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Total factor productivity and the
_ role of entrepreneurship

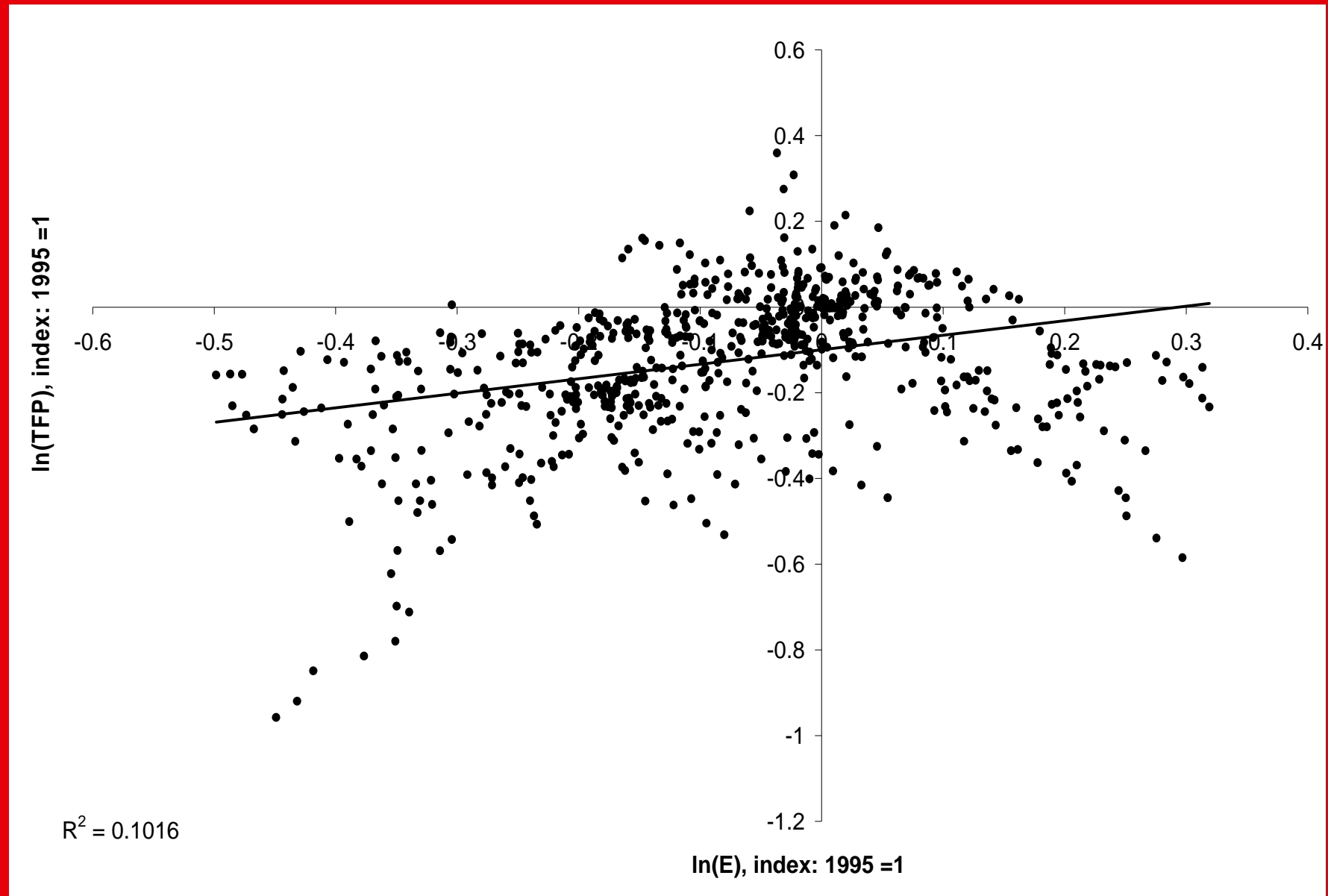
1. Productivity/economic growth and entrepreneurship: what do we know?
2. Design of study
3. Results
4. Conclusions

"Researchers argue about the link between entrepreneurship and growth, but everybody wants entrepreneurship, even if the link to growth is not clear"

(OECD, 2006, p. 3), Tim Davis

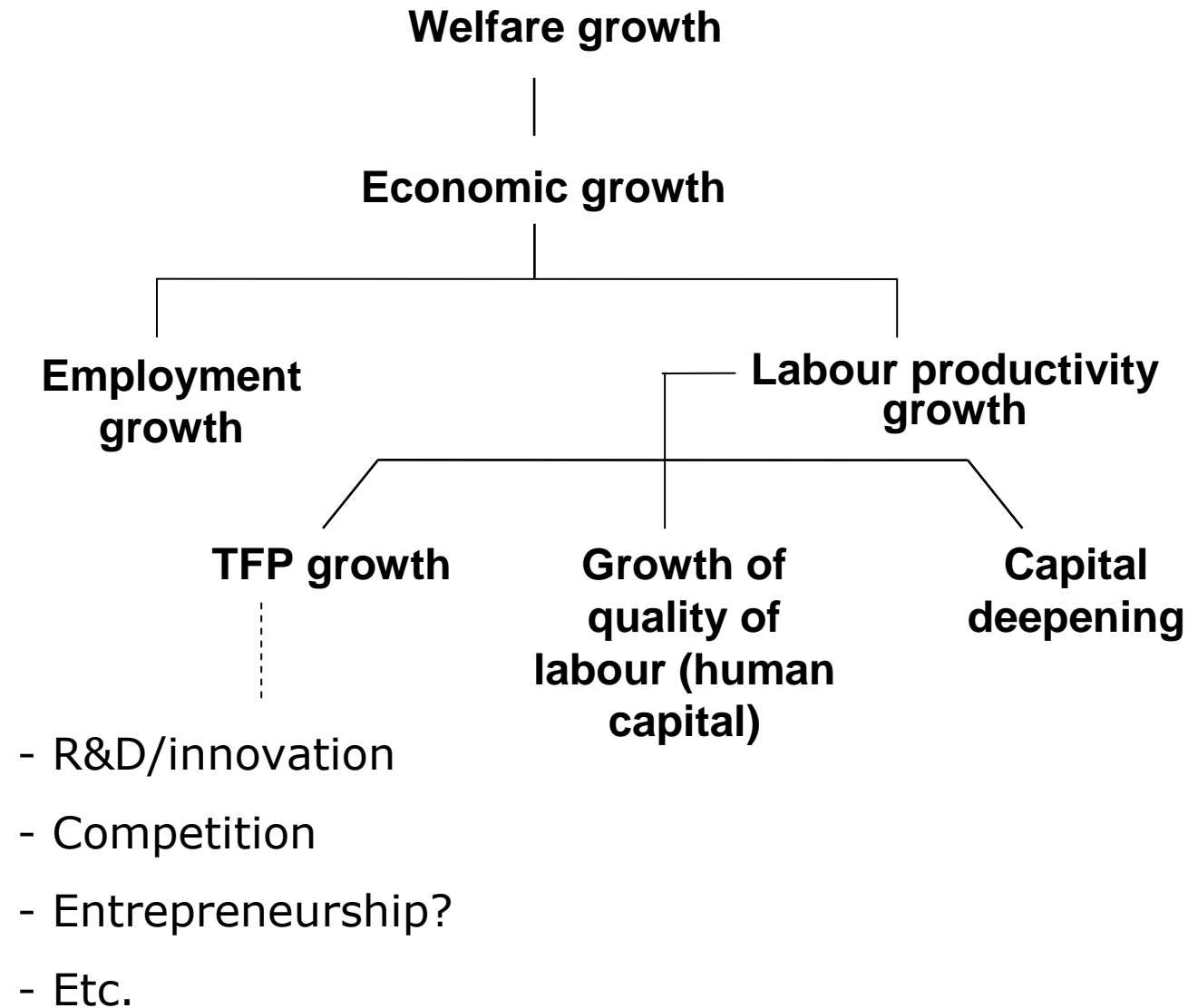
- Theory:
 - neo-classical growth theory
 - endogenous growth theory
 - Knowledge filter: Acs, Audretsch, Braunerhjelm and Carlsson (2005)
- Empirical work
 - employment and entrepreneurship
 - Short time series analysis: growth and productivity
- **Absent**: empirical work on the long-run relationship between entrepreneurship and productivity/growth (international panel)

Productivity and entrepreneurship



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Productivity and entrepreneurship

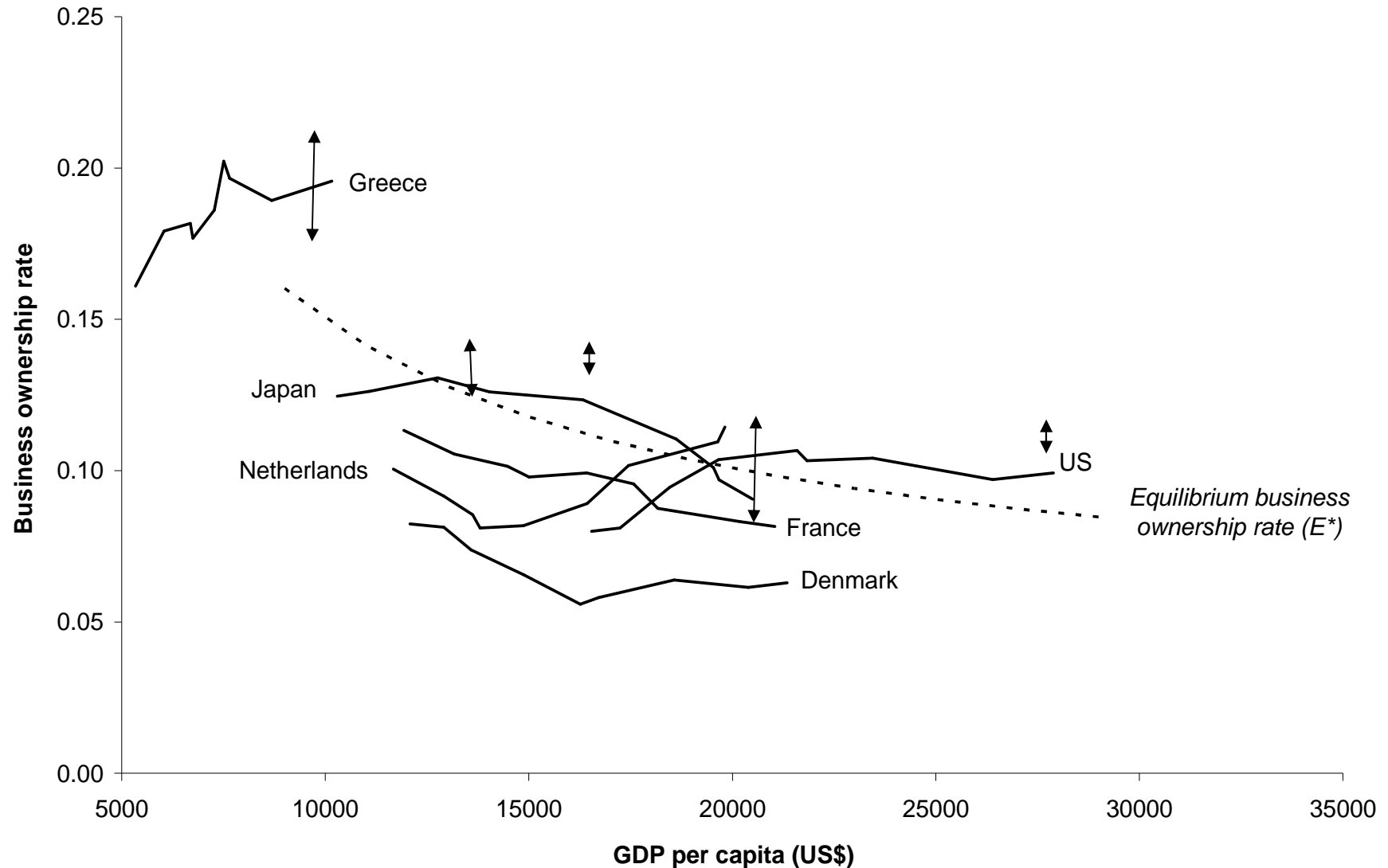


_Design of study

- Data: 1971-2002, 20 OECD countries
- 5 studies that explain productivity:
 - Coe and Helpman (1995): private R&D capital, both domestic and foreign **+ entrepreneurship**
 - Engelbrecht (1997): human capital **+ entrepreneurship**
 - Griffith, Redding and Van Reenen (2004): catching-up towards technological leader **+ entrepreneurship**
 - Guellec and Van Pottelsberghe (2004): public R&D capital **+ entrepreneurship**
 - Belorgey, Lecat en Mauri (2006): hours worked and participation **+ entrepreneurship**
- One 'all-in-the-family'-model: all mechanisms + controls (e.g. openness, competition)

_Design of study

- Carree, Van Stel, Thurik and Wennekers (2007)



_Design of study

Deviation of business ownership rate from 'equilibrium'
business ownership rate, 2004

	Business ownership rate (BOR)	'Equilibrium' BOR	Δ
Australia	15.9	9.6	6.3
Canada	12.1	9.4	2.7
Denmark	6.3	9.8	-3.5
Finland	8.2	9.9	-1.7
Germany	9.3	10.3	-1.0
Ireland	11.7	9.0	2.7
Italy	19.3	10.3	9.0
Netherlands	11.3	10.1	1.2
Norway	7.2	9.2	-2.0
Portugal	13.3	14.0	-0.7
Sweden	8.1	10.0	-1.9
US	10.1	8.6	1.5

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- Erken, Donselaar, Thurik (2008, forthcoming)
- Example: Belorgey model

Coefficients and variables	Belorgey <i>et al.</i> (2006)	Reproduction	With entrepreneurship
Labour participation	-0.50 (sign. at 10%)	-0.46 (-7.25)	-0.47 (-7.79)
Number of hours worked	-0.37 (sign. at 1%)	-0.64 (-15.53)	-0.65 (-15.41)
Autoregressive term (Y_{t-1})	0.248 (sign. at 5%)	0.14 (5.51)	0.13 (5.13)
Entrepreneurship	-	-	0.07 (3.23)
Country dummies?	Yes	Yes	Yes
Time dummies?	Yes	Yes	Yes
N (number of observations)	149	620	620

Average effect of entrepreneurship on the level of total factor productivity, in percentages, 3 periods

	1971-1981	1982-1992	1993-2003
Australia	1.8	4.6	6.5
Canada	-6.3	-0.9	3.6
Denmark	-7.4	-9.2	-7.4
Finland	-12.2	-7.9	-4.8
Germany	-8.6	-7.1	-3.6
Ireland	-12.4	-7.0	0.8
Italy	0.7	5.4	8.0
Netherlands	-5.1	-5.4	-0.3
Norway	-6.0	-4.5	-5.0
Portugal	-8.5	-5.5	0.0
Sweden	-8.7	-7.5	-4.2
US	-3.6	0.7	1.6

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- Not absolute business ownership is important, but deviation from 'equilibrium' business ownership rate!
- Entrepreneurship is a significant driver of productivity, independent of the model design
- Entrepreneurship variable does not disturb the effect of other drivers of growth
- The impact of a higher/lower than 'equilibrium' rate of business ownership on the level of productivity can be quite substantial