

E-government and Open Data Boosting Economic Growth: A New Index

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Abstract: The current crisis affecting the European countries reveals how arduous it is to boost growth and competitiveness while preserving the EU social welfare model, fighting inequalities and boosting public confidence in central and local institutions. In a world increasingly connected and influenced by intangibles, it is reasonable to think that among the many drivers that have contributed to GDP growth, and thus to the improvement of the economic situation, institutional communication, particularly that which exploits digital channels, might play a key role in contributing to economic growth and regaining the trust of citizens and markets. In this context the relationship between e-government and economic growth becomes a relevant issue that should be analysed. The purpose of this paper is therefore to define an empirical dataset, which could be used to verify the possible relationship between economic growth and e-government, by creating a new index: the @PPR, Digital Private-Public Relations. Through the @PPR index the size of public relations can be given a value, and be defined as “the management function that establishes and maintains mutually beneficial relationships between an organization and the public’s on whom its success or failure depends” (Cutlip, 1994). A first comparison is presented here and deals with Germany, Italy, France, Sweden, Portugal, Spain and the United Kingdom.

Key words: digital divide; e-government; digital agenda; LTE 4th generation; broadband

JEL code: O3

1. Introduction and Framework of the Analysis

There are significant economic and political reasons to argue that the availability of digital services, along with greater access to information and greater transparency, contribute to increase the active participation of citizens and businesses, resulting in strengthening trust in public authorities and contributing to the improvement of the economic performance (European Commission, 2010a). If this hypothesis were verified, by bridging the digital divide in public administration and by increasing digital literacy of the beneficiaries, the actions of governments could have a greater impact on citizens, economic and social actors, and consequently on growth and competitiveness.

Filling a form, obtaining a licence or a certificate, filing tax returns, enrolling at university, making online payments, dealing with administrative procedures are only a few of the many government services that now

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citizens and businesses can undertake online.

E-government services simplify and reduce administrative processes, stimulate the creation of new business, improve efficiency of public administration activities and reduce public expenditure. It is reasonable to think that e-government has a positive impact on the economy, by improving the performance of economic activities.

Nevertheless, digitization of public administration does not only require user-friendly access to public authorities' services but it also implies increased transparency and accountability of governments and open access on activities of public administrations in general. The open government approach increases the participation of citizens and their trust in the public authorities.

However, chiefly in Europe, not all governments have been able to keep up with the digitalization of society. Inadequate supply of public administrations' on-line services, low interaction levels between citizens and public authorities, and obsolescence of infrastructure are the main barriers to completing the digitalization process of the public administration of many EU member states. This is in contrast with an increasing centrality of Internet and the information technologies in the lives of both citizens and enterprises.

The relationship between public service provider and citizens could be described as a mutual dependency. The latter has to be considered "influential" on public authorities, because citizens are able to influence the achievement of public purposes, for example paying tax results in the provision of services to the community. However, in a balanced relationship between public and private entities, citizens must also be treated as stakeholders, i.e., owners of an interest in the dialogue with the organization.

This is the challenge that governments need to accept, by providing services and high quality performance — even in technology — in order to attract the interest and commitment of the community (Rizzuti, 2013).

The requirement for bridging the digital divide in public administration has been recognized by all European Union member governments, which, in June 2010, adopted the "Europe 2020" strategy (European Council, 2010a).

That strategy, which aims to contribute to overcoming the economic crisis and to promoting a smart, sustainable and inclusive growth, has been focused on the Digital Agenda for Europe: 101 actions grouped around seven priority areas. The goal is to spread up the benefits of information and communication technologies advances, in order to encourage a transition to a digital public administration: a both more efficient and more participatory (European Commission, 2010).

This initiative was followed by the launch of the 2011-2015 Action Plan for e-government, which aims to contribute to the expansion of the online services of the European public authorities (European Commission, 2010b). In particular, the action plan's purpose is to implement the four strategic priorities identified in Malmö in 2009, during the ministerial conference on e-government. Among the priorities there is the improvement of efficiency and effectiveness of governments, particularly in information technology and communications, in order to improve procedures, reduce bureaucracy and create the conditions for the development of e-government, by adapting to changes of the information society. This action plan has been implemented in the EU member states with a variable commitment and conflicting results, as shown in the Mid-Term Evaluation of the eGovernment Action Plan dashboard of the European Commission and in the Digital Agenda Scoreboards.

2. The Data Set and Ratios

The levels of digitalization of the public administration vary among the EU member states. European

Commission's measurements show that in the selected countries a digital approach is still not sufficiently at the core of government priorities. The lack of efficiency of the web services is a proof of that.

As shown in the Figure 1, in 2013, in the EU the percentage of individuals who experienced problems when using e-government websites is still high. An average of four in ten European users could not benefit from the online public services without complications. In Italy and in Portugal almost one in two users has been victim of such inefficiency.

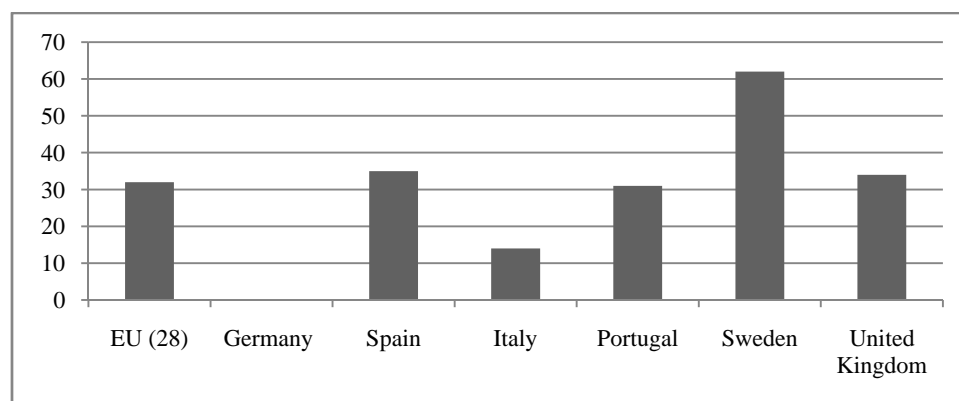


Figure 1 Percentage of Individuals Whose Satisfaction Level on the Ease of Finding Information Was Mainly Satisfied in 2013

Source: EUROSTAT, 2013 (For Germany no data available)

In recent years, Internet changed the way of interaction between citizens and public authorities. However, the extent of change into the EU member states has been very variable.

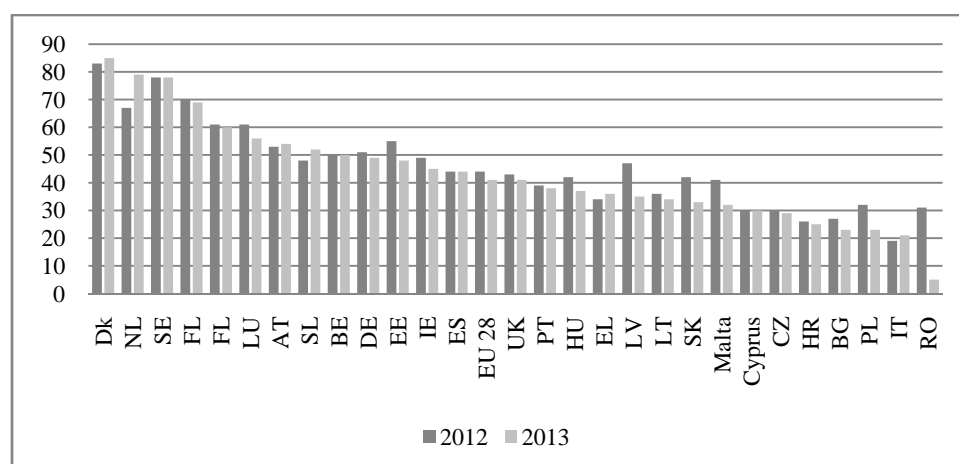


Figure 2 Percentage of E-government Use by EU Citizens in 2012-2013

Source: EUROSTAT 2014

In 2013, in the EU 28 as a whole, 41% of the population, i.e., two in five individuals, used e-government services. As can be observed in Figure 3, this percentage was lower than that of 2012 (44%). Fifteen countries were below the EU average: one of the worst data has been recorded in Italy, where only one in five individuals has used online services. Marginally better the percentage of Portugal and the United Kingdom, both closer to the EU average. The other countries, such as Spain and Germany, were above it. Among the best performers, Sweden, whose proportion of individuals using e-government services is about 4 in 5. Despite the technological

advancement, remarkably, only few of the EU Member States recorded an increasing percentage compared to 2012, among them Italy and Portugal.

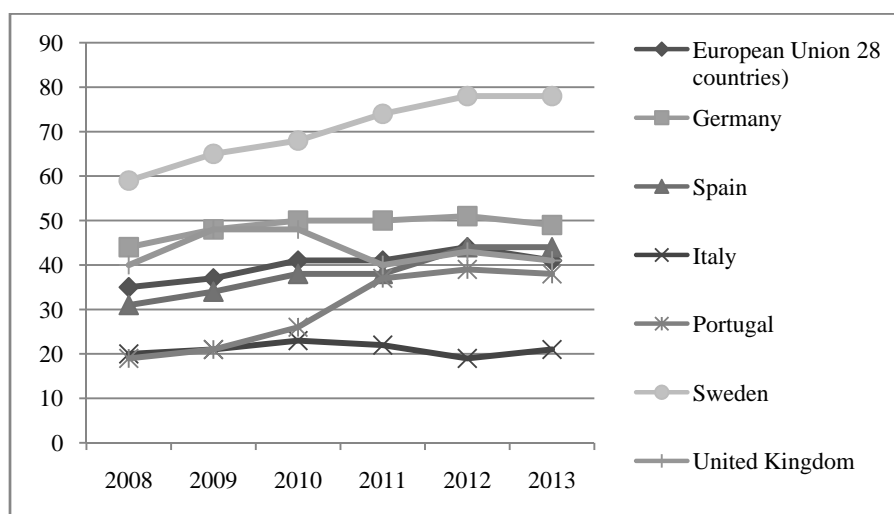


Figure 3 Percentage of E-government Use by EU Citizens

Source: Our elaboration of data Eurostat, 2014

Comparing the individuals interacting with e-government services and those using internet frequently for any kind of purposes, it is clear that the more population is accustomed to using internet, the more it uses online public authorities' services.

Specifically, the share of people that have interacted with public authorities through digital channels compared to the total of frequent Internet users varies from a value of about 50% to a value very close to 100%. In the latter case, that of the best performing countries (e.g., Denmark, Finland, Sweden), almost the totality of the frequent internet users had relations with public authorities through online channels. In the case of under-performing countries (e.g., Italy, Hungary, UK) the data show the low tendency of individuals to interact with public authorities by using digital channels.

Within the European Union, the reasons why individuals often prefer offline interactions are different and vary from country to country. However, the most common reasons for not using e-government services are generally attributable to a lack of trust.

The main reasons (European Commission calculations based on Eurostat data, 2013) why Europeans do not use online services, such as for submitting official forms are preferring a personal contact (more than 40%), a greater confidence in the use of paper (30%) and concerns about the protection of personal data (almost 20%). Among the reasons, the lack of an adequate supply of public administrations' digital services.

In 2013, in the EU fixed broadband covered 97% of homes, the share of high-speed connections (providing at least 30 Mbps) was about 20% and ultra-fast connections (providing at least 100 Mbps) accounted for 5% of all subscriptions (European Commission, 2014).

Some countries, such as Italy, Portugal, the United Kingdom and Sweden had a higher percentage of fixed broadband coverage, respectively 99%, 100%, 100%, 99% and a very different share of high-speed connections.

Indeed, in the United Kingdom, Sweden and Portugal high-speed connection accounted respectively 26%, 38% and 41% while ultra-fast connections were 1%, 31% and 19% of fixed broadband coverage.

In contrast, Germany and Spain accounted shares of the high-speed connection lower than the EU average, 16% and 15%, and ultra fast connection percentages close to the EU average, 3% and 6%. Among the worst performers was, Italy, where high speed connection reached only 1% of network and there was no ultra-fast connection (providing at least 100 Mbps).

Furthermore, 4th generation (LTE), high-speed data for mobile phones, was available to 47% and 63% of the United Kingdom and Spain's population and only to 39% of population in Italy, less than a half of other countries' population such as Portugal (91%), Sweden (99%), Germany (81%) (European Commission, 2014).

The percentage of households with internet access has constantly raised in recent years, but some differences among countries still exist. In 2013, the worst percentage among those in the table was that of Portugal, followed by Italy and Spain. The best performing State has been Sweden, followed by the United Kingdom and Germany.

3. E-government Communication and Economic Growth: The Index @PPR

The proposed new index, called @PPR (Digital Private-Public Relations), considers the three domains described in the above paragraphs, i.e., extent and efficiency of the digitization of public administrations, public participation and use of government's online platforms and broadband and connectivity coverage.

Regarding the use of governments' online platforms, according to available data, a score has been assigned in relation to satisfaction (A1) and problem levels (A2) compared to the EU 28 average (under average = 0; equal or over average = 0.5). The yearly sub-value is equal to $(A1+A2)/2$.

Interaction with citizens is independently considered in B1 as the number of people connected to public services/100.

Regarding broadband and connectivity, three elements have been considered: internet access (C3); starting from 2010 LTE 4th generation coverage (C2); starting from 2013 high speed connection (C1). Thus starting from 2010 the sub-value is equal to $(C3+C2)/2$, and starting from 2013 sub-value is equal to $(C1+C2+C3)/3$.

Since values are quite similar the indicization process is not required.

In Appendix 1 the available data and the construction of the national @PPR Index.

The results of the comparison are showed in Figure 4 and take 2008 as the year base. The increase of Spain in impressive and so also is the decrease of Italy. In Figure 5 the yearly Index per country.

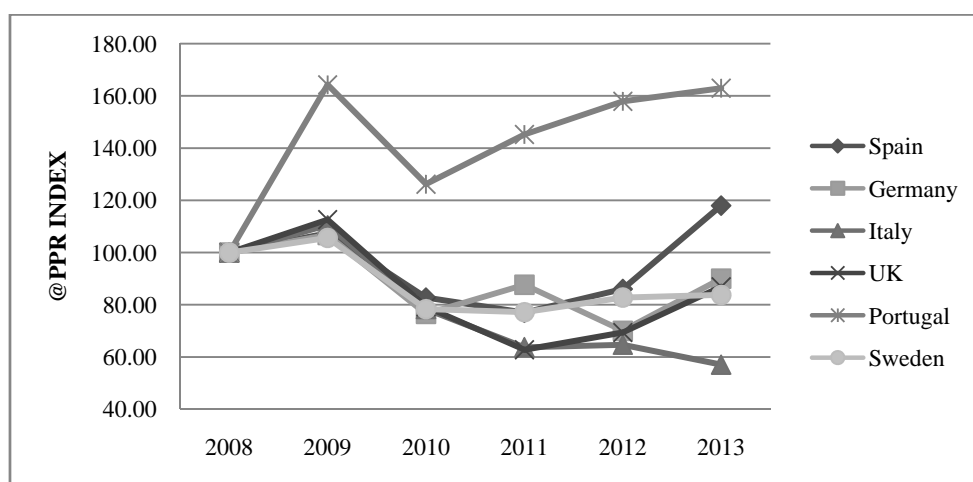


Figure 4 @PPR Index in Some EU Countries (2008 = 100)

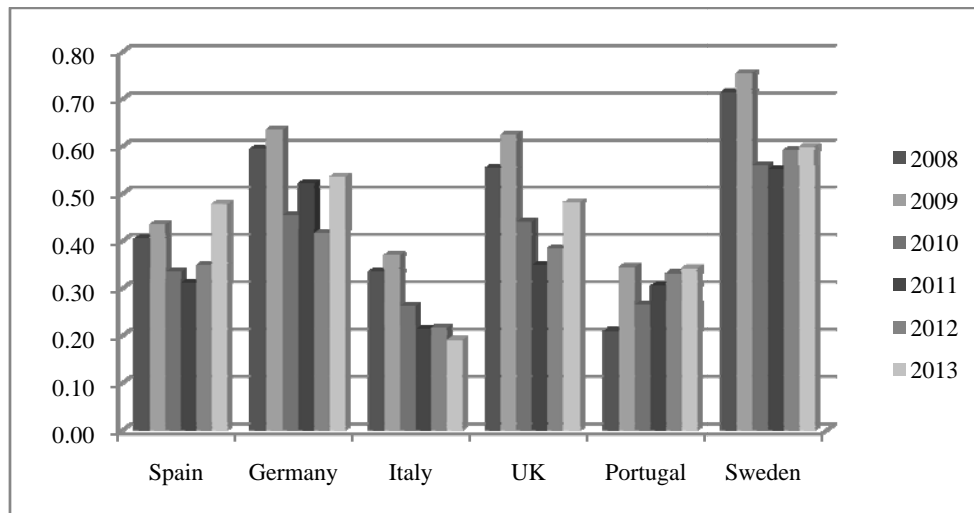


Figure 5 @PPR Index-Yearly Comparison

The comparison, on the other hand between the new Index and GDP national performance shows slight relation between economic growth and @PPR index (Figure 6).

The Countries with a higher value of @PPR index (UK, Germany and Sweden) have recorded a GDP growth in the year of reference, those with a lower value of @PPR index have recorded a major GDP decrease. Thus, a satisfying interaction between citizens and public bodies can be considered as one of several factors that have an impact on the economic performance of a country. In a market economy, in which the weight of the state has a limited impact on private sector, this positive correlation, although it is not the main factor, can certainly contribute to economic recovery (Monti, 2014).

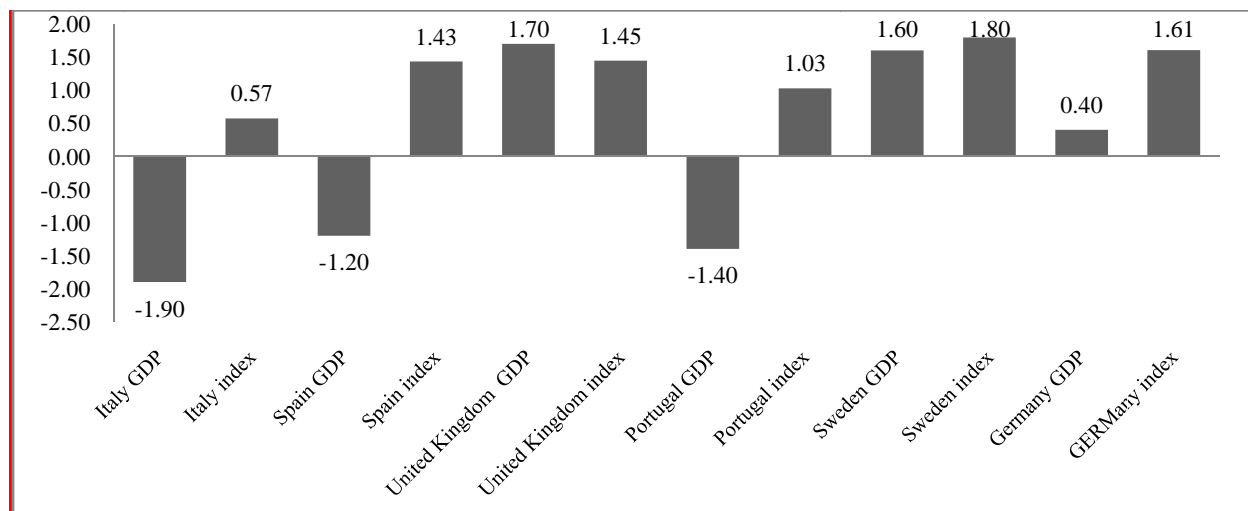


Figure 6 Comparison GDP vs @PPR (2013 Data)

For that reason, it seems increasingly urgent to complete the transition to an open model of public administrations' online services, by combining the advance of information technology with increased availability of collaboration between citizens, entrepreneurs and public authorities, the aim being the common goal of economic growth.

Trust, reciprocity, commitment and satisfaction are essential indicators of the relationship between an

organization and its public (Huang, 1997). Furthermore, Morrow et al. (2004) defined trust as “one’s overall belief that another individual, group, or organization will not act to exploit one’s vulnerabilities”. Consequently, facing the distrust in the relationship between its protagonists, but also in the technological manifestations of this relationship, is a necessary condition-although not sufficient-for a “mutually beneficial” and not sterile relationship. By a new relationship between state and citizen, helped by a digital “tie” instead of “divide”, we should therefore expect a contribution to a sustainable and sustained economic recovery, that is even stronger in peripheral regions which need to be closer to public administrations’ central services.

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Appendix 1 Data and Index for Key Countries

Italy	2008	2009	2010	2011	2012	2013
(A) E-gov using	0	0	0	0	0	0
A1) Satisfaction	0	0	0	0	0	0
A2) Problems	0	0	0	0	0	0
(B) Citizen interaction	0.2	0.21	0.23	0.22	0.19	0.21
(C) Digital infrastructure	0.47	0.53	0.69	0.82	0.93	1.09
C1) High speed connection	0	0	0	0	0	0.01
C2) LTE 4th generation	0	0	0.1	0.2	0.3	0.39
C3) Internet access	0.47	0.53	0.59	0.62	0.63	0.69
Total @PPR score	0.67	0.74	0.92	1.04	1.12	1.3
GDP Italy	-1.2	-5.5	1.7	0.4	-2.4	-1.9

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Spain	2008	2009	2010	2011	2012	2013
(A) E-gov using	0	0	0	0	0	1
(A1) Satisfaction	0	0	0	0	0	0.5
(A2) Problems	0	0	0	0	0	0.5
(B) Citizen interaction	0.31	0.34	0.38	0.38	0.44	0.44
(C) Digital infrastructure	0.50	0.53	0.88	1.08	1.27	1.48
C1) High speed connection	0	0	0	0.05	0.1	0.15
C2) LTE 4th generation	0	0	0.3	0.4	0.5	0.63
C3) Internet access	0.5	0.53	0.58	0.63	0.67	0.7
Total @PPR score	0.81	0.87	1.26	1.46	1.71	2.92
Spain GDP	0.9	-3.8	-0.2	0.1	-1.6	-1.2

Germany	2008	2009	2010	2011	2012	2013
(A) E-gov using	0	0	0	0	0	1
(A1) Satisfaction	0	0	0	0	0	0.5
(A2) Problems	0	0	0	0	0	0.5
(B) Citizen interaction	0.44	0.48	0.5	0.5	0.51	0.49
(C) Digital infrastructure	0.75	0.79	0.82	0.83	0.85	1.85
C1) High speed connection	0	0	0	0	0	0.16
C2) LTE 4th generation	0	0	0	0	0	0.81
C3) Internet access	0.75	0.79	0.82	0.83	0.85	0.88
Total @PPR score	1.19	1.27	1.32	1.33	1.36	3.34
GDP Germany	1.1	-5.1	4	3.3	0.7	0.4

United Kingdom	2008	2009	2010	2011	2012	2013
(A) E-gov using	0	0	0	0	0	1
(A1) Satisfaction	0	0	0	0	0	0.5
(A2) Problems	0	0	0	0	0	0.5
(B) Citizen interaction	0.4	0.48	0.48	0.4	0.43	0.41
(C) Digital infrastructure	0.71	0.77	0.80	0.83	0.87	1.61
C1) High speed connection	0	0	0	0	0	0.26
C2) LTE 4th generation	0	0	0	0	0	0.47
C3) Internet access	0.71	0.77	0.8	0.83	0.87	0.88
Total @PPR score	1.11	1.25	1.28	1.23	1.30	3.02
GDP United Kingdom	-0.8	-5.2	1.7	1.1	0.3	1.7

Portugal	2008	2009	2010	2011	2012	2013
(A) E-gov using	0	0	0	0	0	0
(A1) Satisfaction	0	0	0	0	0	0
(A2) Problems	0	0	0	0	0	0
(B) Citizen interaction	0.19	0.21	0.26	0.37	0.39	0.38
(C) Digital infrastructure	0.46	0.48	0.54	0.58	0.61	1.94
C1) High speed connection	0	0	0	0	0	0.41
C2) LTE 4th generation	0	0	0	0	0	0.91
C3) Internet access	0.46	0.48	0.54	0.58	0.61	0.62
Total @PPR score	0.65	0.69	0.80	0.95	1.00	2.32
GDP Portugal	0	-2.9	1.9	-1.3	-3.2	-1.4

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Sweden	2008	2009	2010	2011	2012	2013
(A) E-gov using	0	0	0	0	0	0.5
(A1) Satisfaction	0	0	0	0	0	0.5
(A2) Problems	0	0	0	0	0	0
(B) Citizen interaction	0.59	0.65	0.68	0.74	0.78	0.78
(C) Digital infrastructure	0.84	0.86	0.88	0.91	0.92	2.3
(C1) High speed connection	0	0	0	0	0	0.38
(C2) LTE 4th generation	0	0	0	0	0	0.99
(C3) Internet access	0.84	0.86	0.88	0.91	0.92	0.93
Total @PPR score	1.43	1.51	1.56	1.65	1.70	3.58
Sweden GDP	-0.6	-5	6.6	2.9	0.9	1.6

Source: EUROSTAT. 2014; Personal Elaboration