

Quantitative Economics for the Evaluation of the European Policy

Dipartimento di Economia e Management

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Irene Brunetti Davide Fiaschi Angela Parenti¹

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¹ireneb@ec.unipi.it, davide.fiaschi@unipi.it, and aparenti@ec.unipi.it.

Agriculture vs OB2 funds

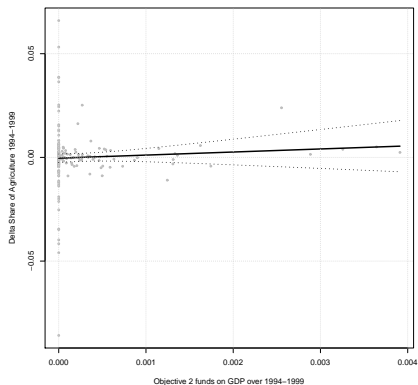


Figura: Relationship between change in share of agriculture versus OB2 1994:1999

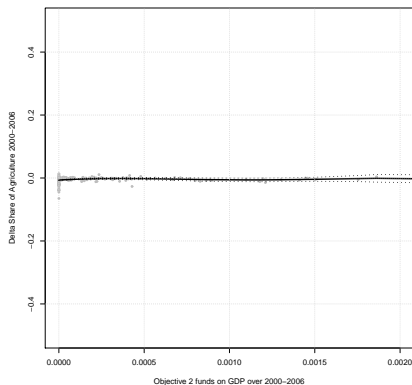


Figura: Relationship between change in share of agriculture versus OB2 funds 2000:2006

Manufacturing vs OB2 funds

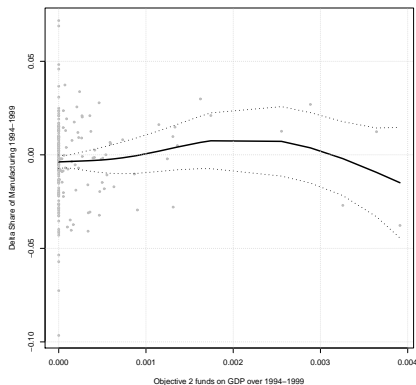


Figura: Relationship between change in share of manufacturing versus OB2 1994:1999

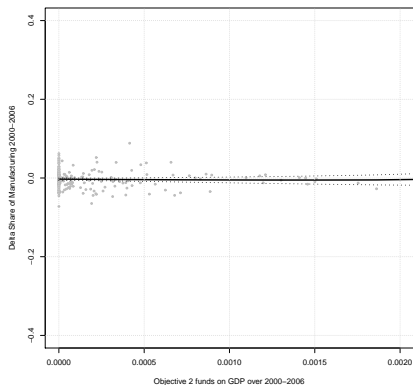


Figura: Relationship between change in share of manufacturing versus OB2 funds 2000:2006

Other market services vs OB2 funds

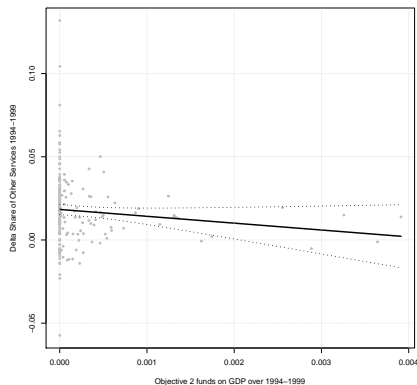


Figura: Relationship between change in share of other market services versus OB2 1994:1999

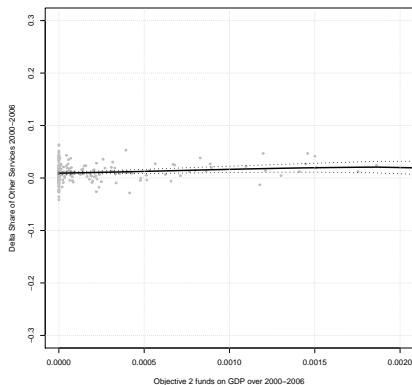


Figura: Relationship between change in share of other market services versus OB2 funds 2000:2006

- Solow model with poverty trap or better **multiple equilibria** (but why only two?)
 - ☑ **endogenous investment rate**
 - ☑ **endogenous growth rate of population/employment**
 - ☑ **increasing returns to scale (change in output composition)**
 - ⇨ **endogenous level of human capital**
- Solow and **limited technological spillovers**
- Solow with open economy and **factor reallocation** across regions
- Solow with open economy, factor reallocation across countries, and limited technological spillover
- Solow with **two sectors** and factor reallocation across regions (core-periphery, i.e. North-South model)
- Solow with **many intermediate goods**

Human capital in European regions

Could human capital explain the differences in GDP per worker in European regions?

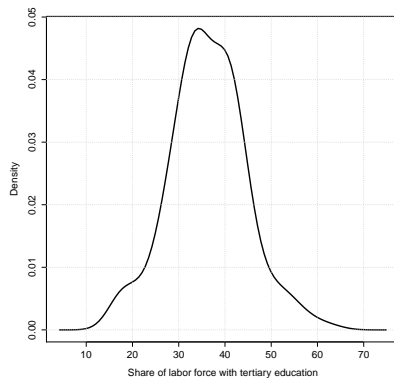


Figura: Distribution of the share of employment with tertiary education in European regions

Main issues about human capital

Main issues:

- How human capital is accumulated
- How is possible to measure it
- How is possible to favour the accumulation of human capital?

The theory of human capital

Remind standard Solow model:

$$\dot{k} = sf(k, h) - (\delta + g_A + n)k, \quad (1)$$

where

$$k \equiv \frac{K}{AL}, \quad f \equiv F\left(\frac{K}{AL}, h\right) \equiv f(k, h) \quad \text{and} \quad f_k > 0, f_{kk} < 0 \quad (2)$$

and s and n are the exogenous saving/investment rate and growth rate of employment, h the level of human capital, δ the depreciation rate of physical capital, and g_A the growth rate of technological change.

⇒ **Now we want to formulate a theory of the level (dynamics) of h**

Suppose that the accumulation of human capital can be expressed as:

$$\dot{h} = \Phi(h, y, s_h y, CN) - \delta_h (g_A) h, \quad (3)$$

with $\Phi_h > 0$, $\Phi_y > 0$, and $\Phi_{s_h} > 0$.

Why these explanatory variable?

- h : **spillover effects** deriving from living in a “skilled” environment (Lucas, Durlauf, Brock and Durlauf, etc.)
- y : **learning by doing** (Arrow and Lucas)
- s_h : **financial investment in education/human capital** (Lucas, Galor and Zeira)
- CN : other determinants related to **cultural norms** (gender discrimination, etc.) (Weil)
- δ_h : depreciation of human capital due to various factors, among which the most important is the technological progress