

# **Food and Values: How a European diet may shape cultural change?**

SHCHERBAK Andrey  
LCSR, HSE

**Cultural and Economic Changes under  
Cross-National Perspective  
Moscow, 19<sup>th</sup> November, 2015**

- “The **nourishment** and **education** of their children is a charge so incumbent on parents for their children’s good, that nothing can absolve them from taking care of it.”
- John Locke, “*Two Treatises on Government*”

# Introduction

- **The key question:**
  - **What do post-materialists eat?**
  - *Or what should people eat to become post-materialists?*

# Introduction

- If values are so important, one must observe clear material manifestation of emancipative values
- Food and diet are among the most evident candidates

# Diet and Modernization

- Western life style might be strongly associated with a European diet
- **Diet as an independent factor of modernization and cultural change**
- The effect of income growth?
- First, people start consuming more calories; second, they replace 'cheap' calories (from carbohydrates) on 'expensive' ones (from proteins), and, finally, on 'very expensive' (from animal proteins).

# Diet and Modernization

- In general, it is one of mechanisms behind existential security. It is the better foods – in terms of amount of calories and amount of proteins – what makes people feel safer.
- Improvement in diet is always associated with prestigious consumption (elite practices). Historically, the poor were vegetarians – with poor monocereal diets.
- Throughout human history chronic malnutrition was a norm, even in the most developed Western societies.

# Motivation

- Certain social effects of particular crops:
  - Wheat vs. rice (Talhelm et al., 2014)
  - Wheat vs. sugar cane (Fairbrother, 2013)
  - Potato (Nunn and Qian, 2011)
- Genes and Food traditions
  - Milk, alcohol, sugar, mushrooms, starch, beans etc. (Borinskaya et al., 2009). Specific food intolerance
- Obesity
  - top-10 most obese countries in the world (BMI 30+, according the WHO data)?

# A European Diet

- It is a protein rich, especially animal protein rich, sugar rich and alcohol rich diet (meat, dairy products, alcohol, and desserts - and with relatively low share of cereals diet).
  - Abundance of dairy products
  - Advantages of modernization: new crops and animals from other continents
  - New technologies: fossil fuels, railroads, refrigeration etc.
- Increase in calories intake, then – improvement of diet



# A European Diet



# Hypothesis

- H1: Change in diet has positive effect on value shift after controlling for income growth.

# Data

- DV is the **Emancipative values index** (Welzel 2013); for waves 3 and 6
- Control variable is **Income**, as (log) GDP per capita, PPP, for 1997 and 2011.
- From the FAOSTAT's food balance sheets:
  - **Calories** – Food supply, kcal/capita/day
  - **Proteins** – proteins supply quantity, g/capita/day
  - **Animal proteins** – Average supply of protein of animal origin (3-years average), g/capita/day
  - **Fats** – Fat supply quantity, g/capita/day
  - **Animal products**, kcal/capita/day
  - **Vegetal products**, kcal/capita/day
- kcal/capita/day:
- **Cereals** (excluding beer), **Starchy roots**, **Sugar** and sweeteners, **Pulses**, **Vegetables**, **Fruits** (excluding wine), **Alcoholic beverages**, **Meat**, **Milk** (excluding butter), **Fish& seafood**.
- all these figures as shares of daily calories intake

# Data

- **Overweight** – BMI (25+) WHO
- **Obesity** – BMI (30+) WHO
- **Vegetarians** – share of vegetarians by country, various sources. For 28 countries only.

# Methods

- 1) exploratory tests: correlation and OLS
- 2) PCA – to define a ‘European diet’
- 3) SEM – to test the relationship between diet and values

# *Emancipative Values and basic nutritional indicators (2011)*

	<b>Calories cap/day</b>	<b>Fat supply, g/capita/day</b>	<b>Protein supply, g/capita/day</b>	<b>Animal proteins, g/capita/day</b>
<b>EVI</b>	0.442*** N=101	0.672*** N = 101	0.538*** N = 101	0.741*** N = 97

# *Emancipative Values, nutrition indicators and development (2011)*

	<b>GDP cap, ppp 2011</b>	<b>HDI 2011</b>	<b>Freedom House 2011</b>	<b>animal products, % daily calories</b>	<b>vegetal products, % daily calories</b>
<b>EVI</b>	<b>0,435***</b> N = 101	<b>0,675***</b> N = 104	<b>-0,729***</b> N = 103	<b>0,708***</b> N = 99	<b>-0,711***</b> N = 99
<b>animal products, % daily calories</b>	<b>0,650**</b> N = 97	<b>0,806***</b> N = 98	<b>-0,595***</b> N = 98	1	<b>-0,998***</b> N = 99
<b>vegetal products, % daily calories</b>	<b>-0,651***</b> N = 97	<b>-0,807***</b> N = 98	<b>0,598***</b> N = 98	<b>-0,998***</b> N = 99	1

# OLS: *Emancipative Values and diet*

	<i>Standardized Beta-coefficients</i>	
	<i>Model 1</i>	<i>Model 2</i>
<b>Log income</b>	<b>0.782***</b> <b>(0.014)</b>	<b>0.584***</b> <b>(0.014)</b>
<b>Log calories</b> <b>(kcal/capita/days)</b>	-0.187 (0.092)	-
<b>Log proteins</b> <b>(g/capita/days)</b>	-	0.069 (0.058)
<i>Adjusted R2</i>	<i>0.407</i>	<i>0.395</i>
<i>N observations</i>	98	98



# OLS: *Emancipative Values and diet (2)*

	<i>Standardized Beta-coefficients</i>	
	<i>Model 3</i>	<i>Model 4</i>
<b>Log income</b>	<b>0.306**</b> <b>(0.016)</b>	<b>0.262**</b> <b>(0.011)</b>
<b>Log animal proteins (g/capita/day)</b>	<b>0.399***</b> <b>(0.026)</b>	-
<b>Animal products, % daily calories</b>	-	<b>0.514***</b> <b>(0.119)</b>
<i>Adjusted R2</i>	<i>0.452</i>	<i>0.521</i>
<i>N observations</i>	<i>96</i>	<i>97</i>

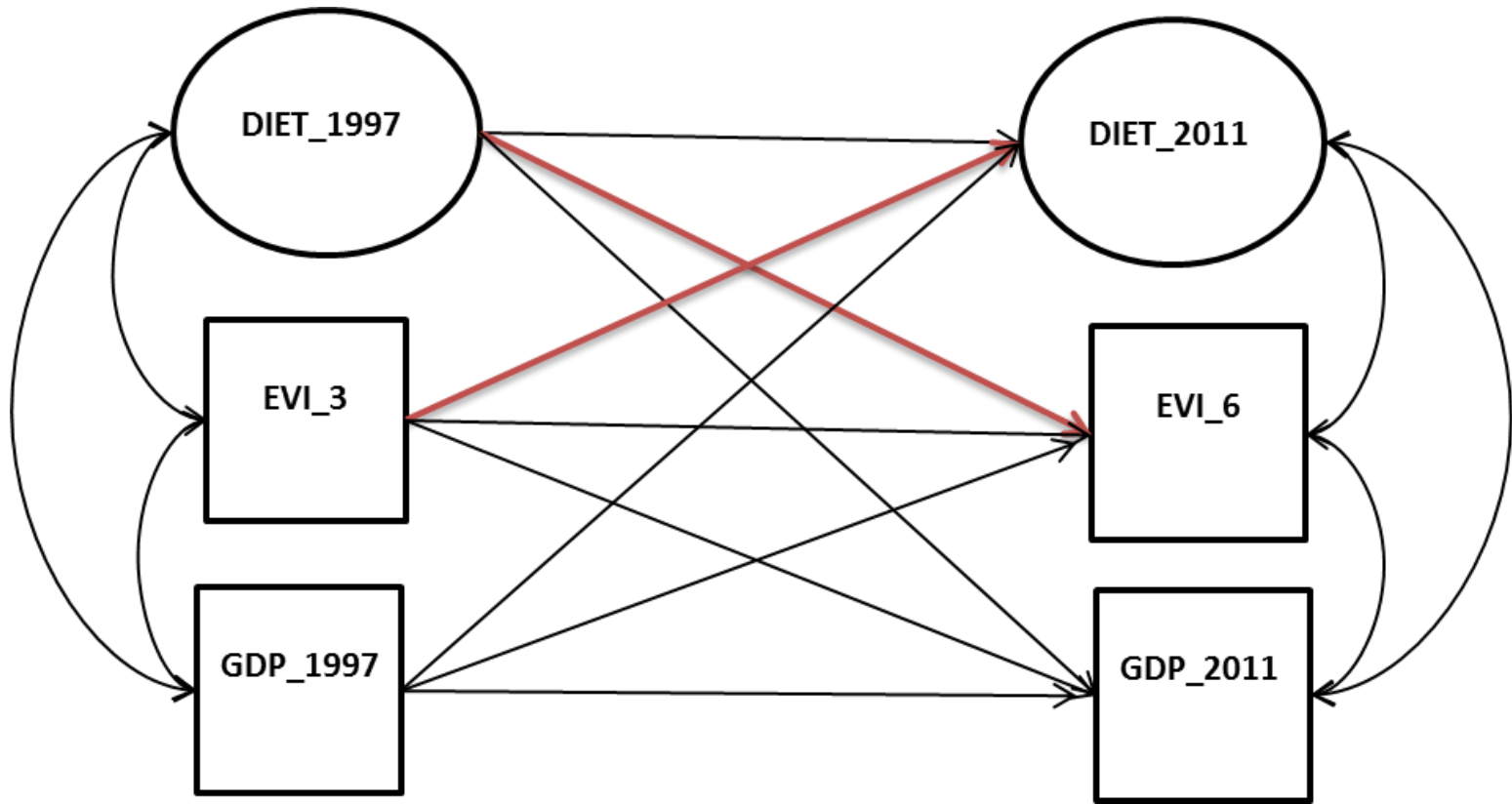
# *PCA of nutritional components*

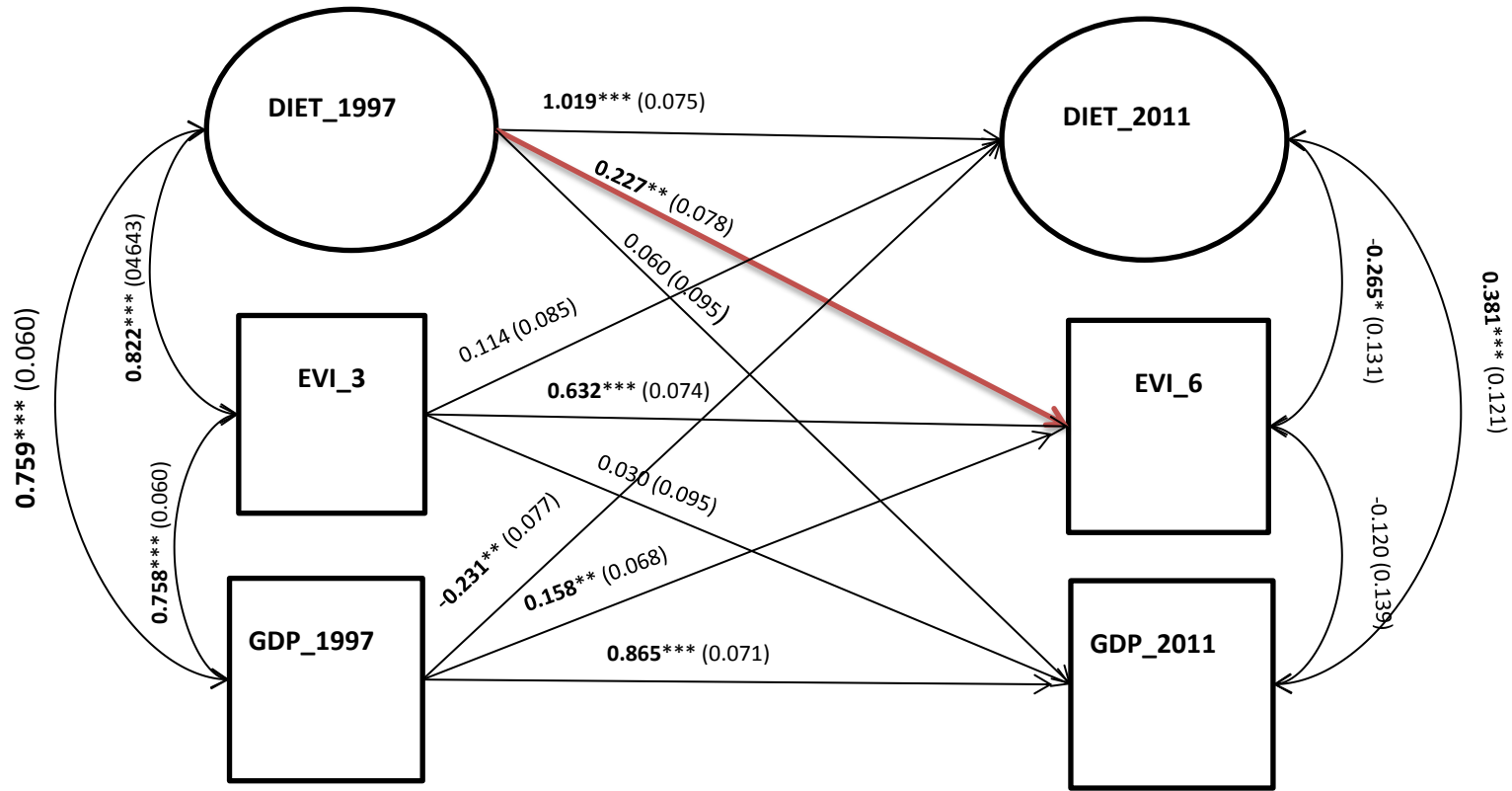
<b>Rotated matrix of components</b>				
	Component			
	1	2	3	4
<b>Sugar</b> , % daily calories	<b>,452</b>	<b>-,492</b>	<b>-,267</b>	<b>-,464</b>
<b>Fruit</b> , % daily calories	<b>,175</b>	<b>,828</b>	<b>-,176</b>	<b>,007</b>
<b>Vegetables</b> , % daily calories	<b>,067</b>	<b>-,129</b>	<b>-,055</b>	<b>,901</b>
<b>Cereals</b> , % daily calories	<b>-,925</b>	<b>-,229</b>	<b>-,103</b>	<b>,027</b>
<b>Meat</b> , % daily calories	<b>,681</b>	<b>-,329</b>	<b>,318</b>	<b>,117</b>
<b>Fish</b> , % daily calories	<b>,162</b>	<b>-,067</b>	<b>,872</b>	<b>-,042</b>
<b>Milk</b> , % daily calories	<b>,718</b>	<b>-,240</b>	<b>-,210</b>	<b>,284</b>
<b>Alcohol beverages</b> , % daily calories	<b>,634</b>	<b>,054</b>	<b>,268</b>	<b>-,147</b>
<b>Starchy roots</b> , % daily calories	<b>-,083</b>	<b>,863</b>	<b>,107</b>	<b>-,094</b>
<b>Pulses</b> , % daily calories	<b>-,283</b>	<b>,597</b>	<b>-,405</b>	<b>-,307</b>

# the European Diet factor and development indicators

	<b>GDP cap, ppp 2011</b>	<b>HDI 2011</b>	<b>Freedom House 2011</b>	<b>EVI</b>
<b>European diet factor (2011)</b>	<b>0.594***</b> N = 96	<b>0.733***</b> N = 97	<b>-0.614***</b> N = 97	<b>0.677***</b> N = 98

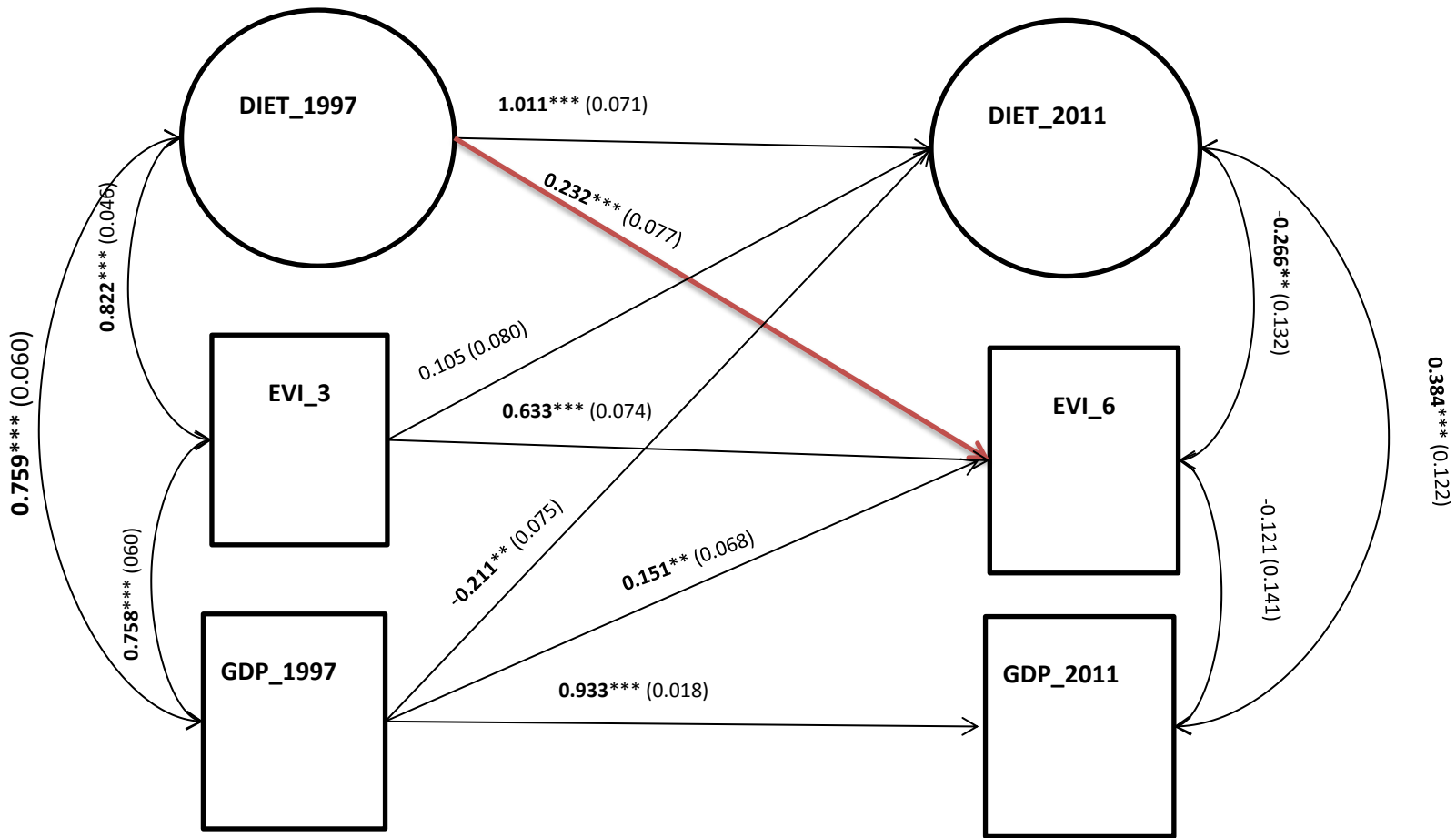
# SEM





$\chi^2 = 0$ ,  $df = 0$ ,  $p = 0$ , CFI = 1.000, RMSEA = 0.000, SRMR = 0.000. N = 50

this model is just identified



$\chi^2 = 1.073$ ,  $df = 2$ ,  $p = 0.5847$ ,  $CFI = 0.000$ ,  $RMSEA = 0.000$ ,  
 $SRMR = 0.012$ .  $N = 50$

# Discussion

- Improvement in diet (increased share of animal proteins) has independent, strong and positive effect on value shift
- **What do post-materialists eat? They eat animal-protein rich products.**
- OR: No animal proteins – no transition to post-materialism

# Discussion

- **A good diet is a universal feature of middle class**
- It can be interpreted within the existential security concept of the revised modernization theory: food abundance but not monetary income
  - Praying before meal but not before payday!



# Discussion

- Significant shift in social stratification: animal proteins are not only for the rich, but for all people
- A macrohistorical perspective: return to an animal protein rich diet. From a hunter-gatherer society – to agrarian empires – and to emancipation. People want this kind of diet.

# Discussion: The best advocates for modernization?



# Conclusion

- Further steps:
  - Are there ‘democratic’ and ‘authoritarian’ diets?
  - Modernization and vegetarianism?
    - Correlation between EVI and share of vegetarians:
      - $r = -0.363$ ,  $p = 0.058$ ,  $N = 28$ ; if India is excluded –  $r = 0.007$ ,  $p = 0.974$
  - Modernization and obesity?
    - BMI: post-materialists are not obese ( $r = 0.024$ ,  $p = 0.845$ ,  $N = 71$ ) but have slight overweight ( $r = 0.258$ ,  $p = 0.036$ ,  $N = 66$ )
  - More emphasis on theoretical framework

# Conclusion

- Practical implications
  - An alternative measure for (objective) well-being?
  - Important for policy-makers

- **THANK YOU FOR YOUR ATTENTION!**

This report was presented at the 5th LCSR International Annual Conference “Cultural and Economic Changes under Cross-national Perspective”.

November 16 – 20, 2015 – Higher School of Economics, Moscow, Russia.

<http://lcsr.hse.ru/en/conf2015>

Настоящий доклад был представлен на V ежегодной международной конференции ЛССИ «Культурные и экономические изменения в сравнительной перспективе».

16-20 ноября 2015 года – НИУ ВШЭ, Москва, Россия.

<http://lcsr.hse.ru/en/conf2015>