DEGREE OF EGOVERNMENT DEVELOPMENT AND LEVEL OF INFORMAL ECONOMY – A NUDGE FROM THE COVID-19 PANDEMIC?

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Abstract

Across the whole world, more than half of the global workforce have their main employment in the informal economy. EU member state factsheets suggest that undeclared work in its various manifestations is a real problem for all countries, hence the need for appropriate tackling strategies, from a multitude of theoretical and practical perspectives. One of these, the neo-institutional theoretical perspective, considers that individuals` behaviour is shaped by the institutional environment they are embedded in, defined by three pillars namely, the regulative, normative and cultural-cognitive pillars. Based on this perspective, in our study we aim to investigate, at exploratory level, the relationship between the degree of development of e-Government services and the level of informal economy, with a specific focus on the effects of the Covid-19 pandemic on people's perceptions about this relationship in several EU countries with high percentages of undeclared work and a lower degree of e-Government development. We employed secondary data extracted from previous surveys (Eurobarometers, eGovernment benchmarks, UN eGov Survey), combined with a quick online survey of a small number of experts' perceptions about undeclared work and e-Government services during the pandemic in one of the analyzed countries. The study is exploratory and can serve as a starting point for future tests of the new theoretical developments suggested in the field.

Keywords: informal/shadow economy, e-Government development

1. Introduction – context and aim

Decent work and economic growth, reduced inequalities, sustainable cities and communities – they are three out of 17 sustainable development goals of our world [38]. All three are interconnected, on one side, and connected to informal or shadow economy issues, as well as public administration and e-governance, on another side. Covid-19 pandemic added an unwanted, unforeseen, and terrible burden, with huge consequences on the world system – considering the necessary global approach provided by a system thinking perspective [11], [23]. Governments in all countries need to find solutions to these huge economic and societal issues, and researchers from all fields have to analyze the situation from various disciplinary perspectives. Our study carves out a very small piece of the big puzzle, namely the relationship between e-Government development and shadow economy, with the intention to explore ways through which improvements in e-Governance could contribute to the lessening of the grey, informal economy – and thus contribute to a better, sustainable development. In order to do this we explored the involved concepts – shadow/informal economy, e-Government development – together with factors of potential interaction on this relationship – e-Participation, trust, ICT and media communication – digital skills, citizen perceptions for a group of

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eight Central and Eastern European countries. The main aim of our exploratory study is to draw attention on possible alternative ways to decrease shadow activities.

2. Conceptual issues

What is informal, grey or shadow economy, and how can we measure it? The question is old, going back to the 70s, and still controversial, both theoretically and operationally. If we are not able to define it, we are not able to measure it, and as a consequence cannot find solutions for decreasing it. Are there differences between informal economy, sector, work or employment? As the International Labour Organisation states, there are differences, and all the nuances are quite important from a technical point of view, when a country needs to report various statistics for official measurements:

"The following can serve as an easy reference for the terminology associated with informality and their technical definitions: (a) Informal economy All economic activities by workers or economic units that are – in law or practice – not covered or sufficiently covered by formal arrangements (based on ILC 2002) (b) Informal sector A group of production units (unincorporated enterprises owned by households) including "informal own-account enterprises" and "enterprises of informal employers" (based on 15th ICLS) (c) Informal sector enterprise Unregistered and/or small-scale private unincorporated enterprises engaged in non-agricultural activities with at least some of the goods or services produced for sale or barter (based on 15th ICLS) (d) Employment in the informal sector All jobs in informal sector enterprises (c), or all persons who were employed in at least one informal sector enterprise, irrespective of their status in employment and whether it was their main or a secondary job (based on 15th ICLS) (e) Informal wage employment All employee jobs characterized by an employment relationship that is not subject to national labour legislation, income taxation, social protection or entitlement to certain employment benefits (based on 17th ICLS) (f) Informal employment Total number of informal jobs, whether carried out in formal sector enterprises, informal sector enterprises, or households; including employees holding informal jobs (e); employers and own-account workers employed in their own informal sector enterprises; members of informal producers' cooperatives; contributing family workers in formal or informal sector enterprises; and own-account workers engaged in the production of goods for own end use by their household (based on 17th ICLS) (g) Employment in the informal economy Sum of employment in the informal sector(d) and informal employment (f) outside the informal sector; the term was not endorsed by the 17th ICLS"

(Source of definitions: https://www.ilo.org/wcmsp5/groups/public/---ed_emp/emp_policy/documents/publication/wcms_210443.pdf)

In our study we scrutinized the most recent works on general informal or shadow economy concepts - [3], [4], [9], [12], [13], [15], [17] – together with studies explicitly connecting shadow economy and e-Government development – [8], [10], [16], [18], [21], [24], [25]. For the measurement side we used the views of two leading researchers in the field – Williams and Schneider - who provided the most comprehensive overview of the shadow economy from a global perspective. [19], [20]. To these we added the most recent studies relating shadow economy and e-Governance to the Covid-19 pandemic, because during this period many restrictions lead to a heavy move to the online activities, including in administration; at the same time, a sharp increase in ICTs developments took place, from the same necessity to move offline activities to online ones, and the citizen's satisfaction with governmental reactions is quite important for future developments [6], [7], [27], [32].

Taking into consideration the easiest or simplest definition of informal economy as being constituted of all unregistered economic activities, those which escape from detection in the official estimates of a country's gross domestic product (GDP), and would have contributed to the officially calculated GDP if they were recorded [18], [19], [20], a step forward is finding a way to actually measure these activities – the most challenging task. Same studies mentioned for the definition state the existence of three categories of approaches for this measurement – two of them being

direct approaches and the other one indirect. Direct approaches can be based on sample surveys, largely used, but very dependent on the quality of the questionnaires and sensitive to the respondent's willingness to cooperate, or on the discrepancy between income declared for tax

purposes and income measured by selective checks – specific to fiscal auditing programs, particularly effective in this regard [18]. These two categories of direct approaches – surveys and tax auditing – usually lead to underestimations of the shadow economy (due to the unreliable answering behavior) or distortions due to the biased samples (in terms of compliance) involved in auditing. The indirect approaches are based on macroeconomic indicators - discrepancies between income and expenditure statistics, discrepancy between the official and actual labor force, total volume of transactions, currency demand equations, and electricity consumption (best physical indicator of overall economic activity); estimation methods can consider just one indicator, or all of them – as the most widely used MIMIC approach (multiple indicators, multiple causes) [3], [13],[18], [19], [20].

Moving forward to the potential causes of the informal economy, the most frequent analyzed factors include: tax and social security contribution burdens, quality of institutions, public sector services, excessive regulations, tax morale, deterrence, development of the official economy, self-employment [12],[13],[18],[28]. These theories could be grouped into *regulative, normative and cultural-cognitive* ones [18], which would improve the bigger conceptual model of influence factors for the shadow economy – suggesting the need to simultaneously consider more factors, if possible from every category. Many influence factors or causes of informality are in a relationship (mediation, moderation) with e-governance, and previous studies have shown that e-Government could limit the scope of the informal economy [8], [10], [17], [18], [21], [24], [25]. Continuing the systems thinking perspective, other factors serve as antecedents of e-Government services acceptance and use, and thus indirectly affect shadow economy; the most important ones refer to citizen's trust in a competent and well-intended governance and government websites [1], [2], [14] or to the willingness to use e-Government services based on perceived digital skillfulness [1], [5], [6], [10],[17], [24].

Considering all these conceptual and operational debates, we decided to collect and synthesize available data for the main influence factors related to e-Government and shadow economy (direct and indirect, according to extant methodologies).

3. Empirical data

We collected secondary data available in various public sources, mostly at the level of the European Union, and some worldwide. The aim was exploratory, meant to bring together figures that are not usually found together, in order to generate ideas for future potential explanations. Data was collected from four Eurobarometers (latest standard, public opinion Eurobarometer, as well as special ones for undeclared work or attitudes towards digitalization) [34], [35], [36], [37] and from other institutions dealing with the issues of interest for our exploratory research: EU reports, United nations, International Labour Organization [29], [30], [31], [32], [33]. For the perceive impact of the Covid-19 crisis on the relationship between e-Government and the informal economy we used a short online questionnaire (sent through SurveyMonkey). There were just three questions:

1. Considering your own experience, how did e-Government services function, overall, during the Covid 19 pandemic? (better than before, same as before, worse than before)
2. Considering the way government managed the Covid 19 pandemic, how would you evaluate your trust in the national government? (higher than before, same as before, worse than before)
3. Considering your own experience and that of your close friends, how would you evaluate the
   level of undeclared work during the Covid 19 pandemic? (higher than before, same as before, worse than before)

Six persons were interviewed, from which 1 expert, 1 person with high knowledge, 2 persons with good knowledge, and 2 persons with sufficient knowledge (above average) in the field of shadow economy. All six persons have an academic career, with research and consulting expertise – and can be considered experts for our exploratory study from both a theoretical and a practical point of view – they were (all of them) previously involved in projects and published articles related to shadow economy, civic engagement, communication between citizens and government, quality of public services, and website credibility – their perceptions being thus relevant for the investigated subject. The intention was to sense the perceived trend for three of the potential factors of influence on the relationship between the degree of e-Government development and the level of the shadow economy – mainly level of e-services functioning, trust in national government and perceived level of undeclared work. The answers were overwhelmingly similar: 5 out of 6 persons appreciated that e-Government services were better during the pandemic (and 1 the same), their trust in the government is not modified or same level (and 1 worse), and that the level of the undeclared work was higher during the pandemic (and 1 the same).

The secondary data collected are presented in two tables: in table 1 we synthesized indicators referring to: e-Government Development indexes and ranks in 2018 and 2020 for the eight Central and Eastern European EU countries analyzed, shadow economy measured through both indirect (MIMIC) and direct (Eurobarometer surveys) approaches, as well as e-Participation; some potential control variables were extracted, as well (population, GDP).

Variables in table 1:

EGDI = eGoverment development index
ePart. = eParticipation index
GNI = Gross national income
Shadow econ. = estimation of shadow economy % using the MIMIC (multiple indicators, multiple causes) method (Medina & Schneider, 2018)
EB2019 = Eurobarometer Survey 498 on undeclared work (from 2019)
QD14 = percentage of people who stated they would not have refused a potentially undeclared payment during the last 12 months
QD 10 = percentage of people who stated they received a non-declared payment during the last 12 months
QD 4.1. = percentage of people who trust in tax and social security institutions tackling undeclared work
QD 4.2. = percentage of people who trust in the labour inspectorate tackling undeclared work

Table 1: eGovernment development and shadow economy for 8 Eastern European EU countries

Country	EGDI 2020	Rank 2020	EGDI 2018	Rank 2018	Rank diff. for EGD	ePart. rank 2020	ePart. rank 2018	Rank dif. for ePart.	Population 2020	GNI /capita 2020 (USD)	Shadow Econ. % 2018 (MIMIC)	EB2019 QD14	EB2019 QD10	EB2019 QD 4.1	EB2019 QD 4.2
Bulgaria	0.7980	44	0.7177	47	-3	23	35	-12	7.177.396	7.760	20.8	87	6	31	31
Czech Republic	0.8135	39	0.7084	54	-15	65	92	-27	10.603.762	18.160	10.5	91	3	51	48
Croatia	0.7745	51	0.7018	55	-4	23	57	-34	4.236.016	12.430	23.0	94	4	33	32
Hungary	0.7745	52	0.7265	45	+7	75	69	+6	9.783.925	12.870	20.5	98	5	56	53
Poland	0.8531	24	0.7926	33	-9	9	31	-22	38.265.226	12.710	16.7	96	5	41	40
Romania	0.7605	55	0.6671	67	-12	46	69	-23	19.876.621	9.970	22.9	90	4	38	40
Slovakia	0.7817	48	0.7155	49	-1	70	50	+20	5.439.318	16.610	11.2	97	4	52	54
Slovenia	0.8546	23	0.7714	37	-14	29	48	-19	2.074.788	22.000	20.2	3	3	29	28

In table 2 we have variables related to trust in the national government, perceived quality for the provision of public services and self-perceived level of digital skills. For a quick visual identification, highest values are in bold green, and lowest ones in bold italic red.

Country	Trust in national government - % of high (EB 91, 2019)	Provision of public services - % of good (EB 90.3, 2018)	Totally agree (%) to be sufficiently digitally skilled (EB 503, 2019)
Bulgaria	25	**33**	22
Czech Rep.	37	**67**	22
Croatia	**13**	**33**	21
Hungary	**48**	63	22
Poland	38	57	21
Romania	21	38	18
Slovakia	29	52	*16*
Slovenia	35	61	**27**

Table 2: Levels of perceived potential factors of influence for the relationship e-government – shadow economy

4. Discussion and conclusions

Previous studies have shown that increasing the e-Government index significantly reduces the size of the shadow economy and e-Government contributes to the lessening of informal economic activities. [4], [8], [18]. Also, trust in various institutions (national governments included) and perceived information literacy are important in explaining citizen's adaptation to governmental actions [1] and shadow economy prevention.[12], [14], [17]. As for crises' effects, extant studies showed they increase shadow economy [4]; the Covid-19 pandemic, as a very unique type of crisis, mostly increased the use of e-governmental services, encouraged people to develop their digital skills [6] and might lead to a bringing out of the shadow of those categories of people from the undeclared economy who were seriously affected and might benefit from temporary public financial support, through a voluntary disclosure initiative [7],[27], [31].

Our small survey with experts suggests that during the Covid-19 pandemic e-government services were better, but this did not change the perceived level of trust in the national government, and the level of shadow economy increased, according to the interviewed people's perceptions. One might argue that the number of experts we used is small; however, in exploratory, qualitative researches, aimed to develop new strings of research, using a grounded theory approach, the number is acceptable – according to Strauss and Corbin, any number between 5 and 50 can be adequate. [22].

We obtained data for 8 countries and 11 variables of interest, measured either once (one year data) or twice (consecutive years or every two years); such a mixed measurement does not allow a reliable correlation analysis, but can still represent a good start for the identification of future patterns to be tested. With a very simplistic, basic ranking of the analyzed countries on each variable of interest from tables 1 and 2 we can quickly see that there are not clear and unique

explanations for the relationship between e-Government and shadow economy – on the contrary, sometimes they can be confusing or illogical. Slovenia has the highest EGDI, but has also a pretty high level of shadow economy; the lowest level of shadow economy of the Czech Republic corresponds to the third rank in the EGDI hierarchy, and for Poland it's a similar situation. If we're looking at trust in government, the highest value is for Hungary, yet for Hungary we have a quite low value for EGDI (only Romania has a lower one, from the 8 countries) and a high value of the shadow economy. As for the citizen's perceptions towards their digital skills, values are not so spread, but they are almost all quite low, lower than 25% (just Slovenia has a perceived percentage of 27.1); Slovakia, with the lowest value (16), has a very good position for the shadow economy - is the second one in terms of low shadow economy. Similar questions appear when we look at trust in national tax institutions or national labour ones, or if we compare these percentages with those for the trust in the national government. And if we consider e-Participation, we can notice that while the number one position for Poland would have an effect in a lower shadow economy (3rd position), for Croatia the second position in e-Participation corresponds to the highest level of shadow economy, and a similar situation of a negative relationship is for Bulgaria. Of course, the starting base is quite different for the 8 countries, as well – we can see this by looking at the change in EGDI rankings from 2018 to 2020 or – especially – if we look at the population size or the GDP values. It is pretty clear that a more complex perspective is needed, in which all potential factors of influence should be studied together, and not separated, because their individual contributions change when other factors are considered or added in the big picture.

Previous studies compared EU countries from singular perspectives – one method, one theory, one particular group of factors pertaining to that theory – and for a good reason: it is difficult, if not impossible at this time, to have comparable data for each country, same year, same method and all factors involved. Special Eurobarometer data are not collected on annually bases, which makes a real longitudinal analysis impossible. Supplementary difficulties are raised by the endogeneity of shadow economy drivers [13], [20]. Despite the exploratory nature of our study, the very basic analysis and the limited sample of countries we used, the data we collected are useful for supporting the idea of designing, at least at EU level, future instruments that combine direct and indirect approaches and in which the most important influence factors could be all estimated at the same time, with the same measuring instrument, repeatedly, to allow not only cross-sectional comparative analyses, but longitudinal ones, as well. Theories should not be seen as exclusive, but rather as intertwined, coexisting. This would allow a quantification of a relative weight for every factor, controlling for the different economic, social and cultural starting bases, offering a more accurate image of the required prioritization of national governments' strategies.

The Covid-19 pandemic gave a serious nudge for the development of e-Government services and created supplementary awareness towards the importance of digital skills for citizens, but it is still a long way until these changes alone will produce visible effects on the level of shadow economy. It is important, though, to take steps in this direction - our study suggests that in order to find solutions for decreasing the shadow economy it would make sense to consider supplementary theories and variables of influence, such as the relationship between the level of e-Government development and the level of undeclared work - and start configuring official reporting instruments that would allow the collection of data necessary for testing these theories. The lessons given by the pandemic should be learned and valorized on long term.

5. References

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