missing, leaving me with 34 countries altogether: United States, Canada, Mexico, Chile, United Kingdom, Ireland, Netherlands Belgium, Luxembourg, France, Switzerland, Spain, Portugal, Germany, Poland, Austria, Hungary, Czech Republic, Slovak Republic, Italy, Slovenia, Greece, Estonia, Finland, Sweden, Norway, Denmark, Iceland, Turkey, Israel, Korea South, Japan, Australia, New Zealand. The data is built as follows: there are three sets of indicators, which are constituted of tree-structured variables, some agglomerative ones, which are weighted in various ways, and its child variables. Each child variable is measured on a scale between 0 and 6, where the higher values indicate a regulatory profile that is more anti-competitive. The data is highly intricate and I will only briefly describe it here.

The first set describes the economy-wide PMR. A country's overall PMR, as per Koske et al (2005), is constituted by several components: state control, barriers to entrepreneurship and barriers to trade and investment. State Control refers to a set of rules that aim at quantifying the amount of control the state has over resources or economic activity. Barriers to Entrepreneurship are defined as those provisions that practically hinder entrepreneurial freedom, ranging from entry barriers for the formation of firms, to administrative burdens and permit systems. Finally, Barriers to Trade and Investment refer to tariffs, differential treatment of foreign supplies and barriers that limit trade. Overall, the economy-wide PMR indicator is constituted of 18 child variables, that can be agglomerated in 7 broader categories, and subsequently in the three aforementioned components. Those agglomerative variables are randomly weighted. One overall PMR variable exists as well, which instead is not randomly weighted to avoid very wide confidence intervals (Koske et al 2015). The second and third sets are built on data that is also availed of to construct the economy-wide PMR, but aim at capture cross-country differentiation by sector instead of by regulation. The second set captures three utility sectors of a country: energy, transport and communication. Energy includes electricity and gas, transport is constituted by air, rail and road, while communication is composed of post and telecom. I note here that this data was missing from the dataset, although included in the description, thus I have no choice but leaving it out from the analysis. The third set includes five service sectors: legal services, accounting, engineering, architecture and retail. For each professional service there is an agglomerative variable on entry and on conduct regulation. Entry regulation is built on four low-level variables capturing exclusive rights, education requirements, compulsory membership and quotas, while conduct regulation is comprised of prices and fees, marketing, form of business and

interprofessional cooperation. The retail distribution sector is instead built on six variables: registration and licensing, special regulation of large outlets, protection of existing firms, shop opening hours, prices, promotions. The total number of child variables is 38.

3 Methodology

The enlisted tasks of this research are: to display what aspects of economic regulation mostly differ across countries; to group countries by their regulatory modes. To perform the first task, I will avail of a method called principal component analysis (PCA), from a family of tools to perform dimensionality reduction. Principal component analysis is a multivariate technique used to identify patterns in data with a large number of dimensions, that is, for each observation in the data there are several possibly inter-related variables, and the goal is to reduce the overall number of dimensions by extracting the most important information and reproduce it in the form of new orthogonal variables called principal components (Abdi and Williams 2010). Principal components are created through linear combinations of the original variables in the dataset, and are constructed through a function minimizing distance to the data points on the space, in a similar manner to ordinary least squares in linear regression. The resulting number n of principal components (which is equal to the number of variables in the dataset) is ordered by explanatory power, that is, PC1 will account for the most variance in the data, PC2 for the second largest share of variance, and so forth. Thereafter, the researcher can choose how many components to retain, upon an assessment of the amount and proportions of variance explained by each component. Principal components can then be displayed in space and allow the reader to obtain the most relevant information within the data in a reduced number of dimensions, in a trade-off between simplified data and loss of information. The OECD dataset totals 54 low-levels (child) variables aimed at capturing the anti-competitiveness of economic regulation in various countries at a regulatory level and at the professional sector level. Given the underlying data used to build these two sets of variables is the same, I have decided to split the data in two, and to operate factor analysis within the context of PMR (19 variables) and separately within the context of professional sector (36 variables).

Nonetheless, PCA is optimal for sets of variables that are inter-related, as it is likely the case in our dataset, given each variable captures one small aspect of regulation that constitutes a country's regulatory stance as a whole. Crucially, upon performing factor analysis on our PMR variables and our professional sector variables, we are to interpret the principal components that we have chosen to keep. Each variable in the dataset contributes to a certain extent to a particular principal component, thus by analysing the degree of contribution alongside with its correlation with the axis we can infer

what drives the composition of the principal components. Finally, upon interpreting the axes, one can compare how the observations drive the formation of the principal components, thus observe which countries contribute the most to the variance in the data.

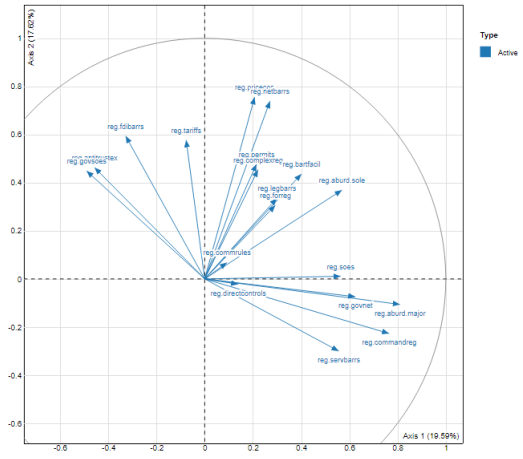
3.1 Product Market Regulation PCA

For the first PCA, I decided to retain PC1, PC2 and PC3, each of them explaining 19.59 percent, 17.62 percent and 13.18 percent of the variance in the data respectively, cumulatively accounting for 50.39 of the variance in the data. I will now proceed to interpret the principal components. PC1 is here renamed Administrative Burdens, Coercion and Government Involvement, after the variables with the heaviest loadings to it. In Table 1, we can look at the most important variables for PC1s percentage of contribution to the axis and their coordinates as well.

Variable	**Coord**	**Contrib**	**Cos2**	**Cor**
reg.aburd.major	0.810	17.63	0.656	0.81
reg.commandreg	0.765	15.74	0.586	0.765
reg.govnet	0.625	10.48	0.390	0.625
reg.aburd.sole	0.569	8.71	0.324	0.569
reg.soes	0.564	8.54	0.318	0.564
reg.servbarrs	0.556	8.32	0.310	0.556
reg.govsoes	-0.490	6.45	0.240	-0.49
reg.antitrustex	-0.457	5.62	0.209	-0.457

Table 1: PMR PC1: Administrative Burdens, Coercion and Government Involvement

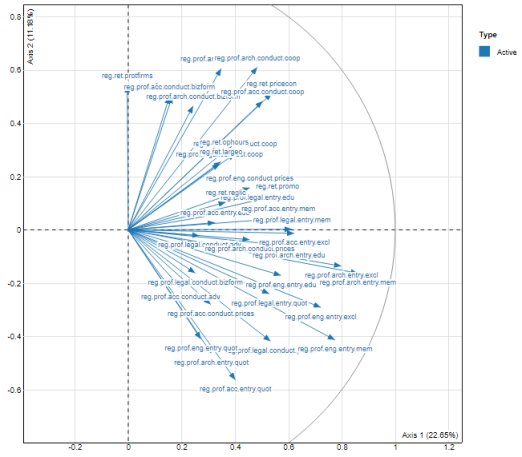
The latter column refer to whether the variable is positively or negatively correlated with the principal component. All the most important variables have positive coordinates as a result of being positively correlated with the principal component. The first negatively correlated variable is the seventh most contributing one, capturing the degree of political involvement in the governance of state-owned enterprises.



PC1 mostly indicates to us that administrative burdens, whether a government regulation is coercive instead of incentivising and a government's extent of involvement in financial affairs are drivers of differing regulatory systems among the countries included in this analysis, and that those are inversely correlated to the degree of political involvement in SOEs. In regards to PC2, I have named it Price Controls, Barriers and Lincensing, as its most contributing variables cover those aspects of a regulatory system, and by being all positively correlated with the principal component we can expect countries that will be located on the positive end of this axis to have heavier barriers (to the network systems, to tariffs, and to foreign investment specifically), higher price controls and a larger number of licenses and permits requested to businesses. For a table of PC2 and PC3, please see the Appendix. By adding our countries to an orthogonal space (the factor plan), using PC1 as our horizontal axis and PC2 as our vertical axis, we can infer their characteristics in relation to the information provided by each principal component. We read it as follows: countries on the right have higher government involvement and higher levels of coercive regulation and administrative tasks, whereas countries at the top have generally higher price controls and barriers.

3.2 Regulation by sector PCA

For the second PCA, I instead only retain PC1 and PC2, as each of them explained 22.65 percent and 11.2 percent of the variance in the data, together totaling 33.8 percent of the total variance. Interestingly, all variables in PC1 have positive coordinates, indicating that the underlying data has probably positively correlated variables, which is thereafter captured in the first principal component. Thus the variables which most contribute to PC1 will most likely be also the ones with the highest correlation within the dataset.

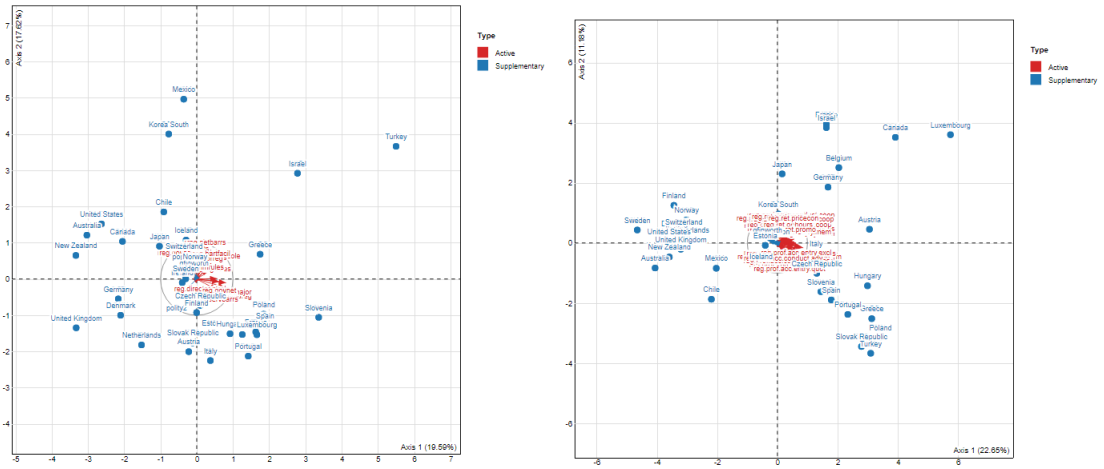


The interpretation of PC1 and PC2 is somewhat easier this time. PC1 is clearly capturing variance at the Entry level, that is, the extent countries regulate the formation of new business in various professional services. Particularly, entry regulation membership and exclusive rights in the architectural and engineering sector are the two variables mostly driving PC1.

Variable	**Coord**	**Contrib**	**Cos2**	**Cor**
reg.prof.arch.entry.mem	0.860	9.06	0.739	0.86
reg.prof.arch.entry.excl	0.798	7.82	0.637	0.798
reg.prof.eng.entry.mem	0.774	7.35	0.599	0.774
reg.prof.eng.entry.excl	0.721	6.38	0.520	0.721
reg.prof.acc.entry.excl	0.622	4.74	0.387	0.622
reg.prof.legal.entry.mem	0.613	4.61	0.376	0.613
reg.prof.arch.entry.edu	0.601	4.42	0.361	0.601

Table 2: Sector PC1: Entry

PC2 is instead mostly contributed to by variables describing Conduct, or in other words regulation in place for businesses beyond the entry stage. The most driving variables are the extent of regulation that limits cooperation within the architectural sector and regulation on advertisement and quotas, as well as the degree to which prices are controlled in the retail distribution sector and goods are under national monopoly, and whether professional bodies are involved in licensing decisions. By plotting our countries on the factor plan, we notice that the countries on the extreme top and extreme right of the axes, thus more heavily regulating in those aspects captured by the principal components, are not necessarily the same as those in the same location of the factor plan for the for PMR PCA. This suggests that regulation at the professional sector level might be stricter for countries which might not necessarily be as conservative on product market regulation as a whole.

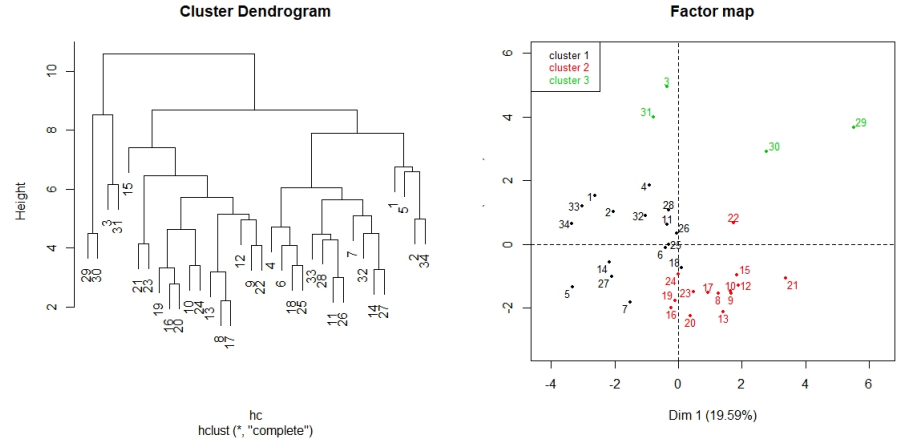


3.3 Clustering

Provided the main interest of this research is to distinguish countries by their economic regulation, I will now group countries based on their similarity in characteristics as described by the principal components of the PMR. The choice to use the PMR PCA as opposed to the professional sector PCA is reliant on the fact that the variables that constructed the PCA for Product Market Regulation are built to provide an economy-wide indication of anti-competitiveness in regulation. Additionally, information on sector is included within the PMR indicators, making the PMR data simply broader. To group countries I avail of a technique from the family of clustering methods for data classification called agglomerative hierarchical clustering. The choice of agglomerative hierarchical clustering over another clustering technique came following a reflection of the suitability of the method to the task at hand. Notably, there are plenty of clustering algorithms to choose from, which can be mostly assigned to two large families: partitioning algorithms and hierarchical clustering. The former family of algorithms usually requires the researcher to decide a priori the number of groups desired in the output, and it operates in such a way that it partitions in one go, whereas the latter allows the researcher to choose upon a visual representation of nested partitions that group the observations at various levels. However, hierarchical clustering lacks an objective functions and thus requires more time to process (Jain et al 1999). Nonetheless, given the small size of my dataset and provided the flexibility of hierarchical clustering, I will proceed with a method called Agnes, or agglomerative hierarchical clustering, which essentially describes the direction in which partitioning is done. An agglomerative approach can be seen as a bottom up method, where clusters are formed at the single observation level and upon the computation of a proximity matrix they are progressively merged together, until all observations are joint in one large cluster. On the opposite side of the spectrum is Diana, or a

divisive approach, where all observations are members of one big group and thereafter split in progressively smaller groups until a stopping criterion is met (Jain et al 1999). Even within agglomerative hierarchical clustering there are some decisions to be made. To begin with, the proximity matrix is based on a distance measure, of which there are several. In this study I avail of Euclidean measure of distance. Then I am bound to choose the linkage strategy, that is, the definition of cluster proximity. Among the three proximity measures most common in the field (single link, complete link and Ward link), I choose the complete linkage strategy as it forms clusters around the furthest neighbours in the data. This allows to have clearly distinct clusters separated at visible gaps in the data space. In other words, two clusters' proximity is determined by their two most distant points, resulting in dense and highly separated groups. Upon performing Agnes on my PMR dataset and observing the resulting dendogram, I deem three as the most suitable number of clusters to gather my data points in. Whilst more clusters could be retained, I deem it sensible to keep a low number of groups provided the complexity of the regulatory variables and the danger of overinterpreting the meaning of each cluster.

Instead, I cross-validate my output by performing hierarchical clustering on my PMR PCA output and I immediately notice striking similarities in the output. Retaining here three groups as well, I am left with three clearly distinct clusters: one is a group comprised of Mexico, Turkey, Israel and South Korea, which appear to be the most anti-competitively regulated countries in the datatset, both in terms of PC1 and PC2; one other group is made of countries which seem to be rather anti-competitive in terms of the aspects captured by PC1 (administrative tasks, government involvement and coercive regulation), yet no so anti-competitive in the aspects captured by PC2 (barriers and price controls); the final groups seems to be made of countries that are overall rather anticompetitive on the aspects measured by PC1, yet they can be more or less anticompetitive on the aspects captured by PC2.



Here is a summary of the groups: group 1, in green (Israel, South Korea, Mexico, Turkey);

group 2, in red (Austria, Belgium, Estonia, Finland, France, Greece, Hungary, Italy, Luxembourg, Poland, Portugal, Slovak Repubic, Slovenia, Spain ; group 3, in black (Australia, Canada, Chile, Czech Republic, Denmark, Germany, Iceland, Ireland, Japan, Netherlands, New Zealand, Norway, Sweden, Switzerland, United Kingdom, United States). A quick glance of the countries seems to indicate that the most developed countries are also those with least anti-competitive regulation, although this research does not attempt to imply any effect or causality between the two, nor to measure the degree of relationship between them.

4 Discussion and Conclusion

The aim of this research is to assess how countries differ in terms of economic regulation and to classify them in groups based upon their regulatory characteristics. To perform the aforementioned tasks we have availed of two datasets capturing product market regulation and professional sector regulation, and we have carried out principal component analysis on the two. An analysis of the resulting factor plans with the plotted countries indicates that the nations in the dataset differ by their regulatory systems. Particularly, the two outputs differ from one another, raising the question of which dataset is more suitable to capture differentiation in economic regulation and group countries based on that. Given the first dataset is more comprehensive, by capturing a wider spectrum of sectors and aspects of the economy, I have performed hierarchical clustering on the PMR dataset. The resulting outcome is three differently sized groups that differ in their regulatory modes. To cross-validate my clustering, I performed hierarchical clustering on the output of the first PCA, which gave me a more nuanced picture of the groups in the data in terms of differing regulatory characteristics. The outcome of clustering on the PCA output is three groups: a small group of countries which appear to be the most anti-competitive overall, a second group that has somewhat not so anti-competitive regulation in relation to what is captured by PC2 (general barriers and price controls) yet has substantially highly anti-competitive regulation in terms of governmental involvement in financial affairs and a high number of administrative tasks. The third and final group is a group of countries with various levels of barriers and controls, yet comparatively low overall amounts of anti-competitive regulation in terms of administrative tasks, coercive regulation and government involvement in financial affairs.

As this research highlights that disparities exist at a regulatory level for certain countries, and in light of existing research pointing anti-competitive regulation as a negative causal factor for economic growth, further monitoring of the extents of economic regulation across nations and their economic performance is needed to ensure that adequate direction is provided to narrow the gap between countries' wealth and ultimately diminish the degree of global inequality.

I notice this research has several limitations. First, the dataset only captures some countries, leaving many others out of the analysis. Including additional countries and assessing their regulatory systems would provide a clearer picture of the global situation in terms of regulation. Secondly, I fully rely on the OECD PMR and professional sector indicators of countries' anticompetitiveness extents as measures of economic regulation, but there is plentiful of other indexes in the literature and the choice was one of mere convenience given I was provided with the data. In this regard, my variables do not provide much detailed information on the quantity and quality of the regulation in each country. Third, the data I avail of here was gathered in 2013, and provided the rapid changes in the economic landscape and product markets, I do not expect my analysis to fully reflect the current global landscape. Yet, older datasets should not be dismissed. This dataset could in fact be combined to previous OECD PMR indicators (1999, 2002, 2008) to gain an overview of how PMR have changed overtime for countries individually and do a macro-clustering analysis to see which countries have evolved in a similar fashion to others.

5 References

1. Abdi J, Williams L. 2010. Principal component analysis. Wiley Interdiscip. Rev. Comput. Stat., vol. 2, pp. 433-459.

2. Blanchard O, Giavazzi F. 2003. Macroeconomic Effects of Regulation And Deregulation In Goods and Labor Markets. Quarterly Journal of Economics, 118, 879–907.

3. Bourlès R, Cette G, Lopez J, Mairesse J and Nicoletti G. 2010. Do Product Market Regulations in Upstream Sectors Curb Productivity Growth: Panel Data Evidence for OECD Countries, OECD Economics Department Working Papers, No. 791, OECD Publishing, Paris

4. Conway P, Janod V, and Nicoletti G. 2005. Product Market Regulation in OECD Countries: 1998 to 2003, OECD Economics Department Working Papers, No. 419, OECD Publishing, Paris

5. Conway P, de Rosa D, Nicoletti G, and Steiner F. 2006. Regulation, Competition and Productivity Convergence, OECD Economics Department Working Papers, No. 509, OECD Publishing, Paris.

6. Jain A, Murty M, and Flynn P. 1999. Data clustering: A review, ACM Comput. Surveys, 31, pp. 264–323.

7. Koske I, Wanner I, Bitetti R and Barbiero O. 2014. The 2013 Up-date of the OECD Product Market Regulation Indicators – Policy Insights for OECD and non-OECD countries, OECD Economics Department Working Paper, OECD Publishing, Paris, forthcoming.

8. Nicoletti G, Scarpetta S, and Boylaud O. 1999. Summary Indicators of Product Market Regulation With an Extension to Employment Protection Legislation, OECD Economics Department Working Papers, No. 226, OECD Publishing, Paris.

9. Nicoletti G, Scarpetta S. 2005. Product Market Reforms and Employment in OECD Countries, OECD Economics Department Working Papers, No. 472, OECD Publishing, Paris.

10. The World Bank. 2005. A Better Investment Climate for Everyone. The International Bank for Reconstruction and Development / The World Bank 1818 H Street, NW Washington DC.

11. Wölfl A, Wanner I, Kozluk T and Nicoletti G. 2009. Ten Years of Product Market Reform in OECD Countries: Insights from a Revised PMR Indicator, OECD Economics Department Working Papers, No. 695, OECD Publishing, Paris.

6 Appendix

6.1 List of Variables

The OECD PMR, professional sector and retail distribution sector indicator structures

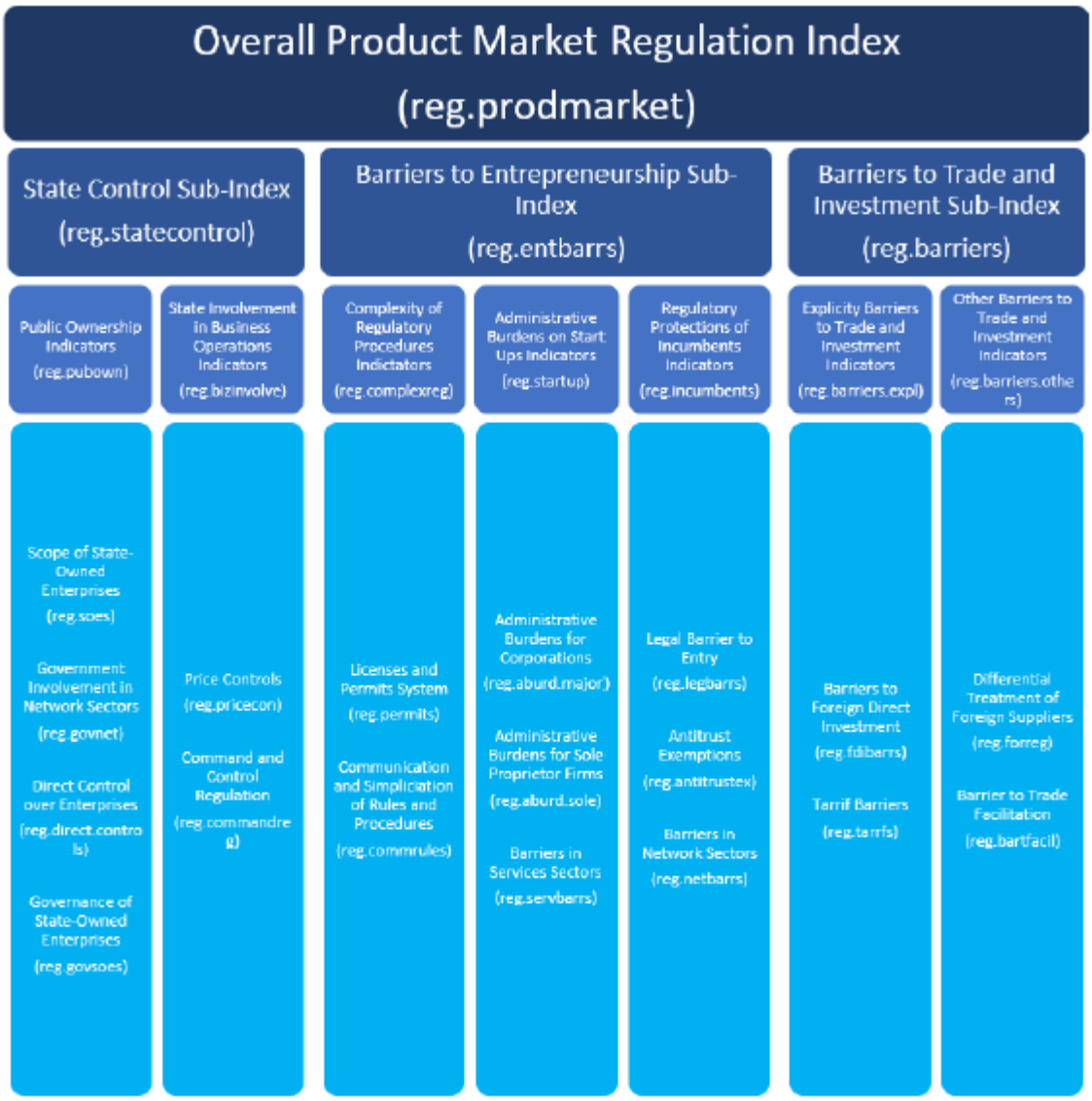


Figure 2: Koske *et al.* (2015) Product Market Regulation Indicators Deconstructed

Figure 4: Kosuke *et al.*'s (2015) Professional Services Regulation Metrics

Figure 5: Kosuke et al.'s (2015) Retail Distribution Regulation Metrics

Product Market Regulation Dataset

"reg.soes"

"reg.commandreg"

"reg.pricecon"

"reg.permits"

"reg.complexreg"

"reg.commrules"

"reg.aburd.major"

"reg.aburd.sole"

"reg.legbarrs"

"reg.antitrustex"

"reg.tariffs"

"reg.directcontrols"

"reg.fdibarrs"

"reg.govnet"

"reg.netbarrs"

"reg.govsoes"

"reg.servbarrs"

"reg.forreg"

"reg.bartfacil"

Sector Regulation Dataset

"reg.prof.legal.entry.edu"

"reg.prof.legal.entry.mem"

"reg.prof.legal.entry.quot"

"reg.prof.legal.conduct.prices"

"reg.prof.legal.conduct.bizform"

"reg.prof.legal.conduct.adv"

"reg.prof.legal.conduct.coop"

"reg.prof.arch.entry.excl"

"reg.prof.arch.entry.edu"

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"reg.ret.largeo"

"reg.ret.protfirms"

"reg.ret.ophours"

"reg.ret.pricecon"

"reg.ret.promo"

6.2 Contributing variables to the PCAs

Variable	Coord	Contrib	Cos2	Cor
reg.pricecon	0.755	17.03	0.570	0.755
reg.netbarrs	0.739	16.33	0.547	0.739
reg.fdibarrs	0.594	10.54	0.353	0.594
reg.tariffs	0.577	9.95	0.333	0.577
reg.permits	0.477	6.79	0.227	0.477
reg.antitrustex	0.463	6.40	0.214	0.463
reg.complexreg	0.454	6.16	0.206	0.454
reg.govsoes	0.449	6.01	0.201	0.449

Table 3: PMR PC2: Administrative Burdens, Coercion and Government Involvement

Variable	Coord	Contrib	Cos2	Cor
reg.complexreg	-0.810	26.18	0.655	-0.81
reg.permits	-0.723	20.88	0.523	-0.723
reg.commrules	-0.557	12.37	0.310	-0.557
reg.forreg	0.500	9.99	0.250	0.5
reg.antitrustex	0.496	9.83	0.246	0.496
reg.servbarrs	0.427	7.29	0.182	0.427
reg.tariffs	0.349	4.87	0.122	0.349
reg.aburd.sole	0.261	2.71	0.068	0.261

Table 4: PMR PC3: Complexity of regulation, Permits and Simplification of rules

Variable	Coord	Contrib	Cos2	Cor
reg.prof.arch.conduct.coop	0.610	9.25	0.372	0.61
reg.prof.arch.conduct.adv	0.605	9.09	0.366	0.605
reg.prof.acc.entry.quot	-0.563	7.88	0.317	-0.563
reg.ret.protfirms	0.543	7.33	0.295	0.543
reg.ret.pricecon	0.512	6.53	0.263	0.512
reg.prof.eng.conduct.adv	0.502	6.27	0.252	0.502
reg.prof.acc.conduct.bizform	0.500	6.21	0.250	0.5
reg.prof.acc.conduct.coop	0.483	5.80	0.233	0.483

Table 5: Sector PC2: Conduct