

Directions for Increasing the Effectiveness of Social Assistance Policies in Conditions of Maintaining the Budget Deficit

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Abstract

Improving the effectiveness of social assistance policies, within the framework of income redistribution strategies, is important in modern capitalist society, especially in times of crisis.

This study, starting from the asylum crisis in Romania, aims to analyze some factors that influence the efficiency of social assistance programs in order to identify directions of action for improving social policies. The author analyzed data from Sustainable Governance Indicators and Worldwide Governance Indicators using specific data mining methods.

The conclusions of the quantitative analysis were used to identify possibilities to optimize social assistance in conditions of limited budgetary resources. Based on the direct link between the effectiveness of social assistance, the rule of law and innovation, the author proposes to strengthen the role of the family and primary safety nets. As a course of action, it is proposed to redesign the matchmaking market that meets the principles defined by Alvin Roth, including creating density and facilitating fast transactions specific to online matching portals that stimulate subsidiarity.

Key words: social innovation, social work, crisis management

J.E.L. classification: O35, H55, H12

1. Introduction

Social programs are part of the redistribution of income collected from taxpayers to people considered to be in need, according to public policies. Government-funded social assistance programs are a safety net for the population in need. They should be a last resort, located after the intervention of the person, family and community, after previous safety nets have failed. The beneficiaries are persons selected by different decision-makers who take into account the situation of those persons, but with a limited degree of knowledge.

Imperfect information causes the transfer of revenues from redistribution to present errors, which lead to the inefficiency of public policies. The closer the safety net is to the individual, the smaller these errors.

Within the framework of social assistance programs, the state finances and regulates social services. Their development without analyzing the failures of previous markets or safety nets can lead to an increase in the need for public funds or even to specific crises, as happened in Romania.

Therefore, intervention at a level as close as possible to the family/person in need, up to costly public interventions, is an important way. This concept of subsidiarity in social assistance has something to do with state intervention in the economy, especially in states with liberal economies.

Income redistribution policy can contribute to the economic growth of states if reducing inequalities eliminates conflicts, increases productivity and reduces the incomes of people facing restrictions on access to credit. The redistribution of amounts can generate controversy, based on the very definition of the term "support", which involves the reallocation of amounts collected from other people. In the context of large budget imbalances or deficits, this problem is even more present. The many controversies related to the efficiency and effectiveness of public policies in the field of social protection stem from various opinions about the sources of poverty that determine the need for state social support for people in need.

With regard to state intervention before the failure of the markets, this limits effectiveness. Basically, the supply can be suffocated. The state knows less about the real state of people in need than the family itself.

I cannot fail to mention a pro-cyclical phenomenon in the sense that when the economy is not doing very well, there is also an increased pressure on the provision of social services and benefits. The experience of the asylum crisis in Romania has highlighted problems related to the effectiveness of the programs, not only in terms of costs, but even in terms of the quality of services.

Is this an accidental problem or is it a systemic problem? To answer this question, we turned to the Sustainable Governance Indicators (SGI Indicators) portal, for which we will develop the analysis based on data mining techniques.

From the analysis of the indicator of efficiency of social policies, a minimum score (4) obtained by Romania can be observed. The grade has been consistently low since 2014. All the explanations can be found on the SGI website. We are facing a systemic problem.

The transfer of poverty between generations, the ageing of the population, migration, the inheritance tax policy, the increase in inequalities, the income tax policy contribute to the accentuation of the risks of social exclusion. Migration affects the potential for a young and skilled workforce, impacting the growth of the Gross Domestic Product (GDP). The financing of services, but also of institutions in times when economic growth is limited, is difficult to ensure.

On the other hand, there are currently people who are part of the extended family (children) and are looking for private interventions (because they have income abroad). Migration has meant that many young people have left the country and have income that could help those left behind, especially for the elderly.

The migration of young people for work abroad, the increase in average life expectancy and the demographic explosion of the 67-75 generation, together with the growing trends of inequality, generate an expansion of the social services market. As parents age and children go to work abroad, there is a desire to help them, but often there are no suitable people or services (*... but I don't know how, I can't find the right people/services*). They would be willing to bear part of the costs of care services in addition to the resources already available, including allowances and state programmes for parents.

If not to escape, as one Nobel Prize laureate describes (Deaton 2013, p. 6), at least to improve their lives.

"What are the instruments that can lead to a quality social assistance policy?" How can markets be redesigned to make intervention more effective?

To answer these questions, in the study I sought primarily to identify the factors that can contribute to increasing the quality of a social assistance policy. We chose factors that did not directly involve budgetary balance, but which strictly related to the design of markets in the context of the demand and supply of services described above.

2. Theoretical background

The study was based on a correlation analysis and a data mining technology that used decision trees. The decision tree method was introduced in the 1950s. Since then, there has been the conclusion that machines can learn from data, improving their performance as they are exposed to more information. The development of specific data mining concepts is a recent and new concept in the analysis of social assistance problems. Such analyses are found in the literature (Han, 2006, p. 11). In the 1980s and 1990s, with the technological advancement in data processing and the development of computers, decision tree methods were refined and integrated into various commercial and research applications. Modern algorithms such as ID3, C4.5, and CART (Classification and Regression Trees) have added efficiency and robustness to this analytical tool.

The study is based on the theory of optimal taxation with labeling developed by George Akerlof, which is relevant to the subsidiarity of intervention in social work. The efficiency of the system depends on the way in which a taxation system is designed to gather the revenues necessary to finance public services, while minimizing economic distortions and the negative impact on incentives to work and save under the conditions of the existence of certain categories. In "The

Economics of 'Tagging' as Applied to the Optimal Income Tax, Welfare Programs, and Manpower Planning" (Akerlof, 1987, p. 7) he emphasizes the importance of strictly targeted intervention only in the event of market failure in social assistance.

Other authors examine the importance of the institutional and political context in which social policies are implemented and how they influence economic efficiency and well-being (Acemoglu et al, 2013, p. 10). The impact of social welfare policies on poverty influenced by various social and economic factors that determine efficiency have been analyzed by numerous authors (Rank, 2004 p. 10, Deaton 2013 p. 9), Sen 1970, p. 7).

Angus Deaton reveals the importance of people's capacity and primary safety nets in providing social assistance (of the great escape that also involves one's own effort). Amartya Sen was also a starting point for this study. It showed that the lack of legal and economic rights affects the quality of social assistance interventions.

The proposal in this study, however, is based on matching markets, and here Alvin Roth is the most important economist to introduce this concept. In the design studies of matching markets he considered a Shapley algorithm for efficiency (Roth, 1982, p 10). Roth applied the theory of design mechanisms to solve problems in a variety of areas, including school seat allocation and organ donation. Roth was also involved in the design of online marketplaces and exchange platforms, such as monetary and labor brokerage platforms. It has applied the principles of stability and efficiency to create more transparent and fair markets.

3. Research methodology

To substantiate the solution in the study, we used the dataset developed by Sustainable Governance Indicators (SGI) (<https://www.sgi-network.org/2020/>), which offers multiple possibilities for comparison, including in the field of social and economic policies. The SGI is a cross-national comparative study that aims to identify key success factors in effective policy implementation and examines how governments are approaching sustainable development. The SGI analyses how well policies are designed to achieve the objectives, assessing results in 16 public policy areas and more than 200 indicators, as presented in Annex 1.

To carry out the study, the authors took data from the SGI website, respectively the annual indicators for the period 2014-2020 for the 41 states (see Annex 2). From these indicators, the authors selected as an output variable an aggregate indicator that quantifies social assistance (SGI Social Inclusion Policy), respectively the social policy indicator. According to the website, this indicator is aggregated and represents an average of several indicators. Romania ranks at the bottom of the ranking in terms of this indicator, occupying the same position as Bulgaria, Croatia, Greece, Hungary, Mexico and the United States.

Another dataset used in the study was the one on the World Bank's website, which ranks countries according to the quality of governance, by aggregating data from several available sources. Worldwide Governance Indicators (WGIs) confirm the perceptions of a significant number of corporations, citizens and experts who have participated in research in industrialized countries, but also in developing economies. The WGI consists of six indicators covering more than 200 countries since 1996: voice and accountability, political stability and absence of violence/terrorism, effectiveness of government, quality of regulation, rule of law and control of corruption.

These indicators are based on 340 variables generated from 32 different sources, including business information providers, firm and household surveys, non-governmental organisations and public sector organisations (<https://info.worldbank.org/governance/wgi/>) and are grouped as follows:

1. Voice and Accountability (VA) measures the perception that a country's citizens can participate in the election of their government, freedom of speech, freedom of association, and free media.

2. Political stability and absence of violence (PV), measures perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including political violence and terrorism.

3. Government effectiveness (GE), measures the quality of public services and the degree of independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to these policies.

4. Regulatory Quality (RQ), measures perceptions of the government's ability to formulate and implement sound policies and regulations that enable and promote private sector development.

5. The rule of law (OR) is the assessment of perceptions of the extent to which agents trust and comply with the rules of society, in particular the quality of contract enforcement, the police and the courts, and the likelihood of crime and violence.

6. Corruption control (CC) is the analysis of perceptions about the extent to which public power is exercised for private gain, including small and large forms of corruption and the "confiscation" of the state by elites and private interests. The two datasets were concatenated for each year and each country between 2014 and 2020. Regarding the limitations of the research, it is important to mention from the beginning the problems associated with the use of perception-based indicators such as those in the SGI and WG. Of course, the use of these subjective indicators in complex statistical constructions can lead to errors.

For data processing, tools such as MS Excel and IBM Modeller were used, with data being collected for each country and each year. The results of the correlation analysis are presented in full in Annex 3 and indicate a strong link between the explained variable and education. To identify other possible interferences and identify other public policy levers, we used decision trees.

In the field of Data Mining, decision trees are analysis patterns that are used to extract rules or patterns from data sets. These trees are used in classification and prediction. Decision trees consist of nodes and branches, where each node represents a decision made based on a dataset feature, and each branch connects two nodes and indicates the outcome of the decision made. The software packages also indicate the important factors that have been taken into account when grouping.

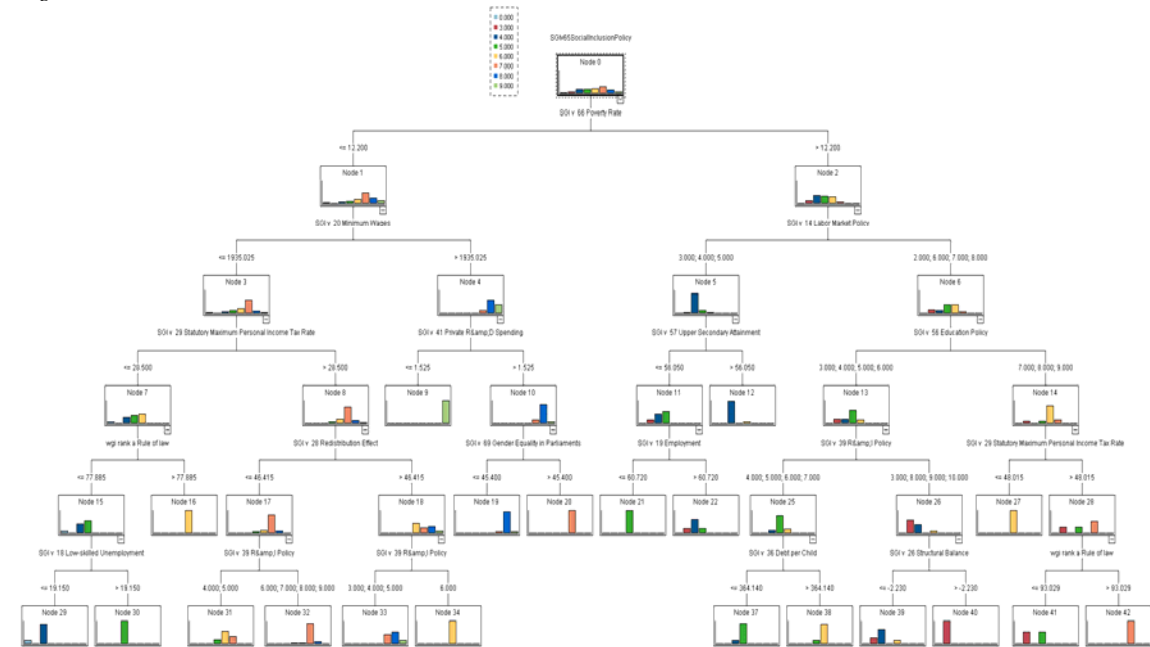
There are several algorithms that build decision trees, such as C4.5, CART (Classification and Regression Trees), CHAID (Chi-square Automatic Interaction Detector). Decision trees are a powerful tool in the arsenal of data mining and are used in a variety of fields, including marketing, medicine, finance, and pattern recognition. CART (Classification and Regression Trees) is an algorithm in this field that builds decision trees for classification and regression.

4. Findings

First of all, in this chapter I present the data analysis to reveal the factors that are important in increasing the efficiency of social assistance. Further, based on the results, a method of market efficiency based on market design was proposed. Although in social assistance it is apparently a question of a public intervention, it is or should be carried out only after there is a failure of a market. Each of us seeks in the end to ensure well-being (demand) and on the other hand there are always private services to satisfy the needs (supply).

For the data set analyzed according to the methodology described in the previous chapter, the following decision tree resulted:

Figure no. 1 Decision tree



Source: Author's own projection

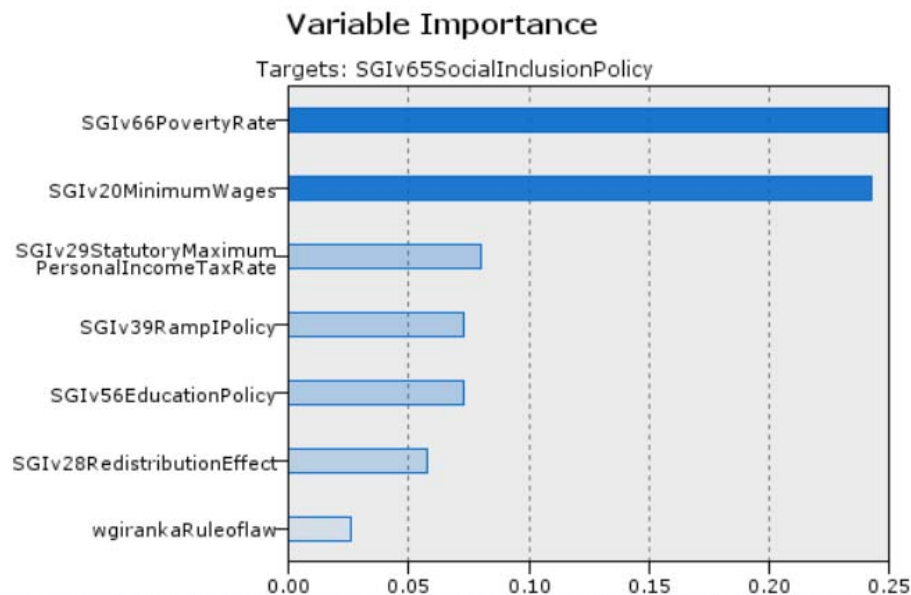
It can be explained according to the scheme described below:

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SGIv66PovertyRate <= 12.2 [ Mode: 7 ]
  SGIv20MinimumWages <= 1935.02 [ Mode: 7 ]
    SGIv29StatutoryMaximumPersonalIncomeTaxRate <= 28.50 [ Mode: 6 ]
      wgirankaRuleoflaw <= 77.884616852000000 [ Mode: 5 ]
        SGIv18LowskilledUnemployment <= 19.15 [ Mode: 4 ] => 4
          SGIv18LowskilledUnemployment > 19.15 [ Mode: 5 ] => 5
        wgirankaRuleoflaw > 77.884616852000000 [ Mode: 6 ] => 6
      SGIv29StatutoryMaximumPersonalIncomeTaxRate > 28.50 [ Mode: 7 ]
        SGIv28RedistributionEffect <= 46.42 [ Mode: 7 ]
          SGIv39RampIPolicy in [ 4 5 ] [ Mode: 6 ] => 6
          SGIv39RampIPolicy in [ 6 7 8 9 ] [ Mode: 7 ] => 7
        SGIv28RedistributionEffect > 46.42 [ Mode: 6 ]
          SGIv39RampIPolicy in [ 3 4 5 ] [ Mode: 8 ] => 8
          SGIv39RampIPolicy in [ 6 ] [ Mode: 6 ] => 6
    SGIv20MinimumWages > 1935.02 [ Mode: 8 ]
      SGIv41PrivateRampDSpending <= 1.52 [ Mode: 9 ] => 9
      SGIv41PrivateRampDSpending > 1.52 [ Mode: 8 ]
        SGIv69GenderEqualityinParliaments <= 45.40 [ Mode: 8 ] => 8
        SGIv69GenderEqualityinParliaments > 45.40 [ Mode: 7 ] => 7
  SGIv66PovertyRate > 12.2 [ Mode: 4 ]
    SGIv14LaborMarketPolicy in [ 3 4 5 ] [ Mode: 4 ]
      SGIv57UpperSecondaryAttainment <= 56.05 [ Mode: 5 ]
        SGIv19Employment <= 60.72 [ Mode: 5 ] => 5
        SGIv19Employment > 60.72 [ Mode: 4 ] => 4
      SGIv57UpperSecondaryAttainment > 56.05 [ Mode: 4 ] => 4
    SGIv14LaborMarketPolicy in [ 2 6 7 8 ] [ Mode: 6 ]
      SGIv56EducationPolicy in [ 3 4 5 6 ] [ Mode: 5 ]
        SGIv39RampIPolicy in [ 4 5 6 7 ] [ Mode: 5 ]
          SGIv36DebtperChild <= 364.14 [ Mode: 5 ] => 5
          SGIv36DebtperChild > 364.14 [ Mode: 6 ] => 6
        SGIv39RampIPolicy in [ 3 8 9 10 ] [ Mode: 3 ]
          SGIv26StructuralBalance <= -2.23 [ Mode: 4 ] => 4
          SGIv26StructuralBalance > -2.23 [ Mode: 3 ] => 3
      SGIv56EducationPolicy in [ 7 8 9 ] [ Mode: 6 ]
        SGIv29StatutoryMaximumPersonalIncomeTaxRate <= 48.02 [ Mode: 6 ] => 6
        SGIv29StatutoryMaximumPersonalIncomeTaxRate > 48.02 [ Mode: 7 ]
          wgirankaRuleoflaw <= 93.028846741000000 [ Mode: 5 ] => 3
          wgirankaRuleoflaw > 93.028846741000000 [ Mode: 7 ] => 7
  
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The figure below shows the relationship of the explained variable to other indicators.

Figure no. 2 Important factors in classification



Source: Author's own projection resulting from the analysis of decision trees.

In short, the main determining factors for an effective policy are:

1. Poverty rate - calculated against 50 percent of median equivalent disposable income. In conditions of economic crisis, this factor is difficult to influence in a favorable way.
2. Minimum wage - during the economic crisis, increasing the minimum wage is a measure that can be considered, but due to the influence of taxation, it must be used after appropriate impact studies.
3. Income tax rate for individuals - in times of economic crisis, the tax rate can be an influencing factor, but it can also influence the budget imbalance.
4. Research and innovation policy - effectively supports innovations that foster the creation of new products and increase productivity.
5. Education policy
6. The redistribution effect - the percentage reduction of the Gini coefficient is important in the efficiency of social policies. It can be achieved through a taxation policy that influences imbalances, but also through measures to reform the mechanisms.
7. Rule of law – captures perceptions of the extent to which agents trust and respect society's rules, in particular in terms of the quality of contract enforcement, property rights, police and courts, as well as the likelihood of crime and violence.

In times of economic boom, effective intervention can best focus on the first factors (such as the minimum wage). However, they have a significant impact on the budget balance.

However, it is also important to understand the significance of secondary factors such as research and innovation policy, education policy, the redistribution effect and the rule of law. We can look at these factors from the perspective of a matching market in social assistance (where there are people who need social assistance, people willing to pay and people who want to provide services). The state often intervenes before the family exhausts all the resources it is available to. The need for public intervention in the case of the functioning of matching markets would be less and limited only in situations where those markets fail. In this way, the principle of subsidiarity can be better fulfilled.

But perhaps it is best to consider a concrete case. If you want to look for a caregiver for a person, you need knowledge to recommend someone to you, or you can conduct expensive searches. The regulations relating to temporary work agencies have the same complexity in application. Even a portal that does not generate density in transactions is almost inefficient.

In a famous movie, "Scent of a Woman", things seem to play out differently. A student is in charge of caring for a blind person. The family needed, for a limited period, certain specific care services. In this specific search process on matching markets, privately known information is used. Of course, some questions may arise.

But what is the monitoring instance? If the student wasn't doing his job and abusing Colonel Slade, who would have been responsible for monitoring the situation? In the theory of contracts with imperfect information, there are ways to increase efficiency. The first refers to the regime of penalties and rewards. Suppose that the violation of the law or abuses were notified through an efficient monitoring and notification system. Then, the "rule of law" factor would imply appropriate and effectively applied punishments when someone notices, for example, that a person is abused. The development of technology today allows the use of tiny video cameras or any other means of monitoring. *If we go back to the movie, another question, perhaps the most important question would be, where does the money come from?* We notice that in this case a person in the family practically finances a social assistance market with private money. In many cases in Romania, children have income but live in other states far from their parents. However, he would like to take care of them due to pure altruism. *Another question worth discussing is, does the law allow this?* Article 2255 of the Civil Code regulates this situation as an agreement between the parties, serving as the basis for this approach. Of course, we have the right to call on anyone's services under the conditions in which both the person wants and a family member wants. It is the first safety net. What needs to be built, however, is a transparent, fluid market and an adequate "rule of law" through which people are sure that any abuse is punished.

The detailing of the articles of the Civil Code and the corresponding norms, the introduction of a matching portal that facilitates a fluid market (which will also provide counseling facilities for the processes of monitoring and reporting abuses) could be a direction of action in the development of a private market in social assistance.

Another question that could arise is, of course, *what role will the state authorities have, both at the local level (town halls, county councils) and at the central level (the Ministry of Labor and Social Protection, other institutions), as well as the agents in the economic sector?* They will intervene mainly by promoting equal opportunities in emergency situations. State intervention will no longer be so much direct, by granting benefits, only after the failure of the markets.

The direction of action basically involves strengthening the safety nets at the first level (person, family). Access will be put first and foremost on the family of each person, by developing the capacity to access private services. There are a significant number of Romanians who have gained experience in the field, working in Italy or Spain, and could provide such services. They would return to Romania with a capital of experience in care.

A matching portal that could also have a counseling component, a chat bot, a call center could simplify the search and implementation processes and offers consultancy for the application of the Civil Code. It can operate in a similar way to Tinder, with a chat bot for advice and a referral system, or there can even be a clearing house that also facilitates a public intervention but at a much lower cost.

5. Conclusions

Based on a qualitative comparative analysis and a quantitative assessment using correlation analysis, artificial intelligence techniques and fuzzy logic, the paper confirms the short-term dependence of the effectiveness of social assistance policies on factors such as education, the rule of law and innovation policy. Based on the relationships empirically discovered through the data analysis technology used in the paper, directions of action for intelligent adaptations of some mechanisms for streamlining the matching markets were also presented.

Increasing the speed of information circulation, reducing the cost of transactions and streamlining matching markets can be implemented by creating a tool to facilitate the exchange of information in the temporary services mediation market. The reform does not exclude public intervention, but places it as a subsidiary and complementary option to private intervention, aiming for versatility and adaptability.

As for the analysis used, the main limitations of the study lie in the statistical methods chosen. The interpretation of the results of the quantitative study also has limits that must be tested by methods specific to experimental economics. Therefore, the author will continue this method of analysis for other aspects, in parallel with a project that aims to develop a private matching portal.

6. References

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Annex no. 1. The set of indicators used

PolicyPerformance	Education	EnvironmentalPolicies	Governance
Rankamong41countries	EducationPolicy	Environment	ExecutiveCapacity
EconomicPolicies	UpperSecondaryAttainment	EnvironmentalPolicy	StrategicCapacity
Economy	TertiaryAttainment	EnergyProductivity	StrategicPlanning
EconomicPolicy	PISAresults	GreenhouseGasEmissions	ScholarlyAdvice
GDPperCapita	PISA,SocioeconomicBackground	ParticulateMatter	InterministerialCoordination
Inflation	Pre-primaryExpenditure	WaterUsage	GOExpertise
GrossFixedCapitalFormation	SocialInclusion	WasteGeneration	GOGatekeeping
RealInterestRates	SocialInclusionPolicy	MaterialRecycling	LineMinistries
PotentialOutput,GrowthRate	PovertyRate	Biodiversity	CabinetCommittees
LaborMarkets	NEETRate	RenewableEnergy	MinisterialBureaucracy
LaborMarketPolicy	GiniCoefficient	GlobalEnvironmentalProtection	InformalCoordination
Unemployment	GenderEqualityinParliaments	GlobalEnvironmentalPolicy	Evidence-basedInstruments
Long-termUnemployment	LifeSatisfaction	MultilateralEnvironmentalAgreements	RIAApplication
YouthUnemployment	Health	KyotoParticipationandAchievements	QualityofRIAProcess
Low-skilledUnemployment	HealthPolicy	QualityofDemocracy	SustainabilityCheck
EmploymentRate	SpendingonHealthPrograms	ElectoralProcesses	SocietalConsultation
LowPayIncidence	LifeExpectancy	CandidacyProcedures	NegotiatingPublicSupport
Taxes	InfantMortality	MediaAccess	PolicyCommunication
TaxPolicy	PerceivedHealthStatus	VotingandRegistrationRights	CoherentCommunication
TaxSystemComplexity	Families	PartyFinancing	Implementation
StructuralBalance	FamilyPolicy	PopularDecision-Making	GovernmentEfficiency
MarginalTaxBurdenforBusinesses	ChildCareDensity,Age0-2	AccesstoInformation	MinisterialCompliance
RedistributionEffect	ChildCareDensity,Age3-5	MediaFreedom	MonitoringMinistries
Budgets	FertilityRate	MediaPluralism	MonitoringAgencies,Bureaucracies
BudgetaryPolicy	ChildPoverty	AccesstoGovernmentInformation	TaskFunding
DebttoGDP	Pensions	CivilRightsandPoliticalLiberties	ConstitutionalDiscretion
PrimaryBalance	PensionPolicy	CivilRights	NationalStandards
DebtInterestRatio	OlderEmployment	PoliticalLiberties	Adaptability
BudgetConsolidation	OldAgeDependencyRatio	Non-discrimination	DomesticAdaptability
ResearchandInnovation	SeniorCitizenPoverty	RuleofLaw	InternationalCoordination
R&IPolicy	Integration	LegalCertainty	OrganizationalReform
PublicR&DSpending	IntegrationPolicy	JudicialReview	Self-monitoring
Non-publicR&DSpending	FB-NUpperSecondaryAttainment	AppointmentofJustices	InstitutionalReform
TotalResearchers	FB-NTertiaryAttainment	CorruptionPrevention	ExecutiveAccountability
IntellectualPropertyLicenses	FB-NUemployment		Citizens'ParticipatoryCompetence
PCTPatentApplications	FB-NEmployment		PolicyKnowledge
GlobalFinancialSystem	SafeLiving		VoicingOpiniontoOfficials
StabilizingGlobalFinancialMarkets	SafeLivingConditions		VoterTurnout
Tier1CapitalRatio	Homicides		LegislativeActors'Resources
Banks'NonperformingLoans	Thefts		ParliamentaryResources
SocialPolicies	ConfidenceinPolice		ObtainingDocuments
	GlobalInequalities		SummoningMinisters
	GlobalSocialPolicy		SummoningExperts
	ODA		TaskAreaCongruence
			AuditOffice
			OmbudsOffice
			Media
			MediaReporting
			NewspaperCirculation
			QualityNewspapers
			PartiesandInterestAssociations
			Intra-partyDemocracy
			AssociationCompetence(Business)
			AssociationCompetence(Others)

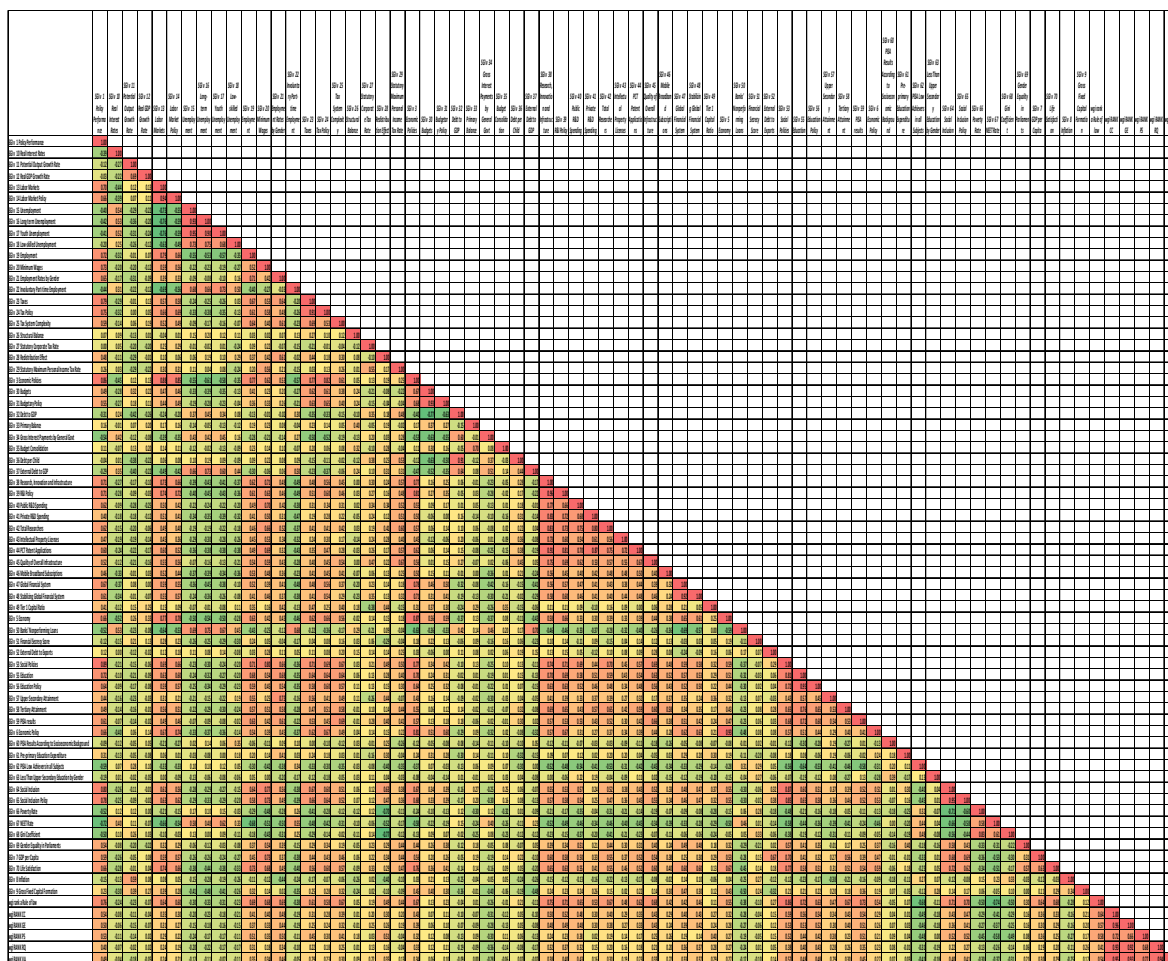
Source: SGI indicators

Annex no. 2. Countries for which the data was analyzed

Australia, Austria, Belgium, Bulgaria, Canada, Chile, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Latvia, Lithuania, Luxembourg, Malta, Mexic, Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, South Korea, Spain, Sweden, Switzerland, Great Britain, United States of America.

Source: SGI indicators

Annex no. 3. Correlation Analysis



Source: Author's own projection