

Public Administration Efficiency in Resource Economies

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Abstract

In this paper we analyze public administration efficiency in resource economies. After a conceptual discussion, we decided to include a wider scope of public administration and to create a new measurement of public administration efficiency called Index of Public Administration Efficiency (IPAE). We calculated efficiency scores and rankings based on this index. The research finds and analyzes the outcomes of these scores. Regression analysis shows that economic freedom significantly influences efficiency, and efficiency influences real GDP per capita (PPP) and human development, but more government spending does not increase public administration efficiency.^{*}

Keywords: public administration, efficiency, resource economies, economic freedom, government expenditures.

Our country is rich, but our people are poor. Vladimir Putin

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1. Introduction

Public Administration plays a key role in organizing society; it is also a very important factor in the progress and regress of the economy and society itself. Differences in public administration governance explains why some countries have significant growth and other countries do not have it (Olson, Sarna and Swamy, 2000). Today's trends show that public administration has a broad scope in the modern society, and it is very important to include this broader scope in measuring the efficiency of public administration.

This research is a continuation from Peter Kaznacheev's "*Resource Rents and Economic Growth*" report, where the author of this paper also participated in some analysis. In that report Kaznacheev poses that the main factor inhibiting the growth in resource abundant countries is the institutional deficiencies (Kaznacheev, 2013; Mehlum, Moene and Torvik, 2006).

To solve the problem first you have to locate it in order to know where and how to fix the problem. Existing indexes, measuring public administration or some part of it, are limited in this way. Most of these indexes are limited in their scope of measuring or they measure just some aspects of the public administration. When we started this research, we wanted to use an already created index to measure the public administration efficiency in resource economies and analyze the comparisons, but we realized that there is no suitable index which can measure our view of what modern public administration is. So we extended our goal and we created index that measures the efficiency of public administration in wider scope, called Index of Public Administration Efficiency (IPAE).

Our findings show that resource countries with more economic freedom have more efficient public administrations. Another interesting finding is that better public administration efficiency means bigger economic growth, more human development and higher GDP per capita (PPP). More government expenditure, however, doesn't necessarily mean more efficient public administration.

This report produces two main analytical contributions:

- Creation of new public administration efficiency measurement, the Index of Public Administration Efficiency (IPAE).
- Comparison and conclusions regarding resource economies and their Public Administration Efficiency.

In addition, we present the table with the main results of measured Public Administration Efficiency in the resource economies (*see Table 1*). Results are on scale 1(best) - 7(worst).

Ranking Table of Measuring the Public Administration Efficiency in Resource Economies

		Institutional	Government	Health &	Macroeconomic	Innovation	РА	РА	IPAE
Rank	Country	Strength	Effectiveness	Education	Environment	&	Measures	Outcomes	1-7
1	Norman	6.074	5 526	5 757	5 295	1 echnology	5 665	5 208	5 519
1 2	Canada	5.004	5.102	5.730	5.042	4.030	5.410	5 224	5.310
2	Loolond	5.994	3.193	5.730	3.043	4.937	5.170	5.444	5.300
3		5.851	4.891	5.794	4.709	5.094	5.170	5.444	5.280
4	Australia	5.049	4.930	5.122	5.155	4.738	5.310	3.103	5.454
3	Qatar	5.048	5.187	5.122	5.518	4.305	5.251	4.745	5.048
6		5.678	5.081	4.911	5.211	4.345	5.324	4.628	5.045
/	United Arab Emirates	4.695	4.806	4.720	5.706	4.232	5.069	4.476	4.832
8	Malaysia	4.450	4.599	5.088	5.128	4.332	4.726	4.710	4.719
9	Brunei Darussalam	4.336	4.398	4.968	5.538	3.747	4.757	4.358	4.597
10	Saudi Arabia	4.110	4.456	4.802	5.554	3.953	4.706	4.377	4.575
11	Oman	4.418	4.584	4.747	5.417	3.686	4.806	4.216	4.570
12	Bahrain	4.180	4.410	4.912	5.181	3.759	4.590	4.336	4.488
13	Botswana	5.117	4.659	4.053	4.838	3.431	4.872	3.742	4.420
14	South Africa	4.775	3.849	3.899	4.484	3.734	4.369	3.817	4.148
15	Kuwait	3.803	3.462	4.533	5.646	3.248	4.304	3.890	4.138
16	Namibia	4.615	3.997	4.170	4.403	3.379	4.338	3.775	4.113
17	Trinidad and Tobago	4.263	3.474	4.448	4.517	3.687	4.085	4.068	4.078
18	Indonesia	4.005	3.565	4.446	4.710	3.573	4.093	4.009	4.060
19	Mongolia	4.046	3.109	4.476	4.543	4.075	3.899	4.276	4.050
20	Ghana	4.407	3.787	3.929	4.516	3.367	4.237	3.648	4.001
21	Mexico	3.894	3.228	4.727	4.308	3.600	3.810	4.163	3.951
22	Kazakhstan	3.269	3.225	4.390	5.037	3.645	3.844	4.018	3.913
23	Azerbaijan	3.235	3.215	4.112	5.133	3.698	3.861	3.905	3.878
24	Peru	3.900	3.051	4.341	4.701	3.269	3.884	3.805	3.852
25	Colombia	3.712	3.128	4.646	4.337	3.378	3.726	4.012	3.840
26	Jamaica	4.198	3.324	4.507	3.626	3.538	3.716	4.023	3.839
27	Zambia	4.000	3.775	3.526	4.677	3.192	4.151	3.359	3.834
28	Guyana	3.844	3.348	4.138	4.306	3.510	3.833	3.824	3.829
29	Suriname	4.390	3.350	4.075	3.861	3.133	3.867	3.604	3.762
30	Gabon	3.582	3.386	3.667	5.148	2.919	4.039	3.293	3.740
31	Bolivia	3.751	3.236	4.431	4.120	3.087	3.702	3.759	3.725
32	Tanzania	3.719	3.486	3.932	4.341	3.128	3.849	3.530	3.721
33	Ecuador	3 658	2.769	4 540	4 210	3.273	3 546	3 907	3.690
34	Timor-Leste	3,799	3.177	3.784	4 849	2.724	3 941	3.254	3.666
35	Libva	3 429	2.991	4 094	5.013	2.764	3.811	3 429	3.658
36	Iran	3 192	3 049	4 331	4 232	3.079	3 491	3 705	3 577
37	Russian Federation	2.926	2 576	4 670	4 258	3 4 3 9	3 253	4 0 5 5	3.574
38	Mozambique	3 687	3 101	3 113	4 289	3 316	3 692	3 214	3,501
30	Egynt	3 370	2 851	3.972	4 100	3 129	3.440	3.550	3.484
40	Kurguzetan	2 997	2.001	1.116	4.006	2.865	3 1 2 3	3.656	3 3 4 2
40	Ryigyzstall	2.997	2.395	2.463	4.000	2.803	2 9 2 5	2.508	3.342
41	Mouritonio	2 117	2.024	2.403	4.340	2.734	2.515	2.398	2 200
42	Mauritania	3.117	3.034	3.001	4.393	2.939	3.313	3.000	3.309
43	Company	3.38/	3.064	2.033	4.498	2.882	3.049	2.758	3.293
44	Zimbah	3.085	2.627	3.377	4.014	2.757	3.442	3.067	3.292
45	Zimbabwe	3.116	2.51/	3.968	4.163	2.650	3.265	3.309	3.283
46	Nigeria	3.504	2.973	2.505	4.223	2.996	3.567	2.751	3.240
47	Sterra Leone	3.605	3.281	1.846	4.236	2.876	3.707	2.361	3.169
48	Cote d' Ivoire	2.803	2.303	4.082	4.001	2.409	3 3 3 4	2.275	3.108
50	Guinea	3 204	2.702	2.025	3.512	2.500	3.170	2.702	2.807
51	Venezuela	2.506	1.751	1.535	2 007	2.313	2 2 2 2 0	2.400	2.097
52	Venezuela	2.500	2,200	4.555	2.907	2.771	2.300	2.700	2.094
52	Chad	2.401	2.200	2.085	3.970	2.413	2.079	2.790	2.044
- 33	Chau	2.039	2.210	2.085	4.307	2.392	5.081	2.238	2.744

Table 1. Rankings

2. What is Public Administration

2.1 Definition and Frame of Public Administration.

Definition of Public Administration

Public administration is the administrative apparatus of the authorities (government). Its main task is to provide services to the participants in the society (people, institutions, companies) in order to organize and simplify the society. The question which rises here is: how efficiently is this task performed? This opens additional questions: How you can measure this efficiency? Is there some scale? What exactly needs to be measured to determine the overall efficiency? What are the boundaries of the public administration, and are these boundaries sharp or they are overcrossing different fields? This report tries to answer these questions and to compare the public administration efficiency in resource economies with a newly created measurement system called IPAE.

Since its beginnings as an independent part of the state in the end of 19th and early 20th century, public administration has had to constantly keep its role balanced between administrative and political interference. In theory political interference should be narrowed down to minimum, but in practice the trend is the opposite, especially in underdeveloped countries, where **public administration is often misused in order to achieve a certain level of power or to protect personal interests**. However, **public administration is an inseparable part of a country's political process.** A strong and efficient public administration can be used to improve welfare. Weak and inefficient public administration can be very costly, problem-causing and dangerous for the country; however, public administration can be very useful and progressive for countries with a strong and efficient system.

"Public administration consists of all those operations having for their purpose the fulfillment or enforcement of public policy". – Leonard D. White

"Public Administration is concerned with 'what' and 'how' of the government. The 'what' is the subject matter, the technical knowledge of a field, which enables the administrator to perform his tasks. The 'how' is the technique of management, the principles according to which co-operative programmes are carried through to success. Each is indispensable, together they form the synthesis called administration". – Marshall E. Dimock

Frame of Public Administration

There is a big debate about the scope of the public administration. In general there are two main perspectives about its scope: *narrow perspective (POSDCoRB)* and *wide perspective (Subject Matter)*. According to the narrow perspective, scope of the public administration is limited to those aspects of governance which are related only to the executive branch. The main proponent of this perspective was the social scientist and public administration expert Luther Gulick. He developed his own model called POSDCoRB, which reflects the classic view of administrative management (Gulick and Urwick, 1937). POSDCoRB stands for

- **P** Planning: working out in broad outline the things that need to be done and the methods for doing them in order to accomplish the purpose set for the enterprise.
- **O**-Organizing: the establishment of the formal structure of authority through which work subdivisions are arranged, defined and coordinated for the defined objective.
- S- Staffing: the whole personnel function of bringing in and training the staff and maintaining favorable conditions of work.
- **D** Directing: the continuous task of making decisions and embodying them in specific and general orders and instructions and serving as the leader of the enterprise.
- Co- Coordinating: the all-important duty of connecting the various parts of the work.
- **R** Reporting: keeping those to whom the executive is responsible informed as to what is going on, which thus includes keeping himself and his subordinates informed through records, research and inspection.
- **B** Budgeting: in the form of fiscal planning, accounting and control.

Gulick's view on the scope of public administration is focused on the tools of public administration; it does not show the essence of administration. It is a technic-oriented view, but easily measurable.

Wide perspective on the scope of public administration is more accurate in essence; this is the main trait of IPAE. Excluding the fields indirectly related to public administration would not accurately define today's public administration; therefore, measuring the public administration efficiency in this narrow scope would be unreliable. We strongly believe that a wider scope of public administration is the realistic presentation of today's public administrations. People expect more services from public administration today: better education, public health care, social security, pension, welfare etc. This is not possible without considering all aspects of governance. This means that modern public administration cannot limit itself to only of keeping law, order and justice and collection of revenue and taxes. It has to include all three types of government: Legislative, Judicial and Executive. For example, the police have their own methods of fighting crime and sustaining law and order which are more important than the narrow principals of institution and its management. Inclusivity of these matters is more reliable than just the formalities.

The expansion of public administration is inevitable. As the scope and power of public administration also expands, it also begins to take on more responsibilities. This is a very critical time in its development: **every country which wants modern public administration must differentiate comprehensive and efficient public administration from a comprehensive but inefficient one.** Two scientists—both pioneers in public administration science—were the first to introduce this wide scope perspective of public administration. Woodrow Wilson in his article "Study on Administration" (Wilson, 1887) and Leonard White in his book *Introduction to the Study of Public Administration* (White, 1937) both strongly advocate the broad perspective of public administration.

Today, the USA has a wide scope public administration; they also incorporate the private-sector style models in public administration. In order to improve its efficiency, a limited merger is attempted between public and private sector. This new method is called New Public Management (NPM), first introduced by Osborne and Gaebler in their famous book *Reinventing Government* (Osborne and Gaebler, 1992). Implementing IT systems in public administration lead to a digital era of governance—a successor of NPM.

"Public administration is an instrument with two blades like a pair of scissors. One blade may be knowledge of the field covered by POSDCoRB; the other blade is knowledge of the subject matter in which these techniques are applied. Both blades must be good to make an effective tool". - Lewis Meriam

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2.2 Difference between Effectiveness and Efficiency

Although *effectiveness* and *efficiency* look similar, there is a significant difference between them. The purpose of explaining these terms is to be able to recognize the difference between them, and to understand why we called our measurement Index of Public Administration Efficiency, but not Index of Public Administration Effectiveness.

Effectiveness is all about achieving the final aim, while efficiency is how well you did this job: it measures the quality. Effectiveness is doing the right things and achieving the goal. Efficiency is doing the things right, in the optimal way (*see Table 2*). It is very important to distinguish these two terms, especially if it is related to measuring. **IPAE is measuring the efficiency of the public administration**, that it, how good public administrations do their job. If we measured the public administration effectiveness, we would have had to measure **if public administration was fulfilling their tasks and how many of their tasks were fulfilled, but not how they did it, the expenses or the resources spent, or if it was it fast, cheap and**

	Efficiency	Effectiveness
Goal oriented	Yes	Yes
Effort oriented	Yes	No
Process oriented	Yes	No
Time oriented	Yes	No

Table 2. Efficiency and Effectiveness Orientation

accurate or if was it expensive, time consuming and inaccurate. We would not know these things if we measured the public administration effectiveness.

For example, if two judicial systems in two different countries have property issues to resolve. If both systems resolve the issue, that means that two systems are effective. If the first country resolves the property issue in twice the time of the second, then the first country is half as efficient as the second.

If we measured the effectiveness of these two judicial systems, the two countries would have the same result: they are equally effective, because they achieved the final goal (resolve the case). But if we measured the efficiency, the conclusion would be that second judicial system is twice as efficient as the first one, which gives us more accurate perception on the judicial systems in the countries.

2.3 Culture and Tradition as Factors in Efficiency of Public Administration

In our opinion culture and tradition are very important factors in public administration efficiency. It is not important only for the public administration, but for overall socio-economic development. Thus, we are going to consider the impact of culture and tradition on the efficiency of public administration. **Measuring the impact of culture and tradition is abstract**, and cannot be taken into consideration while measuring the efficiency because you cannot measure the impact this factor has in the overall efficiency. Often this can be the decisive factor, making a difference in efficiency. Every country has its own cultural values, habits and beliefs, often interfering in various aspects of the country's society and causing some tremors in its functioning.

Culture and traditions are part of the county's identity. This identity is also is reflected in public administration. Different countries have different cultural identities, which results in differences in public administration. Scandinavian or Japanese public administrations are very different from Balkan or Turkish public administrations. A country's public administration can follow the trends of its development, new technology and methods can be implemented, but can never be rid of the tradition of its native region. Thus its efficiency does not always depends only on its expertise, salary, management, strategic planning, usage of resources, inter- institutional cooperation etc. but also on cultural values and habits of people working in that specific public administration.

This phenomenon best can be noticed by international companies, because they conduct business in different places around the globe. Employees have experienced different public administrations and faced everyday issues. Although similar in expertise and salaries, different public administrations have different service provision efficiency. International companies often even organize special trainings in cross-cultural management for their traveling employees, where they learn the cultural background of the destination country. They even give them guidance and some unconventional tips on how to solve different problems in specific countries.

2.4 Public Administration in Resource Economies

What is a resource economy?

The definition for a resource economy is taken from Kaznacheev's report on "*Resource Rents and Economic Growth*": "a country is a resource economy if over 25% of its exports consist of natural resources and the ratio of resource exports to GDP is above or close to 10% (we add some countries which have this share slightly below 10% of GDP). The former criterion is used by a number of authors and is consistent with the IMF definition of resource-dependent countries. The latter is added to ensure that countries with very low volumes of overall exports do not fall into the abundance category." In addition, the list of countries that we established as qualifying is based on IMF and United Nations (UNCTAD) data (Kaznacheev, 2013).

Resource economies:

1 Algeria	19 Guinea	37 Norway
2 Australia	20. Convers	29. Omen
2. Australia	20. Guyana	58. Oman
3. Azerbaijan	21. Iceland	39. Peru
4. Bahrain	22. Indonesia	40. Qatar
5. Bolivia	23. Iran	41. Russian Federation
6. Botswana	24. Jamaica	42. Saudi Arabia
7. Brunei	25. Kazakhstan	43. Sierra Leone
8. Burkina Faso	26. Kuwait	44. South Africa
9. Cameroon	27. Kyrgyzstan	45. Suriname
10. Canada	28. Libya	46. Tanzania
11. Chad	29. Malaysia	47. Timor-Leste
12. Chile	30. Mali	48. Trinidad & Tobago
13. Colombia	31. Mauritania	49. UAE
14. Côte d'Ivoire	32. Mexico	50. Venezuela
15. Ecuador	33. Mongolia	51. Yemen
16. Egypt	34. Mozambique	52. Zambia
17. Gabon	35. Namibia	53. Zimbabwe
18. Ghana	36. Nigeria	

We have to mention that original number of resource countries is 67, but because there is no data for some countries (Laos, Bhutan, Togo, Papua New Guinea, Nauru, Congo DR, etc.) for all of the 40 sub-parameters, the list here is 53 countries, which is around 80% of the resource economy countries. We also add Malaysia and Mexico to this list; although they do not have exactly 10% ratio of resource export to GDP, they nonetheless have a very high share of natural resources in their export.

Why is Public Administration important in resource economies?

Public administration is particularly important for resource economies because a lot of things in the economy depend on it. It could be assumed that a resource abundant country would have a corresponding abundance of wealth and the ability to provide for the welfare of the people living there, but this is not always the case. More often **it is very difficult for some countries to properly use the advantage of resource abundance; in some cases it is the main obstacle for the country to develop**. Sachs and Warner in 1995 explained this phenomenon, later known as *resource curse*. In most resource countries, the state is a dominant stake holder in the NOC (National Oil Company), and the way of managing the company is similar to or the same as the managing of the public sector. Usually resource government gains big incomes from resource export, consequently construct big budgets, which is the perfect opportunity for misusing the funds from the budget.

As example let's consider the Norwegian Statoil and Russian's Gazprom and Rosneft comparison in net income per barrel. These three companies are national oil companies and produce more than 1.5 million barrels a day, but if we compare the average net income per barrel, the situation is the following: Statoil has net income of 16.9 USD/barrel, while Gazprom and Rosneft has 12.3 and 12.2 USD/barrel respectively. This is a significant difference and clear indicator of the company's efficiencies, managed by their governments. This shows that public administration has very important role in managing its national resource companies, and the success of these companies depends on public administration. Norway has the most efficient public administration from all resource economies, while Russia is 37th out of 53 countries.



Figure 1. Chart taken from Resource Rents and Economic Growth report

The next example is Venezuela, where it was transformed from one of the most well-off countries in Latin America in terms of real GDP per capita in 1950s, and is currently in long period of stagnation and even decline. Between 1980 and 2002, its real income declined by 25%. Venezuela has the world's second most combined reserves of oil and gas (next to Iran), but its overall oil and gas production it's lower today than 50 years ago (see Figure 1). Venezuela is not the only country which has failed to use its hydrocarbon potential. Iran is a similar story (Kaznacheev, 2013). It poses the largest combined oil and gas reserves and second largest natural gas reserves (next to Russia) in the world, and at the same time is net gas importer. Other such cases are Nigeria, Libya, Algeria, Yemen and Myanmar (Karl, 1997). If you see Figure *I* again, you realize that countries which have poor score on IPAE (Nigeria, Algeria, Iran, Libya and Venezuela, are on the bottom of the ranking table) have very small growth rate, while Malaysia, Australia and Canada (are in top 10 countries on the ranking table) have several times better annual growth rates in production of oil and gas. Obviously there is something wrong with the low-performing countries. Their institution, part of their comprehensive, weak and inefficient public administrations is the main reason for these results. Kaznacheev in his paper also argued that the main factor inhibiting the growth in resource abundant countries is the institutional deficiency, known as institutional approach. Institutional approach has two major schools, but the main focus is the institutions, part of the public administration in the country. The first stems from the "resource curse" hypothesis and sees natural resource abundance as a cause of institutional degradation and corruption, consequently effecting growth and development. The second school is "institutionalism," which puts institutions in the focus, but the causality direction is in the opposite way: resource abundant countries are not cursed to develop deficient institutions, but rather weak institutions are themselves the reason for the slow growth and development.

Mehlum, Moene and Torvik published a book called "*Cursed by Resources or Institutions*;" in it they compare 4 hypothetical countries to investigate their growth paths. Countries A and A* are





resource poor, with country A having grabber friendly institutions and country A* having producer friendly institutions. Countries B and B* are resource abundant, where B has grabber friendly institutions and B* has producer friendly (*see Figure* 2). All the countries have the same income level initially: Y₀. As you can see from the *Figure* 2, a resource poor country with producer friendly institutions A* outperforms a resource rich country

with grabber friendly institutions B; even resource poor country with grabber friendly institutions

A outperforms resource rich country with grabber friendly institutions B. The main conclusion of Mehlum, Moene and Torvik is that **the quality of institutions determines whether natural resource abundance can be blessing or a curse.**

3. Findings and Analysis

3.1 Findings

Results from the research show that more developed countries have better efficiency in public administration, but there are also some rapidly growing countries with good results, such as Iceland, Chile and Malaysia, being in the 3, 6 and 8 position, respectively (*see Figure 3*). One of



Figure 3. Ranking chart of public administration efficiency in resource economies

key reasons for the fast development of these countries is the efficient public administration, because this efficiency is reflected in every sphere of their economies: efficient usage of resources, FDI's, GDP per capita (PPP), Human Development Indicators of growth and other key developing indicators. It is vital that the influences on efficiency, and also the consequences of efficiency, be

determined. It can be noticed that some muslim countries have high IPAE, even though they have low level of democracy. Although IPAE contains parameters which measure level of democracy in the country, it is not decisive factor in the overall IPAE of these countries. Their high score is



Figure 4. Chart taken from Resource Rents and Economic Growth report

built by the remaining parameters. Our analysis indicates that better public administration efficiency is directly related to the average annual growth of GDP per capita (PPP). From *Figure 4* you can see that Malaysia, Chile and Norway have the biggest annual growth rate, and their positions on the public administration efficiency ranking table are 8, 6 and 1, respectively. On the other side sit Venezuela, Libya, Algeria and Nigeria, countries all located at the bottom of the table with positions 51, 35, 48 and 46, respectively. Venezuela has almost no growth.

3.1.1. Efficiency and Economic Freedom

Another thing strongly related to public administration efficiency is economic freedom. Economic freedom is important because it is a main precondition to economic growth and development. **Countries with higher economic freedom have more efficient public administrations**. Fraser Institute's economic freedom index was intentionally not included in the



Figure 5. Relationship between public administration efficiency and economic freedom

creation of IPAE because we wanted to use it in the regressions. Regression analysis from *Figure* 5 confirms this hypothesis. R^2 which shows the relation between the two parameters (the independent parameter is Economic Freedom measured by the Fraser Institute and the dependent parameter was the Index of Public Administration Efficiency), shows a very strong relation, where $R^2 = 0.6435$. That means that Economic Freedom Score predicts or influences IPAE with 64.35%.

3.1.2. Efficiency and GDP per capita (PPP)

In countries with more efficient public administration, real per capita income is higher, people live longer and there are more investments and more individual freedoms. Average annual GDP per capita (PPP) is also higher in countries with more efficient public administrations (*see Figure 4*). More efficient public administration correlates with lower crime, corruption and illiteracy levels. As shown in *Figure 6*, there **is a strong correlation between the independent parameter, the Index of Public Administration Efficiency (IPAE), and the dependent parameter, real GDP per capita (PPP) constant International 2011 USD.** Correlation between



these two is $\mathbf{R}^2 = \mathbf{0.5852}$, or Index of Public Administration Efficiency can predict or influences on the real GDP per capita (constant international 2011 USD) with **58.52%**.

Figure 6. Relationship between GDP pc (PPP) and public administration efficiency

3.1.3. Efficiency and its Impact on Human Development

Norway, which had the number 1 rank in public administration efficiency, also ranks number 1 in UNDP's Human Development Index. Its public administration is considered to be one of the most reliable and developed in the world, and our measures confirm this assumption. Regression analysis between the independent parameter (IPAE) and the dependent parameter (UNDP's Human Development Index, or HDI) shows **that countries with more public administration efficiency have a higher Human Development Index**. As shown in *Figure 7*, IPAE can predict or influences on HDI with **57.86%**.



Figure 7. Relationship between HDI and public administration efficiency

3.1.4 Effects of Government Spending

Government spending does not result in more efficiency. This is a very interesting hypothesis, which is confirmed by the regression analysis. Regression shows that there is a weak relation between government spending and the efficiency of public administration; thus, **increased government spending does not equal more efficient public administration** (*see Figure 8*).

There are countries which have lower government expenditure but efficient public administration. Chile has the best result; with the highest difference between the government expenditure and the IPAE, it is the positive extreme (has small government expenditures, but efficient public administration). The negative extreme in this parameter are Libya and Venezuela:



Figure 8. Relationship between public administration efficiency and government expenditure as % of GDP

they have big government expenditures, but not efficient public administration. Regression analysis shows a very weak relation between the independent variable, Government expenditure as % of GDP, and the dependent variable, Index of Public Administration Efficiency (IPAE). R^2 =0.0059. This shows that government expenditure influences efficiency of the public administration with an insignificant 0.59%.

4. Methodology of the Index of Public Administration Efficiency (IPAE)

The Index of Public Administration Efficiency (IPAE) measures the efficiency of the public administration in the country. It is a newly developed index for the purpose of this research, used in order to determine the public administrations efficiency in the resource economies. **IPAE** is measuring the wider scope of the public administration; it is not concentrated only on the

technical (measurable) aspects of the public administration, but also on the fields indirectly related to the public administration, such as health, education, innovation, technology and finance. There is a big debate today about the frame and role of the public administration; it is not that easy to define to what extend public administration can interact in the economy, social policy and public sector in the modern society. The reason we decided to take this wider scope of the IPAE is because we think that public administration does not have only a technical role in society, but is also a very important factor determining the overall progress/regress of the country. The logic for including additional indicators is to give a more rounded picture of public administration quality.

IPAE is represented on a scale from 1 to 7, where 1 represents the worst grade (nothing) of the specific parameter, and 7 represents the best grade. All of the data used in composing IPAE is the latest available, from the range of 2010 to 2014. It is not possible to find up-to-date information for each parameter. Most of the parameters are from 2012 and 2013; the gap of 4 years is optimal, because it is not big time range, where significant economical and geopolitical changes can occur.

4.1. Composition of the Index of Public Administration Efficiency- IPAE

Index of Public Administration Efficiency (IPAE) is constructed in three levels gradually. The composition is recursive and it starts dividing the IPAE into simpler parameters distributed in three levels, coming to the final third level, with 40 sub parameters, which are the basic units of the IPAE (*see Figure 9*). The three main levels are

- Wider Scope of the Index (2 Parameters: PA Measurement- 60% Weight; PA Outcome-40% Weight)
- 2. Fundamental Parameters (5 Parameters, each weights 20% of the overall IPAE)
- 3. Sub Parameters (40 Parameters, each weights 2.5% of the overall IPAE).



Figure 9. Index of Public Administration Efficiency Composition

FIRST LEVEL

The first level determines the scope (direction) of the IPAE: whether it is a direct public administration measure or indirect outcome from it. This is the genetics and recognizable sign of this index. The reason behind this is the wide frame of the public administration described at the beginning of the report. The first level is divided into two parameters:

- Public Administration Measures PA Measures
- Public Administration Outcomes PA Outcomes

The first component in this level, the *Public Administration Measures*, weighs 60% of the overall IPAE, while the *Public Administration Outcomes* weighs 40%. You can also compare the grade every country has separately received for these two parameters (*see Table 1*). The final index can be formed as the average of these two.

We did a deep analysis on almost every index existing today related to IPAE. In this analysis, we included compositions of the following: World Economic Forum's Global Competitiveness Index, Transparency International's Corruption Index, World Bank's Worldwide Governance Indicator and Doing Business Index, Global Innovation Index, Fraser Institute's Economic Freedom of the World Index and all 1289 indexes from World Bank. The most relative parameter to IPAE is the Global Competitiveness Index, where we took 24 parameters from their 159 parameters.

SECOND LEVEL

We separated the two directions of public administration into 5 fundamental parameters. PA Measures includes three (60% weight) of those fundamental parameters: *Institutional Strength, Government Effectiveness and Macroeconomic Environment*. PA Outcomes includes two (40% weight) fundamental parameters: *Health and Education*; and *Innovation and Technology*.

Public Administration Measures

Public Administration Measures are far more quantitative than qualitative measures, which directly describes the efficiency of public administration. This is exactly the main idea of dividing

the IPAE into two sub-scopes: not only to measure the quantitative aspect of the public administration, but also the outcomes that it produces or influences. The total weight in overall IPAE is 60%. Public Administration Measures is composed of 3 fundamental parameters:

Institutional Strength (20% weight) measures the quality and independence of the legal, administrative and service providing framework, within which the individuals, firms and governments, interact. After the recent economic and financial crisis, public institutions play the key role in the speed of post-crisis recovery in today's globalized world, where almost every economy is connected and dependent. The strength of institutions also play an important role in investment decisions, because every investor wants to know the level which his investment would be protected. Institutions today have a wider role than the legal, regulatory and service they are providing. They are a very significant factor in determining the freedom and growth of the economy, market and society. As a direct PA Measure, Institutional Strength is focused on describing the institutions in a narrow sense: institutional corruption and bribes, transparency of government policymaking, judicial independence, personal and organizational freedom and rights are part of this measurement.

Government Effectiveness (20% weight) measures the quality and quantity of the government: law adoption, efficiency of policy's formulation and implementation, managing service operations and diversion of the public funds. In the latest World Bank report on the Worldwide Governance Indicators, the following definition for Government Effectiveness is given: "Government effectiveness captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies."² Government is a very important part of the public administration and to a big extent drives it by its regulatory and policymaking role. In comparable sense, it is the brain of the public administration. In most cases today, the government reflects the public administration in the country; a public administration mirrors the type of government it belongs to.

Macroeconomic Environment (20% weight). This is one of the key fundamental parameters that show the macroeconomic shape of the country. Stability and sustainable growth of the country's macroeconomic environment to a big extent depends on the public administration and

² http://info.worldbank.org/governance/wgi/index.aspx#doc

its efficiency. Fiscal deficits and out-of-hand inflation rates strangles companies' operations and influence their efficiency. The government cannot provide services on satisfactory level for companies if they do not have their budget balanced or low interest payments of its debts.

Public Administration Outcomes

Public Administration Outcomes are more qualitative measures. They are not strongly and directly related to the public administration, but they are an important indicator of the overall effectiveness and efficiency of the public administration. Branches such as health care and education are part of the public sector in almost all the countries; in most of them, they are entirely part of the public sector. This is especially more evident in resource economies, hence the importance of inclusivity of these public administration outcomes. The total weight in overall IPAE is 40%. Public Administration Outcomes is composed of two fundamental parameters:

Health and Education (20% weight). There is very big debate about health care and educational system in the world currently. Politicians win or lose elections based on the success and vision they have on social policies, especially in these two sectors. All developed countries are very well aware of the importance of a good health care and educational system, and this is the reason why they invest so heavily in it. These systems are the backbone of every progressive economy. A healthy and educated workforce is the primary condition to achieve sustainable growth of the economy. A poor health care and educational system cause significant costs to business and economy. Workers are often absent from work, and an uneducated work force is inefficient, leading to additional costs. Public administration determines what the health care and educational system look like, making it the difference between a low-cost, efficient system and one that is large and inefficient.

Innovation and Technology (20% weight). These closely related sectors of the economy are indirectly related to public administration. This is very important for the public administration, reflecting the capability of public administration to produce and implement new methods for improving efficiency. In today's Information Age, previously mentioned fundamental parameters are conventional and build the structure of the economy, but they eventually run into diminishing returns. As history has shown, one breakthrough in innovation and technology is enough to

transform one country into economic giant, or can plunder its resources and potential. Innovation and technology do not see daily results; they need time and investment in order properly to develop. It is no coincidence that the most advanced companies allocate large portions of their budget to Research and Development.

THIRD LEVEL

This is the level where IPAE is actually created out of 40 different sub-parameters: 8 subparameters in 5 fundamental parameters, equally weighted of 2.5% each. We have picked these sub-parameters as a result of intensive research, and they reflect our view on what aspects public administration should be measured. IPAE is the average from the all equally distributed 40 subparameters. It can also be calculated as average of the 5 fundamental parameters, or the average of the two scope parameters PA Measures and PA Outcomes. Each sub-parameter is defined by its institution or organization; we have included the direct link to each sup-parameter for reference.

Public Administration Measures

4.1.1 Institutional Strength

*Transparency International Corruption Index*³ is from Transparency International. The Corruption Perception Index 2013 measures the perceived levels of public sector corruption in countries worldwide, scoring them from 0 (highly corrupt) to 100 (very clean).

*Irregular Payments and Bribes*⁴ measurement comes from the World Economic Forum. The average score is taken across the five components of the following Executive Opinion Survey: how common is it for firms make undocumented extra payments or bribes connected with (a) imports and exports; (b) public utilities; (c) annual tax payments; (d) awarding of public contracts and licenses; (e) obtaining favorable judicial decisions? In each case, the answer ranges from 1 (very common) to 7 (never occurs).

³ http://cpi.transparency.org/cpi2013/

⁴ http://www.weforum.org/issues/competitiveness-0/gci2012-data-platform/

*Judicial Independence*⁵ is from the World Economic Forum. To what extent is the judiciary independent from influences of members of government, citizens or firms?

*Favoritism in Decisions of Government Officials*⁶ is used by the World Economic Forum. To what extent do government officials show favoritism to well-connected firms and individuals when deciding upon policies and contracts?

*Transparency of Government Policymaking*⁷ is by the World Economic Forum. How easy is it for businesses to obtain information about changes in government policies and regulations affecting their activities?

Associational and Organizational Rights⁸ measurement comes from the Freedom House. Is there freedom of assembly, demonstration, and open public discussion? Is there freedom for nongovernmental organizations? (Note: This includes civic organizations, interest groups, foundations, etc.). Are there free trade unions and peasant organizations or equivalents, and is there effective collective bargaining? Are there free professional and other private organizations?

*Freedom of Expression and Belief*⁹ is also by the Freedom House. Are there free and independent media and other forms of cultural expression? (Note: In cases where the media are state-controlled but offer pluralistic points of view, the survey gives the system credit.) Are religious institutions and communities free to practice their faith and express themselves in public and private? Is there academic freedom, and is the educational system free of extensive political indoctrination? Is there open and free private discussion?

*Reliability of Police Services*¹⁰ is from the World Economic Forum. To what extent can police services be relied upon to enforce law and order?

⁵ http://www.weforum.org/issues/competitiveness-0/gci2012-data-platform/

⁶ http://www.weforum.org/issues/competitiveness-0/gci2012-data-platform/

⁷ http://www.weforum.org/issues/competitiveness-0/gci2012-data-platform/

⁸ http://www.freedomhouse.org/report/freedom-world-2014/methodology#.U2ZFh_mSyJF

⁹ http://www.freedomhouse.org/report/freedom-world-2014/methodology#.U2ZFh_mSyJF

¹⁰ http://www.weforum.org/issues/competitiveness-0/gci2012-data-platform/

4.1.2 Government Effectiveness

*Public Trust in Politicians*¹¹ is by the World Economic Forum. How would you rate the ethical standards of politicians?

*Wastefulness of Government Spending*¹² is by the World Economic Forum. How efficiently does the government spend public revenue?

*Burden of Government Regulation*¹³ is by the World Economic Forum. How burdensome is it for businesses to comply with governmental administrative requirements (e.g., permits, regulations, reporting)?

*Efficiency of Legal Framework in Settling Disputes*¹⁴ is by the World Economic Forum. How efficient is the legal framework for private businesses in settling disputes?

*Efficiency of Legal Framework in Challenging Regulations*¹⁵ is by the World Economic Forum. How easy is it for private businesses to challenge government actions and/or regulations through the legal system?

*Diversion of public funds*¹⁶ is by the World Economic Forum. How common is diversion of public funds to companies, individuals, or groups due to corruption?

*Rule of Law as measured by Worldwide Governance Indicator*¹⁷ is from World Bank. It captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.

*Functioning of Government*¹⁸ comes from the Freedom House. Do the freely elected head of government and national legislative representatives determine the policies of the government? Is

¹¹ http://www.weforum.org/issues/competitiveness-0/gci2012-data-platform/

¹² http://www.weforum.org/issues/competitiveness-0/gci2012-data-platform/

¹³ http://www.weforum.org/issues/competitiveness-0/gci2012-data-platform/

¹⁴ http://www.weforum.org/issues/competitiveness-0/gci2012-data-platform/

¹⁵ http://www.weforum.org/issues/competitiveness-0/gci2012-data-platform/

¹⁶ http://www.weforum.org/issues/competitiveness-0/gci2012-data-platform/

¹⁷ http://info.worldbank.org/governance/wgi/index.aspx#doc

¹⁸ http://www.freedomhouse.org/report/freedom-world-2014/methodology#.U2ZFh_mSyJF

the government accountable to the electorate between elections, and does it operate with openness and transparency?

4.1.3 Macroeconomic Environment

Government Budget Balance, % GDP (General government net lending/borrowing (Percent of GDP)¹⁹ is from the International Monetary Fund (World Economic Outlook). Net lending (+)/ borrowing (-) is calculated as revenue minus total expenditure. This is a core GFS balance that measures the extent to which general government is either putting financial resources at the disposal of other sectors in the economy and nonresidents (net lending), or utilizing the financial resources generated by other sectors and nonresidents (net borrowing). This balance may be viewed as an indicator of the financial impact of general government activity on the rest of the economy and nonresidents. Note: Net lending (+)/borrowing (-) is also equal to net acquisition of financial assets minus net incurrence of liabilities.

*Strength of Investor Protection*²⁰ was developed by the World Bank's Doing Business. Doing Business measures the strength of minority shareholder protections against directors' misuse of corporate assets for personal gain. The indicators distinguish three dimensions of investor protections: transparency of related-party transactions (extent of disclosure index), liability for self-dealing (extent of director liability index) and shareholders' ability to sue officers and directors for misconduct (ease of shareholder suits index). The data come from a questionnaire administered to corporate and securities lawyers and are based on securities regulations, company laws, civil procedure codes and court rules of evidence. The ranking on the strength of investor protection index is the simple average of the percentile rankings on its component indicators.

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https://www.imf.org/external/pubs/ft/weo/2013/01/weodata/weoselser.aspx?c=612%2c672%2c614%2c193%2c548%2c912%2c678%2c419%2c682%2c273%2c514%2c948%2c218%2c616%2c688%2c223%2c518%2c516%2c728%2c748%2c622%2c692%2c156%2c694%2c142%2c449%2c628%2c228%2c853%2c233%2c293%2c636%2c634%22c662%2c453%2c922%2c456%2c248%2c469%2c642%2c724%2c199%2c646%2c652%2c732%2c366%2c656%2c336%2c463%2c738%2c537%2c742%2c536%2c429%2c369%2c433%2c925%2c343%2c916%2c927%2c443%2c299%2c917%2c544%2c698&t=67

²⁰ http://www.doingbusiness.org/data/exploretopics/protecting-investors

Inflation, annual % change²¹ is by the International Monetary Fund (World Economic Outlook). Annual percentages of average consumer prices are year-over-year changes.

*General Government Gross Debt, % GDP*²² is from the International Monetary Fund (World Economic Outlook). Gross debt consists of all liabilities that require payment or payments of interest and/or principal by the debtor to the creditor at a date or dates in the future. This includes debt liabilities in the form of SDRs, currency and deposits, debt securities, loans, insurance, pensions and standardized guarantee schemes, and other accounts payable. Thus, all liabilities in the GFSM 2001 system are debt, except for equity and investment fund shares and financial derivatives and employee stock options. Debt can be valued at current market, nominal or face values.

*Property Rights*²³ are measured by the World Economic Forum. How strong is the protection of property rights, including financial assets?

*Business Costs of Crime and Violence*²⁴ is also by the World Economic Forum. To what extent does the incidence of crime and violence impose costs on businesses?

*Organized Crime*²⁵ is from the World Economic Forum. To what extent does organized crime (mafia-oriented racketeering, extortion) impose costs on businesses?

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https://www.imf.org/external/pubs/ft/weo/2013/01/weodata/weoselser.aspx?c=612%2c672%2c614%2c193%2c548 %2c912%2c678%2c419%2c682%2c273%2c514%2c948%2c218%2c616%2c688%2c223%2c518%2c516%2c728% 2c748%2c622%2c692%2c156%2c694%2c142%2c449%2c628%2c228%2c853%2c233%2c293%2c636%2c634%2 c662%2c453%2c922%2c456%2c248%2c469%2c642%2c724%2c199%2c646%2c652%2c732%2c366%2c656%2c 336%2c463%2c738%2c537%2c742%2c536%2c429%2c369%2c433%2c925%2c343%2c916%2c927%2c443%2c2 99%2c917%2c544%2c474%2c754%2c698&t=67

https://www.imf.org/external/pubs/ft/weo/2013/01/weodata/weoselser.aspx?c=612%2c672%2c614%2c193%2c548%2c912%2c678%2c419%2c682%2c273%2c514%2c948%2c218%2c616%2c688%2c223%2c518%2c516%2c728%2c748%2c622%2c692%2c156%2c694%2c142%2c449%2c628%2c228%2c853%2c233%2c293%2c636%2c634%2c662%2c453%2c922%2c456%2c248%2c469%2c642%2c724%2c199%2c646%2c652%2c732%2c366%2c656%2c336%2c463%2c738%2c537%2c742%2c536%2c429%2c369%2c433%2c925%2c343%2c916%2c927%2c443%2c299%2c917%2c544%2c474%2c754%2c698&t=67

²³ http://www.weforum.org/issues/competitiveness-0/gci2012-data-platform/

²⁴ http://www.weforum.org/issues/competitiveness-0/gci2012-data-platform/

²⁵ http://www.weforum.org/issues/competitiveness-0/gci2012-data-platform/

*General Government Final Consumption Expenditure (% of GDP)*²⁶ is by the World Bank. General government final consumption expenditure (formerly general government consumption) includes all government current expenditures for purchases of goods and services (including compensation of employees). It also includes most expenditures on national defense and security, but excludes government military expenditures that are part of government capital formation.

Public Administration Outcomes

4.1.4 Health and Education

*Mortality rate, infant (per 1,000 live births)*²⁷ is reported by UNICEF. Infant mortality rate is the number of infants dying before reaching one year of age, per 1,000 live births in a given year.

*Life Expectancy at birth, total (years)*²⁸ is from the World Bank. Life expectancy at birth indicates the number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life.

*Health Expenditure, public (% of GDP)*²⁹ is also from the World Bank. Public health expenditure consists of recurrent and capital spending from government (central and local) budgets, external borrowings and grants (including donations from international agencies and nongovernmental organizations), and social (or compulsory) health insurance funds.

*Primary education enrollment, net %*³⁰ is by the UNESCO Institute for Statistics, The Asian Development Bank, Key Indicators for Asia and the Pacific 2012, The World Bank, EdStats Database. The reported value corresponds to the ratio of children of official school age (as defined by the national education system) who are enrolled in school to the population of the corresponding official school age. Primary education (ISCED level 1) provides children with basic reading, writing, and mathematics skills along with an elementary understanding of such subjects as history, geography, natural science, social science, art, and music.

²⁶ http://data.worldbank.org/indicator/NE.CON.GOVT.ZS

²⁷ http://www.childmortality.org/

²⁸ http://data.worldbank.org/indicator/SP.DYN.LE00.IN/countries/1W?display=graph

²⁹ http://data.worldbank.org/indicator/SH.XPD.PUBL.ZS?display=graph

³⁰ http://www.weforum.org/issues/competitiveness-0/gci2012-data-platform/

*Literacy Rate, adult total (% of people 15 and above)*³¹ is by the World Bank. Adult (15+) literacy rate (%). Total is the percentage of the population age 15 and above who can, with understanding, read and write a short, simple statement on their everyday life. Generally, 'literacy' also encompasses 'numeracy', the ability to make simple arithmetic calculations. This indicator is calculated by dividing the number of literates aged 15 years and over by the corresponding age group population and multiplying the result by 100.

*Internet Access in Schools*³² is by the World Economic Forum. How widespread is Internet access in schools?

*Public Spending on Education, total (% of GDP)*³³ comes from the World Bank. Public expenditure on education as % of GDP is the total public expenditure (current and capital) on education expressed as a percentage of the Gross Domestic Product (GDP) in a given year. Public expenditure on education includes government spending on educational institutions (both public and private), education administration, and transfers/subsidies for private entities (students/households and other private entities).

*Quality of the Educational System*³⁴ is by the World Economic Forum. How well does the educational system in your country meet the needs of a competitive economy?

4.1.5 Innovation and Technology

*Capacity for Innovation*³⁵ is by the World Economic Forum. To what extent do companies have the capacity to innovate?

*Quality of Scientific Research Institutions*³⁶ is also by the World Economic Forum. How would you assess the quality of scientific research institutions?

³¹ http://data.worldbank.org/indicator/SE.ADT.LITR.ZS

³² http://www.weforum.org/issues/competitiveness-0/gci2012-data-platform/

³³ http://data.worldbank.org/indicator/SE.XPD.TOTL.GD.ZS

³⁴ http://www.weforum.org/issues/competitiveness-0/gci2012-data-platform/

³⁵ http://www.weforum.org/issues/competitiveness-0/gci2012-data-platform/

³⁶ http://www.weforum.org/issues/competitiveness-0/gci2012-data-platform/

*Quality of Overall Infrastructure*³⁷ is by the World Economic Forum. How would you assess general infrastructure (e.g., transport, telephony, and energy) in your country?

*Technological Adoption*³⁸ is by the World Economic Forum. This sub-parameter is calculated as the average of the following three parameters:

- Availability of Latest Technologies. To what extent are the latest technologies available?
- Firm-level Technology Absorption. To what extent do businesses adopt new technology?
- FDI and Technology Transfer. To what extent does foreign direct investment (FDI) bring new technology into your country?

*Information and Communication Technology Use*³⁹ is by the World Economic Forum. This sub-parameter is calculated as the average of the following four parameters:

- Individuals Using Internet. The term "internet users" refers to people using the Internet from any device (including mobile phones) in the last 12 months. Data are based on surveys generally carried out by national statistical offices or estimated based on the number of Internet subscriptions.
- Fixed Broadband Internet subscription/100 pop. This refers to total fixed (wired) broadband Internet subscriptions (that is, subscriptions to high-speed access to the public Internet—a TCP/IP connection—at downstream speeds equal to or greater than 256 kb/s).
- International Internet Bandwidth. International Internet bandwidth is the sum of capacity of all Internet exchanges offering international bandwidth measured in kilobits per second (kb/s).
- Mobile Broadband subscriptions/100 pop. Mobile broadband subscriptions refer to active SIM cards or, on CDMA networks, connections accessing the Internet at consistent broadband speeds of over 512 kb/s, including cellular technologies such as HSPA, EV-

³⁷ http://www.weforum.org/issues/competitiveness-0/gci2012-data-platform/

³⁸ http://www.weforum.org/issues/competitiveness-0/gci2012-data-platform/

³⁹ http://www.weforum.org/issues/competitiveness-0/gci2012-data-platform/

DO, and above. This includes connections being used in any type of device able to access mobile broadband networks, including smartphones, USB modems, mobile hotspots, and other mobile-broadband connected devices.

*Personal Autonomy and Individual Rights*⁴⁰ comes from the Freedom House. Do citizens enjoy freedom of travel or choice of residence, employment, or institution of higher education? Do citizens have the right to own property and establish private businesses? Is private business activity unduly influenced by government officials, the security forces, political parties/organizations, or organized crime? Are there personal social freedoms, including gender equality, choice of marriage partners, and size of family? Are there equality of opportunity and the absence of economic exploitation?

*Pay and Productivity*⁴¹ is by the World Economic Forum. To what extent is pay related to worker productivity?

*Foreign Direct Investment, net inflows (% of GDP)*⁴² is from the World Bank. Foreign direct investment are the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy, other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments. This series shows net inflows (new investment inflows less disinvestment) in the reporting economy from foreign investors, and is divided by GDP.

4.2 Conversion of the Original Component Parameters into IPAE Parameters

IPAE's scale is from 1 to 7. The 40 sub-parameters used as a basic unit for construction of the IPAE were mostly not measured on the same scale. In order to equalize those sub-parameters to the IPAE, we need to convert them representing exactly the same grade as in the original, only reflected on the scale 1 to 7. Some parameters had exactly the same grading system from 1 to 7

⁴⁰ http://www.freedomhouse.org/report/freedom-world-2014/methodology#.U2r3tfmSyJG

⁴¹ http://www.weforum.org/issues/competitiveness-0/gci2012-data-platform/

⁴² http://data.worldbank.org/indicator/BX.KLT.DINV.WD.GD.ZS

(22 parameters from Global Competitiveness Report), so there was no need of any change. Conversion was made on parameters that have different scale grading than the IPAE. There are two kinds of such parameters, as follows:

Static Parameters feature a grading system that is on a static scale "from-to," where minimum and the maximum are fixed. Usually scales ranged from 0% to 100% (e.g., Rule of Law (percentile rank) as Measured by World Bank's Worldwide Governance Indicator), or featured a static grading system ranging from 0 to 16 or from 0 to 12; for example, the Freedom House Index's minimum of 0 was graded as a 1 on the IPAE scale, while its maximums of 12 or 16 were graded a 7 (e.g., Associational and Organizational Rights 0-12 scale, Freedom of Expression and Belief 0-16 scale). Static Parameters as follows:

- Associational and Organizational Rights 0-12 scale
- Freedom of Expression and Belief 0-16 scale
- Transparency International Corruption Index 0-100 scale
- Functioning of Government 0-12 scale
- Strength of Investor Protection 0-10 scale
- Personal Autonomy and Individual Rights 0-16 scale
- Rule of Law (percentile rank) as Measured by World Bank's Worldwide Governance Indicator 0% - 100% scale

Dynamic Parameters (Minimal and Maximal Extreme Parameter). There were several parameters which were graded differently. They were either Percentage Extreme Parameters, or different range Number Extreme Parameters, where the dynamic minimal value is graded as 1 on the IPAE scale, and dynamic maximal value as 7. However, this is true for the Straight Proportional Extreme Parameters, where the sample minimum and sample maximum are, respectively, the lowest and the highest parameter score. All of the Static Parameters are directly proportional. In some cases the opposite is true. Inversely Proportional Extreme Parameters where a higher value indicates a worse outcome (e.g., Mortality rate, Inflation rate, Government debt etc.) the conversion formula ensures that 1 and 7 still corresponds to the best and worst possible outcomes, just inverted. It is important to state that the minimal and maximal values are determined from the whole world rankings in the reports respectively, not just from the Resource Economy countries. The goal is for IPAE to become an International Index; it is created to

measure public administration all around the world, not just in a targeted group of countries. The Straight Proportional Extreme Parameters are as follows:

- Health Expenditure, public (% of GDP). World maximum: Tuvalu 15.41%. World minimum: Myanmar 0.42%
- Primary Education Enrollment (net %). World maximum: Singapore 100%. World minimum: Liberia 40.81%.
- Public Spending on Education (% of GDP). World maximum: Cuba 14.06%. World minimum: Myanmar 0.78%.
- Government Budget Balance (% of GDP). World maximum: Timor-Leste 50.19%. World minimum: Lesotho -10.46%.
- Foreign Direct Investment, net inflows (% of GDP). World maximum: Luxembourg: 50.52%.
- Literacy Rate (% of population). World maximum: Cuba 99.83%. World minimum: Guinea 25.3%.
- Life Expectancy at birth, years. World maximum: Hong-Kong 83.48. World minimum: Sierra Leone 45.32.

Inversely Proportional Extreme Parameters are listed below:

- Mortality rate, infant (per 1,000 live births). World minimum: Luxembourg 1.7. World maximum: Sierra Leone 117.4.
- General Government Debt (% of GDP). World minimum: Brunei 0%. World maximum: Japan 229.77%.
- Inflation, annual % change. World minimum: Bahrain 1%. World maximum: Venezuela 26.09%.
- General Government Final Consumption Expenditure (% of GDP). World minimum: Bangladesh 5.58%. World maximum: Lesotho 38.11%.

4.3 Conversion Formulas

There are two formulas for converting the necessary parameters. The first formula is to convert straight proportional parameters and the second one is used to convert the inversely proportional parameters.

Straight Proportional Parameter Formula

$$New Value = \left(\frac{Original Value - Parameter Min.}{\frac{Parameter Max. - Parameter Min.}{Highest PAEC Grade - Lowest PAEC Grade}}\right) + Param. Min.$$

Where *New Value* is going to be the IPAE for specific country, the value we want to get as result from the conversion is a reflected original value on the IPAE scale from 1-7. *Original Value* is the value (number) we are converting. *Parameter Maximum* is the maximal value for that parameter (highest grade if it's a static parameter or world maximum if it is a dynamic parameter). *Parameter Minimum* is the minimal value for that parameter (lowest grade if it is a static parameter or world minimum if it is a dynamic parameter or world minimum if it is a dynamic parameter or world minimum if it is a dynamic parameter or world minimum if it is a dynamic parameter or world minimum if it is a dynamic parameter). *Highest IPAE Grade* is always constant 7. *Lowest IPAE Grade* is always constant 1.

Example 1:

Transparency International Corruption Index for Australia is converted below. This parameter is a directly proportional, static parameter on the scale 0-100. Our goal is to reflect it on IPAE scale 1-7. Australia has a score of 81 on the Transparency International Corruption Index.

Given data:

Original Value = 81

Parameter Minimum = 0

Parameter Maximum = 100

Highest IPAE Grade = 7

Lowest IPAE Grade = 1

$$New Value = \left(\frac{Original Value - Parameter Min.}{Parameter Max. - Parameter Min.}\right) + Parameter Min.$$
$$NewValue = \left(\frac{81 - 0}{\frac{100 - 0}{7 - 1}}\right) + 1$$
$$New Value = \left(\frac{81}{\frac{100}{6}}\right) + 1 = 4.86 + 1 = 5.86$$

New Value = **5**.**86**

This means that Australia's Transparency International Corruption Index of 81 on scale 0-100 corresponds on score of 5.86, reflected on IPAE's scale 1-7.

Example 2:

World Bank's Life Expectancy (years) indicator for Russia is converted below. This parameter is a directly proportional, dynamic parameter, where the maximal value is 83.48 years for Hong-Kong and minimal value is 45.32 years for Sierra Leone. Our goal is to reflect it on IPAE scale 1-7. Russia has value of 70.46 years in Life Expectancy.

Given data:

Original Value = 70.46

Parameter Minimum = 45.32

Parameter Maximum = 83.48

Highest IPAE Grade = 7

Lowest IPAE Grade = 1

$$New Value = \left(\frac{Original Value - Parameter Min.}{Parameter Max. - Parameter Min.}{Highest PAEC Grade - Lowest PAEC Grade}\right) + Parameter Min.$$
$$NewValue = \left(\frac{70.46 - 45.32}{\frac{83.48 - 45.32}{7 - 1}}\right) + 1$$
$$New Value = \left(\frac{25.14}{\frac{38.16}{6}}\right) + 1 = 3.95 + 1 = 4.95$$

New Value **= 4**.**95**

This means that Russia's Life Expectancy of 70.46 years on a scale of 45.32-83.48 (years) corresponds with score of 4.95 on IPAE's scale 1-7.

Inversely Proportional Parameter Formula

$$New Value = \left| \left(\frac{Original \, Value - Parameter \, Min.}{\frac{Parameter \, Max. - Parameter \, Min.}{Highest \, PAEC \, Grade - Lowest \, PAEC \, Grade}} \right) - Param. \, Max. \right|$$

Where *New Value* is going to be the IPAE for specific country, the value we want to find is a reflected original value on the IPAE scale 1-7. *Original Value* is the value (number) we are

converting. *Parameter Maximum* is the maximal value for that parameter (highest grade if it is a static parameter or world maximum if it is a dynamic parameter). *Parameter Minimum* is the minimal value for that parameter (lowest grade if it's a static parameter or world minimum if it is a dynamic parameter). *Highest IPAE Grade* is always constant 7. *Lowest IPAE Grade* is always constant 1.

Example 3:

Here we convert UNICEF's Mortality rate, infant (per 1 000 live births) indicator for Mali. This parameter is an inversely proportional, dynamic parameter where the maximal value is 117.4 for Sierra Leone and minimal value is 1.7 for Luxembourg. Our goal is to reflect it on IPAE scale 1-7. Mali has score of 79.6 for Mortality rate, infant.

Given data:

Original Value = 79.6

Parameter Minimum = 1.7

Parameter Maximum = 117.4

Highest IPAE Grade = 7

Lowest IPAE Grade = 1

$$New Value = \left| \left(\frac{Original Value - Parameter Min.}{\frac{Parameter Max. - Parameter Min.}{Highest PAEC Grade - Lowest PAEC Grade}} \right) - Param. Max. \right|$$

$$NewValue = \left| \left(\frac{79.6 - 1.7}{\frac{117.4 - 1.7}{7 - 1}} \right) - 7 \right|$$

$$New Value = \left| \left(\frac{77.9}{\frac{115.7}{6}} \right) - 7 \right| = |4.04 - 7| = 2.96$$

This means that Mali's infant mortality rate of 79.6 (per 1 000 live births) on scale 1.7 - 117.4 has score of 2.96, reflected on IPAE's scale 1-7.

5. Conclusion

Today's modern public administrations are wide in scope because people today expect more services. Public administration plays a crucial role in the economic and social development of the country. It can be double edged sword. Public administration can be very costly, problematic and dangerous for a country with a weak or inefficient system, or very useful and progressive for countries with strong and efficient one. Every country that wants a modern public administration must differentiate comprehensive and efficient public administration from a large but inefficient one.

Countries with higher economic freedom have more efficient public administrations. In countries with more efficient public administration, real per capita income is higher and human development scores are higher, people live longer, there is more investment and more civil freedoms, state companies are driven efficiently and overall economic growth is sharper.

Government spending does not mean efficient public administration. Usually resource economies have big budgets because of the natural resources rents. Ruling elite can easily extract these huge funds from the big budgets, with only a small portion making it to the people.

The quality of institutions determines whether natural resource abundance is a blessing or a curse. This is shown by various scientist and economists (Tornell and Lane, 1999), (Ross, 1999), (Auty, 2001, 2005), (Gylfason, 2001), (Esterly and Levin, 2002), (Torvik, 2002) and (Kaznacheev, 2013). Countries with more efficient public administration have larger real per capita income, and economic freedom is an important precondition factor for efficient and useful public administration. Future trends show that the scope of public administration is widening, and in

many places it is beginning to overlap and cooperate with the private sector. The main factor for developing efficient and useful public administration is the political will of the elites in the country.

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