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The role of income in explaining Well Being: the heterogeneity of the Italian regions

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Motivation

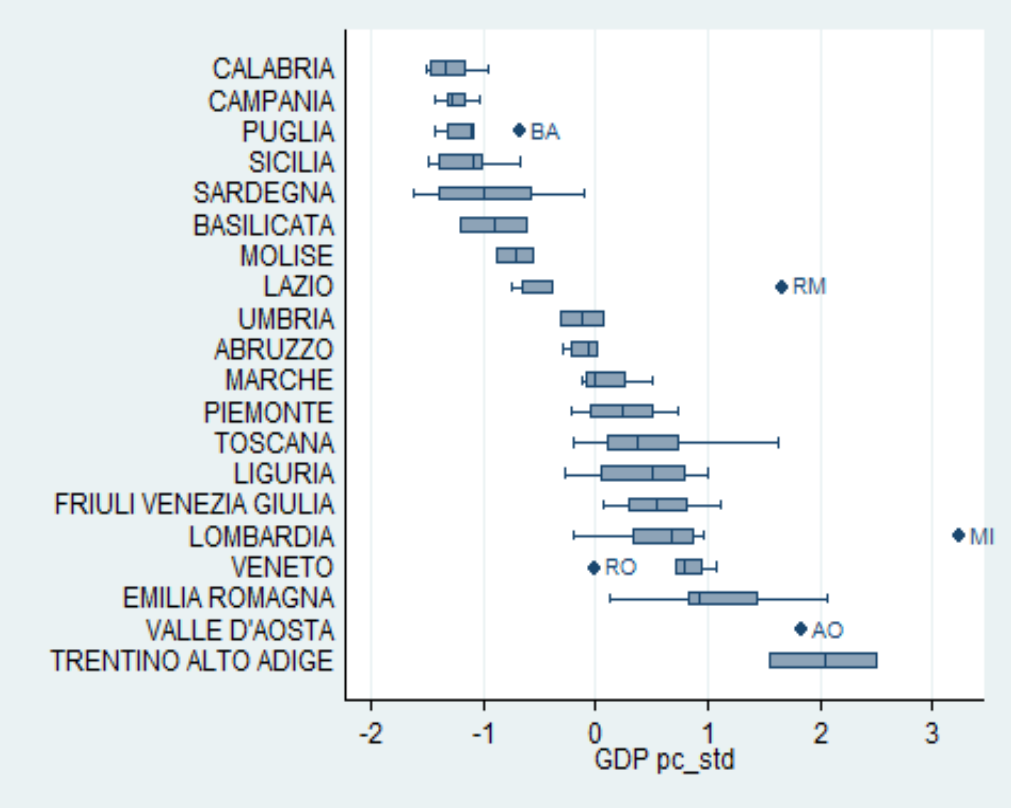
There is a growing need to identify measures of individual well-being in conjunction with income-based measures to provide a comprehensive picture of social progress and national well-being (New Economics Foundation, 2009).

Subjective Well-Being (SWB)

❖In simple terms, well-being can be described as judging life positively and feeling good.

- SWB can be considered as a new tool for the design and evaluation of public policies and the quality of development **within** and across **nations** (Frey and Stutzer, 2017; Odermatt and Stutzer, 2017).
- SWB can give useful information to policy makers to improve social cohesion **at regional level**

The case of Italy



Latvia

Denmark

The inter-regional variability and also the intra-regional variability at income level, maybe hide the problem of distribution of resources, opportunities, development perspectives across different areas.

Data availability allows to study just the differences among regions.

Data

- 2013 wave of European Union Statistics on Income and Living Conditions(**EU-SILC**)
- Specific module Personal Well-Being Indicators
  - The collected variables refers to the respondent's opinions/feelings about the degree of satisfaction with his/her life, focusing on the present feeling
  - **Unit of analysis**: individuals aged 16 years old and more

The dependent variable of the empirical analysis

- The dependent variable of the analysis is SWB. EU-SILC gathers information related with the respondent's feeling about the degree of satisfaction with his/her life as a whole. This categorical variable takes values in [0-10], where 0 means *"not at all satisfied"* and 10 *"completely satisfied"*.
- For subsequent analysis we cardinalize the dependent variable to account that pass differences among categories of SWB may not have the same meaning.

The role of income on SWB

A) Upon obtaining a particular income level (enabling the consumption of basic needs) raising income further, no longer results in greater well-being (Stevenson & Wolfers, 2013). Therefore, differences in income levels explain only a small fraction of the disparity in well-being levels among individuals

B) The low correlation coefficient between well-being and income implies the importance of other economic and non-economic variables which affect individual well-being

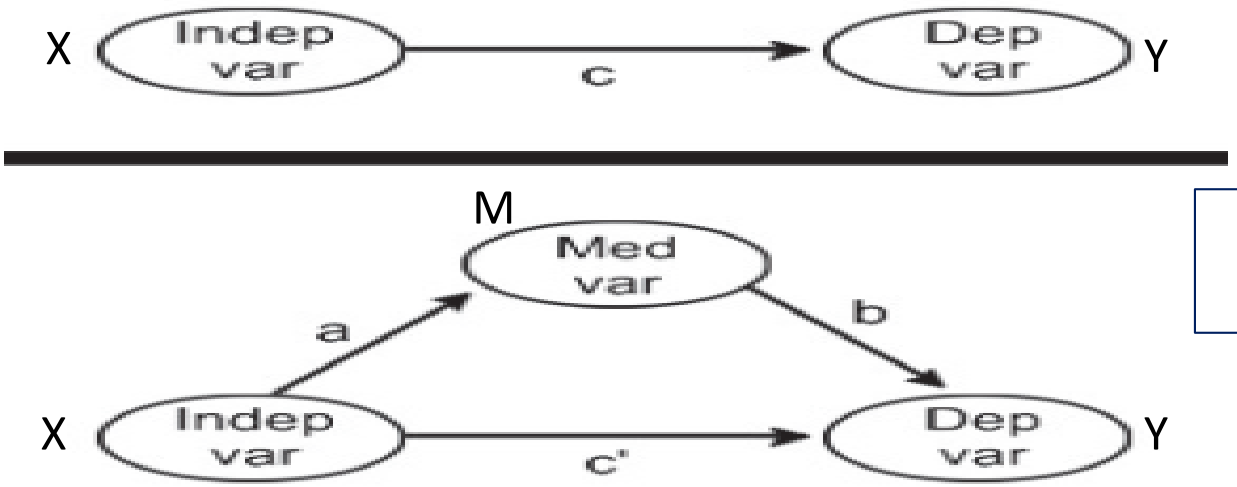
Research questions

- **A1:** Is it true that: once the income level enabling the consumption of basic needs has been reached, raising income further, no longer results in greater well-being?
- **B1:** In Italy the lower correlation between well-being and income is in Bolzano (0.06) the larger one is in Puglia (0.25): these correlation coefficients specifies the importance of other economic and non-economic variables. Which covariates do affect individual well-being levels?

Both are related to the case of Italy and particularly to the differences among regions.

In order to answer to the previous questions, we introduce the Mediation Analysis (Baron and Kenny's,1986).

Mediation Anaysis



Simple mediation model

- Three tests on paths a, b, and c (the “direct” one) in order to establish that an independent variable X affects a dependent variable Y through a mediating variable M.
- Paths a, b, and c are tested and estimated by equations 1, 2, and 3:

$$M = i1 + aX + e\ 1 \qquad (1)$$

$$Y = i2 + cX + e\ 2 \qquad (2)$$

$$Y = i3 + cX + bM + e\ 3 \qquad (3)$$

Mediation Anaysis

To establish mediation, the following conditions must hold:

- the independent variable (X) must affect the mediator (M) in the first equation;
- the independent variable (X) must be shown to affect the dependent variable (Y) in the second equation;
- finally the mediator (M) must affect the dependent variable (Y) in the third equation.

The estimation

- We estimated the equations by Structural Equation Modelling (SEM) to estimate all parameters simultaneously.
- The type of mediation is classified by estimating the coefficients a, b, and c.
  - Complementary mediation: Mediated effect (a *b) and direct effect (c) both exist and point at the same direction.
  - Competitive mediation: Mediated effect (a * b) and direct effect (c) both exist and point in opposite directions.
  - Indirect-only mediation: Mediated effect (a*b) exists, but no direct effect.
  - Direct-only nonmediation: Direct effect (c) exists, but **no indirect effect.**
  - No-effect nonmediation: Neither direct effect **nor indirect effect exists.**

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Inference on indirect effect

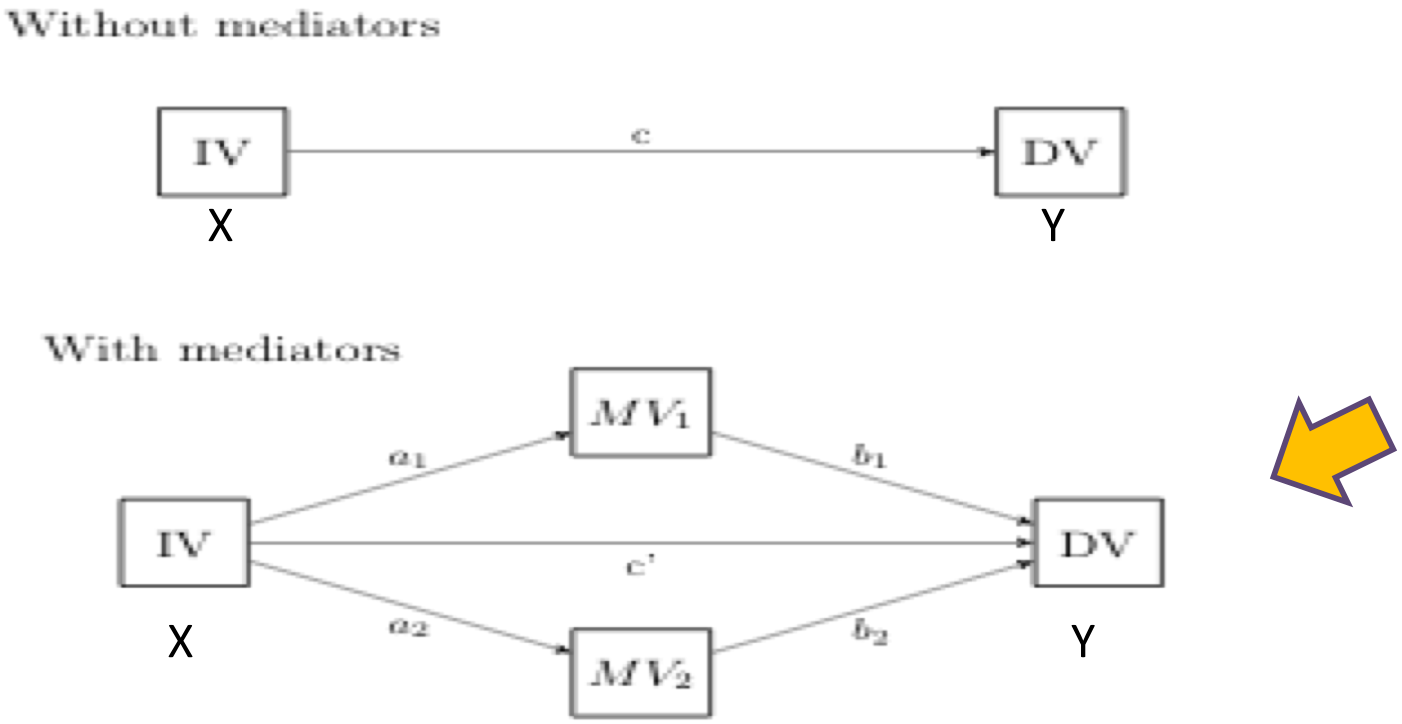
- Because the indirect effect is the product of two parameters, the sampling distribution of products and Sobel's z is not normal.
- We tested the indirect effect by the bootstrap test implemented by Preacher and Hayes (2004, 2008) which solves that problem by generating an empirical sampling distribution of a*b.

Independent and Mediator Variables

- The key independent variable (X) is the Household Equivalent Income

- We suppose two mediators MV1 and MV2:
  - *No holiday*: Inability to afford paying for one week annual holiday away from home (=1 if the household of the respondent individual cannot afford it; =0 otherwise)
  - *Unable to end meet*: Inability to make ends meet (=1 if the household of the respondent individual is unable; =0 otherwise

Multiple Mediator Model



Results: Ranking of the Italian regions by "indirect effect"

	% Ind. No_hol	% Ind. No_end	% Indirect
19. Calabria	27	0	27
4. -Bolzano	18	13	30
17. Puglia	0	33	33
16. Campania	39	0	39
20. Sicilia	41	0	41
21. Sardegna	42	0	42
9. Emilia-R.	29	14	43
8. Liguria	26	25	51
1. Piemonte	41	14	55
6. Veneto	43	15	58
7. Friuli-. G.	37	22	59
5. Trento	27	32	59
10. Toscana	52	10	63
14. Abruzzo	65	0	65
3. Lombardia	24	48	72
13. Lazio	59	25	85
12. Marche	60	38	97

The indirect effect is lower for regions in the South Italy so for them the direct effect of income has a predominant importance.

In the region of the North and Central Italy, in order to explain SWB are much more relevant the indirect effects.

A1: Is it true that: once the income level enabling the consumption of basic needs, raising income further no longer results in greater well-being?

According to the results, for people reaching a certain income level (as in the North an Centre) the direct effect of income is substantially lower (sometimes negligible) than for inhabitants of other regions

Empirical analysis support the hypothesis that raising income further, no longer results in greater well-being.

B1:Which covariates do affect individual well-being levels?

- Some control variables have been introduced in the model. We have different cases to distinguish as regard to the mediation effect:

- **No-effect nonmediation**: Neither direct effect nor indirect effect exists for **Bolzano**
- **Direct-only nonmediation**: Direct effect (c) exists, but no indirect effect for **Campania** and **Sicilia**

B1:Which covariates do affect individual SWB?

	(Bolzano)	(Campania)	(Sicilia)
	card_sat_life	card_sat_life	card_sat_life
ln_eq_inc	0.0311	0.114**	-0.082**
no_holiday	-0.125	-0.0789	-0.0412
no_end_meet	-0.220*	-0.00748	-0.0721
no_unexp_expe	0.0931	-0.169**	-0.318***
good_health	**0.493***	**0.480*****	**0.338*****
never_married	-0.118	-0.220**	-0.106
divorced	-0.266*	-0.473**	-0.206*
widowed	-0.0446	-0.142	-0.0254
children	0.101	-0.0479	-0.00584
educ_low	0.0177	-0.151*	-0.179*
working	0.130	0.198**	0.102
student	0.169	0.527***	0.329**
owner	-0.0132	-0.106	0.0112
no_friends_drink	-0.207	-0.309***	-0.208*
city	0.0485	-0.115	0.160
town	0.117	0.0762	0.308***
_cons	-0.710*	-0.708***	-0.902***
N	235	1355	1086

B1:Which covariates do affect individual SWB?

- **Indirect-only mediation**: Mediated effect (a*b) exists, but no direct effect for **Piemonte, Lombardia, Friuli, Toscana**. For this regions, controlling for some covariates the direct effect of income become not significant.

- **Complementary mediation**: Mediated effect (a *b) and direct effect (c) both exist and point at the same direction for **Liguria, Abruzzo, Puglia, Emilia Romagna, Veneto**. For them the direct effect and indirect effect are still significant.

B1:Which covariates do affect individual SWB?

card_sat_life	Liguria	Abruzzo	Puglia	Emilia R	Veneto	Lombardia	Toscana
ln_eq_inc	0.0740*	0.099**	0.104**	0.0742**	0.0731*	0.0166	0.0529
no_holiday	-0.0210	0.287**	0.215***	0.206***	0.227***	0.172***	0.339***
no_end_meet	-0.163***	-0.0802	-0.276***	-0.104**	-0.0944*	-0.147***	-0.0856
no_unexpected_expenses	-0.241***	-0.198*	-0.305***	-0.137***	-0.125**	-0.142***	-0.119*
good_health	**0.323*** **	**0.424*** **	**0.357*** **	**0.318*** **	**0.359*** **	**0.248*** **	**0.425*** **
never_married	-0.0856	-0.121	-0.141**	-0.129***	-0.0993*	-0.0614	-0.115
divorced	-0.240***	-0.185	-0.137	-0.216***	-0.228**	-0.0926	-0.278**
widowed	-0.0628	-0.196	-0.0949	-0.164***	-0.0699	-0.0801	-0.265***
children	0.116*	0.109	0.0518	0.103**	0.125**	0.189***	0.0939
educ_low	0.0227	0.0804	-0.0774*	-0.0291	-0.0399	-0.0406	-0.0813
working	0.0847	-0.0377	0.0842*	0.0517	-0.0399	0.0179	0.0252
student	0.0694	0.308	0.131	0.373***	0.316**	0.0660	0.424**
owner	0.0601	0.0579	0.0794	0.0256	0.0770	0.0704	-0.00969
no_friends_drink	-0.146**	-0.127	-0.189***	-0.299***	-0.202**	-0.279***	-0.404***
city	-0.170	-0.152	-0.0443	0.0785	-0.209***	0.109	-0.0653
town	-0.209*	-0.268**	0.0795	0.103*	-0.208***	0.154*	-0.120*
_cons	-0.613***	-0.715***	-0.698***	-0.686***	-0.426***	-0.768***	-0.628***
N	1295	587	1167	1945	2005	2298	1340

B1:Which covariates do affect individual SWB?

- A significant positive relationship between wellbeing and **health**. These findings are in accordance with literature Clark and Oswald (1994) and Dolan et al., (2008).

- Moreover, we have a significant relationship between SWB and variable
  - related to the possibility of non affording *something* (economical aspects)
  - related to the possibility of get-together with friends or relatives for a drink/meal at least once a month
  - Related to the degree of urbanization

Conclusion Motivation

In today's interconnected world, the SDGs cannot be achieved unless there is sustainable

wellbeing globally (Costanza R., Giovannini E. et al. Ecological Economics, 2016).

There is a growing need to identify measures explaining *individual well-being* in conjunction with income-based measures to provide a comprehensive picture of social progress and national well-being (New Economics Foundation, 2009).

… Thank You for Your kind ATTENTION