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# Wealth, Trust and Subjective Well-being

**Anne Musson, ESSCA**
**Damien Rousselière, Agrocampus-Ouest**
**SMART-Lereco**

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## Motivations

▶ What is the link between personal happiness and the wealth of the country you belong to?

▶ What is Wealth?

▶ Intangible Wealth: skills, human capital, cultural aspects, social capital,...

▶ Trust is considered as a key factor of many economic and social outcomes.

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## Outlines

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## Definitions I

### Wealth
The World Bank (2006,2011)$\rightarrow$ what the countries own
$\rightarrow$ Produced, Natural, Human and Institutional Capitals

### Intangible Capital
$\rightarrow$ Human and Social Capital $\rightarrow$ Skills and know-how of the labor force, trust and cooperation/collaboration, efficient judicial systems, clear property rights, effective government (Costanza et al., 2009)

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## Definitions II

### Trust

"Connections among individuals - social networks and the norms of reciprocity and trustworthiness that arise from them" (Putnam, 1995, p.67)

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## Questions

- ► **How is wealth at the macro-level connecting to subjective well-being at the micro level?**

- ► What are the links between wealth, trust, voluntary association membership and subjective well-being?

- ► Does living in a rich country make people more trustful? Happier?

- ► Does the link between subjective well-being and wealth depend on the structure of wealth?

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## State of the Art I

▶ The ability to cooperate has a key role in the development of territories (Banfield,1958; Coleman, 1988,1990; Putnam, 1993; Fukuyama, 1995).

▶ Measures of Trust
  ▶ Laboratory experiments
  ▶ Surveys → *World Value Survey*, *European Value Survey*

▶ Correlations between trust as measured with WVS and economic development has been demonstrated (Knack and Keefer, 1997; Tabellini, 2010), but the question of causality is still unresolved.

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## State of the Art II

▶ Trust also has an important impact on institutions (Algan, 2011; Aghion et al., 2010; La Porta et al., 1997; Bjørnskov, 2010; Bjørnskov and Meon, 2013).

▶ Links between trust and voluntary association membership have been demonstrated (Curtis et al., 2001; Paxton, 2007; Nannestad et al., 2008).

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## Theoretical Foundations I

- ▶ Our wealth creation model is based on Ekins (1992, 2000)
- ▶ Utility and welfare is not about much people consume, but how they consume - so how the production process impacts the capital stocks.

## Data I

- ▶ Survey Data:
    - ▶ Trust
    - ▶ Voluntary Association Membership
    - ▶ Subjective Well-being
- ▶ Capital Data

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## Trust Index I

Data from the World Value Survey, 2005-2014.

*Generally speaking, would you say that most people can be trusted, or that you can't be too careful when dealing with others?*

Answers can be "Most people can be trusted" or "Need to be very careful" Trust is measured as a dummy, which is equal to 1 if the individual declared that "Most people can be trusted",0 elsewhere.

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## Voluntary Association Membership I

*Now I am going to read off a list of voluntary organizations. For each organization, could you tell me whether you are an active member, an inactive member or not a member of that type of organization?: "sport or recreation organization", "art, music or educational organization", "environmental organization", or "charitable or humanitarian organization"*

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## Subjective Well-being I

> *All things considered, how satisfied are you with your life as a whole these days? Using this card on which 1 means you are "completely dissatisfied" and 10 means you are "completely satisfied" where would you put your satisfaction with life as a whole?*

The association membership is measured as a dummy, which is equal to 1 if the individual declared to be a member at least for one of the associations,0 elsewhere.

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## Other Data I

Following the World bank calculations:

- ▶ Data from the World Bank (2006), calculations on 2005.
- ▶ The measure of total wealth is built upon the intuitive notion that current wealth must constrain future consumption;
- ▶ Produced capital comprises machinery, structures, and equipment;
- ▶ Natural capital comprises agricultural land, protected areas, forests, minerals, and energy.

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## Other Data II

▶ Intangible capital is measured as a residual, the difference
between total wealth and produced and natural capital. It
implicitly includes measures of human, social, and institutional
capital, which includes factors such as the rule of law and
governance.

The other data (control variables) comes from UNDP, WB, CIA,
Worlwide Governance Indicators, Yale Center for Environmental
Law and Policy and the Center for International Earth Science
Information Network.

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## Recursive mixed-process model I

In order to control for the simultaneity of trust and voluntary association membership, and potential endogeneity with subjective well-being, we estimate an original recursive mixed-process model using the Conditional Mixed-Process (CMP) algorithm developed by Roodman, 2011. We have therefore for an individual $i$ in a country $j$:

$$\begin{cases} y_1^* = \alpha_1 \cdot Z + \beta_1 \cdot X_1 + \gamma_1 \cdot C + \mu_1 \cdot K + \epsilon_1 \\ z_1^* = \beta_2 \cdot X_2 + \gamma_1 \cdot C + \mu_1 \cdot K + \epsilon_2 \\ z_2^* = \beta_3 \cdot X_3 + \gamma_1 \cdot C + \mu_1 \cdot K + \epsilon_3 \end{cases} \quad (1)$$

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## Recursive mixed-process model II

The system includes an ordered probit and two binary probit, i.e.

$$\begin{cases} y_1 = p \text{ if } \tau_{p-1} < y_1^* < \tau_p \text{ with } p = 1, ..., 10, \ \tau_0 = -\infty \text{ and } \tau_{10} = \infty \\ z_j = 1 \text{ if } z_j^* > 0 \text{ and } z_j = 0 \text{ if } y_j^* \leq 0 \text{ with } j = 1, 2 \end{cases}$$

(2)

$\rho_{ij}$ the correlation between $\epsilon_i$ and $\epsilon_j$.

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## Recursive mixed-process model III

| Variables | Sub. Well-being | Vol. Ass. Mem. |
|---|---|---|
| Probit model | | |
| **Trust** | 0.111*** | |
| **Vol. Ass. Mem.** | 0.0639 | |
| $\rho_{i;j}$ | | |
| Trust | 0.0053 | 0.0704*** |
| Asso | 0.0127 | |

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## Impact of Socio-demographic variables I

▶ More the respondent is old, more the probability to trust each other is increasing, with respect to young people under 25. Inversed U-curve relationship regarding association membership and LS.

▶ Regarding education, being graduate increase the probability to trust each other. Controversial effect on LS.

▶ Status has an impact on trust. Statuses requiring networks and social interaction (self-employed, students) have a positive one while statuses fostering isolation (unemployed, housewife, retired) have a negative one. Being unemployed and retired has a negative impact on LS.

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## Impact of Socio-demographic variables II

▶ The probability to trust each other, to be a volunteer and to
  be satisfied with his/her own life is increasing with the
  income's scale of the respondent.

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# Unconditional Average Marginal Effects

Table: Unconditional average marginal effects

| VARIABLES | Trust | Asso |
|---|---|---|
| TotalWealth | 1.02e-07*** | 3.42e-07*** |
| | (1.87e-08) | (1.50e-08) |
| perc_intangible | -0.230*** | -0.496*** |
| | (0.0153) | (0.0130) |

Lecture: $N = 106,622$; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$; bootstrapped

standard errors (based on 100 replications) in parentheses.

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# Unconditional Average Marginal Effects I

Table: Unconditional average marginal effects

| VARIABLES | Life S.(1) | Life S.(2) | Life S.(3) | Life S.(4) | Life S.(5) |
|---|---|---|---|---|---|
| Trust | -0.00576*** | -0.00320*** | -0.00543*** | -0.00587*** | -0.0106*** |
| | (0.000412) | (0.000232) | (0.000392) | (0.000451) | (0.000832) |
| Asso | -0.00344 | -0.00189 | -0.00318 | -0.00341 | -0.00609 |
| | (0.00414) | (0.00230) | (0.00390) | (0.00421) | (0.00753) |
| TotalWealth | -2.93e-08*** | -1.53e-08*** | -2.49e-08*** | -2.58e-08*** | -4.32e-08*** |
| | (2.16e-09) | (1.29e-09) | (1.83e-09) | (1.94e-09) | (3.25e-09) |
| perc_intangible | -0.0219*** | -0.0106*** | -0.0166*** | -0.0164*** | -0.0256*** |
| | (0.00152) | (0.000938) | (0.00155) | (0.00185) | (0.00346) |

Lecture: $N = 106,622$; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$; bootstrapped standard

errors (based on 100 replications) in parentheses; Life S.(i) correspond to the i level of

Life Satisfaction (with $i = 1, ..., 10$).

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# Unconditional Average Marginal Effects II

Table: Unconditional average marginal effects

| VARIABLES | Life S.(6) | Life S.(7) | Life S.(8) | Life S.(9) | Life S.(10) |
|---|---|---|---|---|---|
| Trust | -0.00598*** | -0.00243*** | 0.00817*** | 0.00962*** | 0.0215*** |
| | (0.000447) | (0.000209) | (0.000593) | (0.000716) | (0.00163) |
| Asso | -0.00337 | -0.00123 | 0.00489 | 0.00556 | 0.0122 |
| | (0.00421) | (0.00160) | (0.00598) | (0.00688) | (0.0150) |
| TotalWealth | -2.12e-08*** | -2.61e-09*** | 4.17e-08*** | 4.08e-08*** | 7.98e-08*** |
| | (1.68e-09) | (6.78e-10) | (3.19e-09) | (2.98e-09) | (6.21e-09) |
| perc_intangible | -0.0108*** | 0.00227 | 0.0291*** | 0.0253*** | 0.0452*** |
| | (0.00217) | (0.00145) | (0.00213) | (0.00304) | (0.00764) |

Lecture: $N = 106,622$; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$; bootstrapped standard errors (based on 100 replications) in parentheses; Life S.(i) correspond to the i level of Life Satisfaction (with $i = 1, ..., 10$).

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# Interactions effects between Intangible Capital, level of Wealth and Trust



Figure: Interactions effects Wealth-Intangible Capital on Trust

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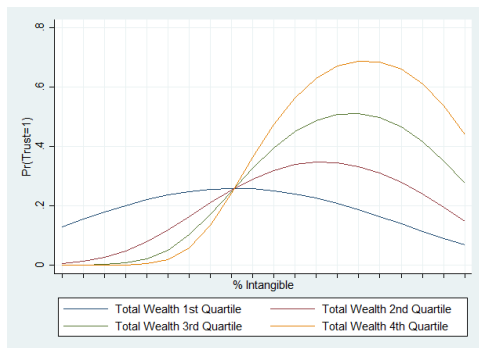
# Interactions effects between Intangible Capital, level of Wealth and Voluntary Association Membership



Figure: Interactions effects Wealth-Intangible Capital on Trust

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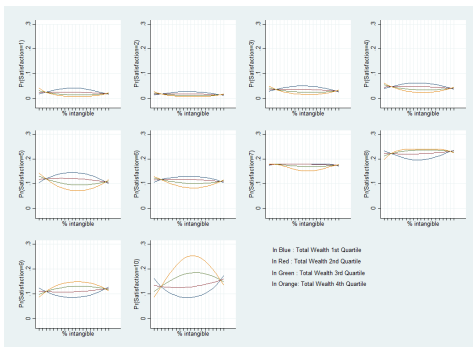
# Interactions effects between Intangible Capital, level of Wealth and Subjective Well-being



Figure: Interactions effects Wealth-Intangible Capital on Subjective Well-being

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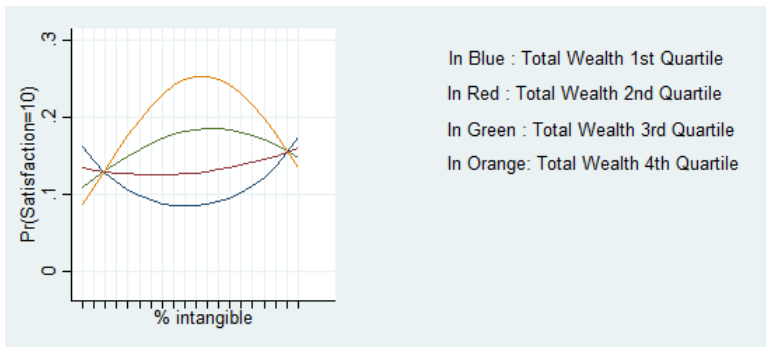# Interactions effects between Intangible Capital, level of Wealth and Subjective Well-being



In Blue : Total Wealth 1st Quartile

In Red : Total Wealth 2nd Quartile

In Green : Total Wealth 3rd Quartile

In Orange: Total Wealth 4th Quartile

Figure: Interactions effects Wealth-Intangible Capital on Subjective Well-being

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## Conclusions I

### Result 1
Living in a rich country make people more trustful, but the link is not linear and depend on the level and the structure of wealth.

### Result 2
The interpersonal trust and the voluntary association membership seem to share the same driving forces but do not have the same effect on life satisfaction.

### Result 3
The subjective well-being of an individual is affected by the level and the structure of the wealth of the country where he belongs to.

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## Conclusions II

### Result 4
The role of social capital is preponderant, for the wealth of a country, for the well-being of individuals, but the mechanisms at work are not the same for all countries.

## THANK YOU FOR YOUR ATTENTION

*Any questions?*

Contact: *anne.musson@essca.fr*

A. Musson, D. Rousselière
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