Economic and social dimension of sustainable development: Case Serbia 1995-2015

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Introduction

- There is wide consensus that the idea of sustainability figures as one of the leading models for societal development by indicating the direction in which societies ought to develop
- Concept of sustainability have action-guiding power and calls for particular orientations of actions
- In this research we make calls for particular orientations of actions in area of economic and social dimension for sustainable development of Serbian society

Transformation of sustainability concept from 1987. to 2017.

- **Year 1987 "Our Common Future"**
- The Brundtland Report provided the most widely adopted and cited definition of sustainable development:

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

It contains within it two key concepts:

- the concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given; and
- the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs (WCED, 1987)
- The Report was primarily concerned with the relationship of nature and society

Transformation of sustainability concept from 1987. to 2017.

- **Year 1992, the UN Conference on Environment and Development ('Earth Summit-Rio de Janeiro)**
- Rio Declaration covers a wide range of issues its primary focus is still the natural environment (it contains the keywords 'environment' and 'environmental' 40 times and the keywords 'society' and 'societies' just twice.
- **Year 2002 World Summit on Sustainable Development** (WSSD) conference more effectively integrated economic and equity issues into the discussion. By 2002, it had become common to identify an ecological, an economic, a social and an institutional dimension of sustainability.

Transformation of sustainability concept from 1987. to 2017.

- **Year 2012 Rio+20 Conference**
- Conference's outcome document The Future We Want also foregrounds the importance of the three pillars of sustainability. It underline the importance of institutions that foster these three pillars of sustainable development.

- **Year 2015 - The 2030 Agenda for Sustainable Development**
- As a follow-up to Rio+20, the 2030 Agenda for Sustainable Development (United Nations 2015) contains 17 goals.

Transformation of sustainability concept from 1987. to 2017.

source: https://sustainabledevelopment.un.org

Situation on the beginning of 2017.

Inequality

- According to estimations (CREDIT SUISSE RESEARCH INSTITUTE) the world's richest 10% in 2015 owned 87% of the global wealth, the richest 1% owned 48.2%. (CSRI, Global Wealth Report 2015).
- In 2015, 69.8% of the world's population owned a wealth of less than US$ 10 000 and 0.7% more than US$ 1 million. In 2016, the share of those owning less than US$ 10 000 increased to 71.0% and the share of those having more than US$ 1 million remained constant (CSRI, Global Wealth Report 2015).
- The worldwide Gini coefficient was 0.915, which is a very high level (CSRI, 2016).

Situation on the beginning of 2017.

- **Different education achievements**
- Moris Triventi (2013) analyzed data on educational achievement from 11 European countries. “Individuals with more educated parents have the highest likelihood of graduating from the best institutions, and differences with individuals with less educated parents are significant in all the countries except Germany”.
- Barro and Lee (2013) provide data for 146 states that shows that the share of population who have completed tertiary education, has increased from 1.1% in 1950 to 7.8% in 2010. There are, however, significant inequalities between developed and developing countries: Whereas the share was 17.9% in developed countries it was only 5.7% in developing countries, which indicates that wealth differences play a role in possibilities for educational achievements.

Situation on the beginning of 2017.

- **Environmental crisis has been created and sustained by profitable businesses**
- Forbes list shows that In 2016, 10 of the world's largest 100 companies were oil and gas producers : Exxon Mobil (no 7), PetroChina (no 8), Royal Dutch Shell (no 13), Chevron (no 16), Sinopec (no 24), Gazprom (no 27), Total (no 35), BP (no 41), Rosneft (no 59) and ConocoPhillips (no 89).
- In addition, there were nine companies producing cars, trucks and airplanes in the top 100: Toyota (no 11), VW (no 14), Daimler (no 26), BMW (no 45), Honda (no 63), General Motors (no 64), Ford (no 69), Boeing (no 72) and Nissan (no 96).

Question for Serbia

- Following rule “70” with average economic growth rate of 6% Serbia will achieve present average GDP pc in EU countries for 30 years.
- Economic growth is essential for Serbian macroeconomic balances.
- Main question: Which business sectors generate this economic pillar?
- How we can describe social dimension of sustainability in Serbian economy?

Methodology and data

- OLS Linear regression model

- $\text{Real}GDPgr = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \ldots\ldots \beta_n X_n + \varepsilon$

Where $X_1 \ldots\ldots X_n$ is real growth rate of added value in different business sectors.

We take in account all sectors: Agriculture, forestry and fisheries mining , Manufacturing industry , Supply electricity, gas, steam and air conditioning, Water supply, Construction ,Wholesale and retail trade, repair of motor vehicles and motorcycles, Transport and storage , Providing accommodation and meals , Information and communication, Financial services and insurance activities, Real estate , Professional, scientific, and technical innovative activity, Administrative and support service activities, Public administration and defense, compulsory social security, Education, Health and social care, Other service activities .

Specific of Serbian economy are shocks (internal or external) as dummy variable.

Methodology and data

- Period of observation 1995-2015
- Conditions for independent variables in OLS regression:
- Stationary variables (Dickey-Fuller (DF) test)
- Uncorrelated/multycausality (Granger causality test)
- Independent variables that passed ADF and Granger causality tests using STATA 12 application are:
- Real growth rate of value added in manufacturing
- Real growth rate of value added in trade
- Dummy (shocks)

Results

Dickey-Fuller test for unit root — Number of obs = 19

	Test Statistic	Interpolated Dickey-Fuller: 1% Critical Value	5% Critical Value	10% Critical Value
Z(t)	-3.189	-2.660	-1.950	-1.600

D.GDPRGR	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
GDPRGR L1.	-.7177724	.2250473	-3.19	0.005	-1.190579	-.2449655

Dickey-Fuller test for unit root — Number of obs = 19

	Test Statistic	Interpolated Dickey-Fuller: 1% Critical Value	5% Critical Value	10% Critical Value
Z(t)	-7.172	-2.660	-1.950	-1.600

D.MANavGR	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
MANavGR L1.	-1.482571	.2067291	-7.17	0.000	-1.916892	-1.048249

Results

Dickey-Fuller test for unit root — Number of obs = 19

	Test Statistic	Interpolated Dickey-Fuller: 1% Critical Value	5% Critical Value	10% Critical Value
Z(t)	-2.200	-2.660	-1.950	-1.600

D.TRADEavGR	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
TRADEavGR L1.	-.4243598	.1929114	-2.20	0.041	-.8296517	-.0190679

Dickey-Fuller test for unit root — Number of obs = 20

	Test Statistic	Interpolated Dickey-Fuller: 1% Critical Value	5% Critical Value	10% Critical Value
Z(t)	-4.359	-2.660	-1.950	-1.600

D.Dummy	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Dummy L1.	-1	.2294157	-4.36	0.000	-1.480173	-.5198274

Results

Source	SS	df	MS
Model	339.662151	3	113.220717
Residual	100.549849	16	6.28436554
Total	440.212	19	23.1690526

Number of obs	20
F(3, 16)	18.02
Prob > F	0.0000
R-squared	0.7716
Adj R-squared	0.7288
Root MSE	2.5069

GDPRGR	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
MANavGR	.1868666	.0681932	2.74	0.015	.0423035	.3314297
TRADEavGR	.1306017	.0556918	2.35	0.032	.0125403	.248663
Dummy	-6.076335	1.638325	-3.71	0.002	-9.549428	-2.603242
_cons	2.829585	.8240627	3.43	0.003	1.08265	4.57652

- $\text{Real}GDPgr = 2{,}82 + 0{,}18MANadGR + 0{,}13TRADEavGR - 6{,}07Dummy + \varepsilon$

Results

Granger causality Wald tests

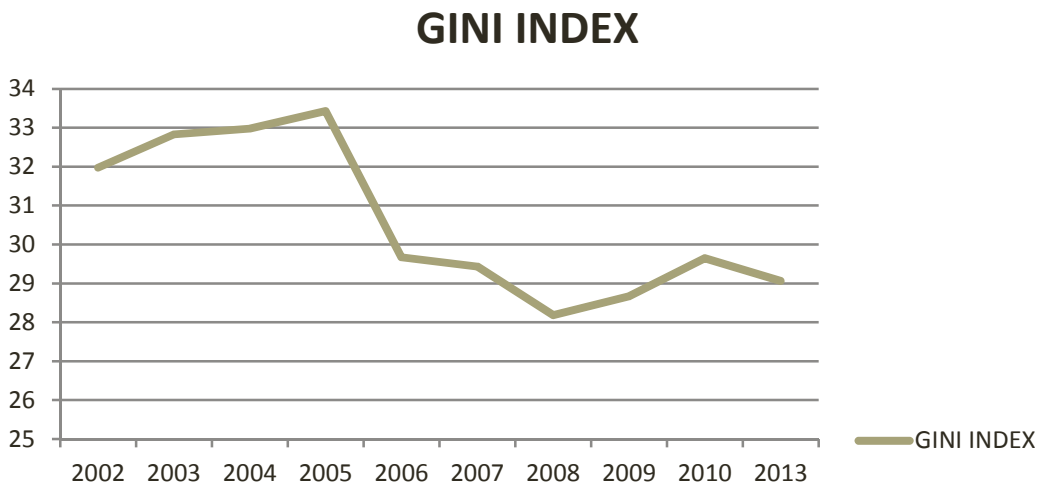
Equation	Excluded	F	df	df_r	Prob > F
GDPRGR	MANavGR	2.0578	2	9	0.1837
GDPRGR	TRADEavGR	1.0559	2	9	0.3873
GDPRGR	Dummy	.98941	2	9	0.4089
GDPRGR	ALL	.86683	6	9	0.5533
MANavGR	GDPRGR	3.847	2	9	0.0620
MANavGR	TRADEavGR	2.6357	2	9	0.1256
MANavGR	Dummy	1.4504	2	9	0.2845
MANavGR	ALL	1.7022	6	9	0.2270
TRADEavGR	GDPRGR	3.8651	2	9	0.0614
TRADEavGR	MANavGR	3.9349	2	9	0.0592
TRADEavGR	Dummy	1.1124	2	9	0.3701
TRADEavGR	ALL	1.8833	6	9	0.1888
Dummy	GDPRGR	2.3373	2	9	0.1522
Dummy	MANavGR	1.9764	2	9	0.1943
Dummy	TRADEavGR	.52334	2	9	0.6095
Dummy	ALL	1.2096	6	9	0.3826

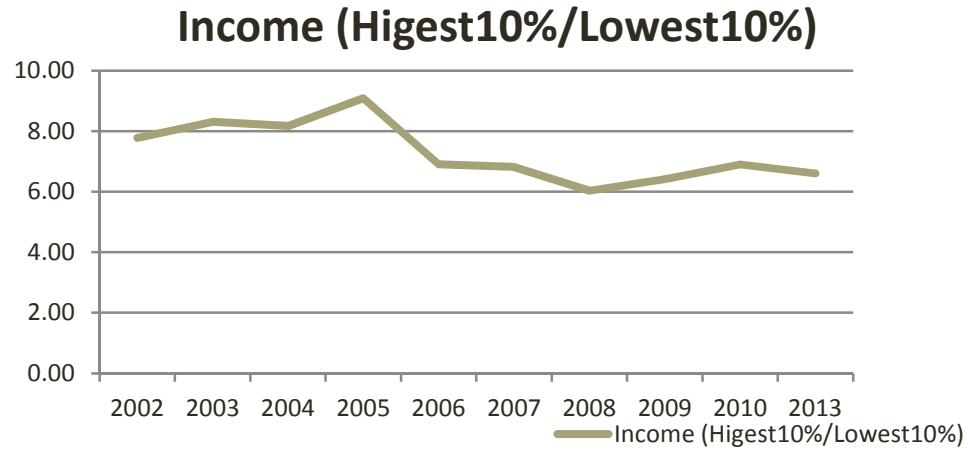
Variable	VIF	1/VIF
Dummy	1.37	0.731664
TRADEavGR	1.22	0.817975
MANavGR	1.13	0.881333
Mean VIF	1.24	

Social position of employees in manufacturing and trade

Year	MAN to FI	TRADE to FI	Man to AV	TRADE to AV
2004	0,36	0,39	0,78	0,85
2005	0,36	0,40	0,80	0,89
2006	0,36	0,41	0,82	0,92
2007	0,37	0,42	0,79	0,90
2008	0,40	0,47	0,81	0,93
2009	0,38	0,35	0,80	0,75
2010	0,36	0,32	0,86	0,75
2011	0,46	0,40	0,86	0,75
2012	0,47	0,41	0,86	0,75
2013	0,48	0,42	0,86	0,77
2014	0,51	0,44	0,87	0,76
2015	0,53	0,44	0,93	0,78

Social position of Serbian citizen





Conclusion

- Concept of sustainability is approach for particular orientations of actions
- On global level sustainability is not achieved
- Due to the macroeconomic situation, the concept of sustainability in Serbia needs to be geared to economic and social goals
- Serbian economy is very vulnerable on shocks
- The realization of economic growth depends on government support in the manufacturing sector
- State support must be reflected in the reduction of tax burden on salaries in sectors that carry economic growth
- This is the only way to achieve economic and social sustainability

Questions and suggestions