

The Macroeconomic Environment, the 2008 Global Financial Crisis and Self- Employment in 15 European Countries, 1999-2017




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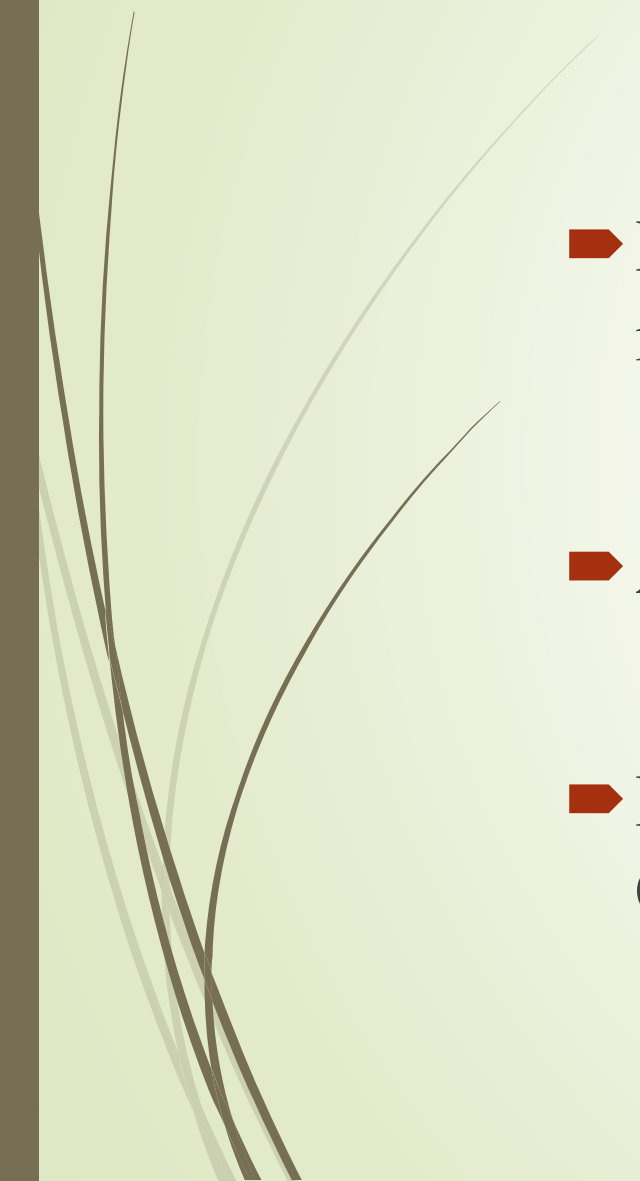


Project Goals

- The impact of business-cycle fluctuations on self-employment.
 - The effects of economic growth.
 - The effects of unemployment.
 - The impact of the global financial crisis (GFC) *per se* which is the focus of this presentation.
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Main Questions for this Presentation

- How has the 2008 Global Financial Crisis affected the incidence of self-employment?
 - Are the processes occupation-dependent?
 - Is the special case of the 2008 crisis relevant also for the Covid-19 case?
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The Business-Cycle and Self-Employment: Possible Implications

- “Supply-push” contradictory factors:
 - A recession reduces opportunity cost of paid employment and encourages workers to seek opportunities in self-employment.
 - Recession reduces business costs, thereby enhancing the formation of new enterprises.
- “Demand-pull” contradictory factors:
 - An economic boom increases income and demand, thereby creating new business opportunities;
 - An economic boom improves paid-employment opportunities
- Empirical studies find conflicting evidence.



Very Brief Literature Overview

- Arum and Müller (2004) already discuss the conflicting effects of a recession on self-employment.
- The empirical evidence is ambiguous.
 - E.G., Audretsch et al. (2015) explain that entrepreneurial activity depends not only on unemployment rates but also on human capital and skills of the unemployed.
- Henley (2015) in the U.K. shows that during the 2008 recession the “pull” factors outweighed the “push” ones (thereby reducing self-employment).

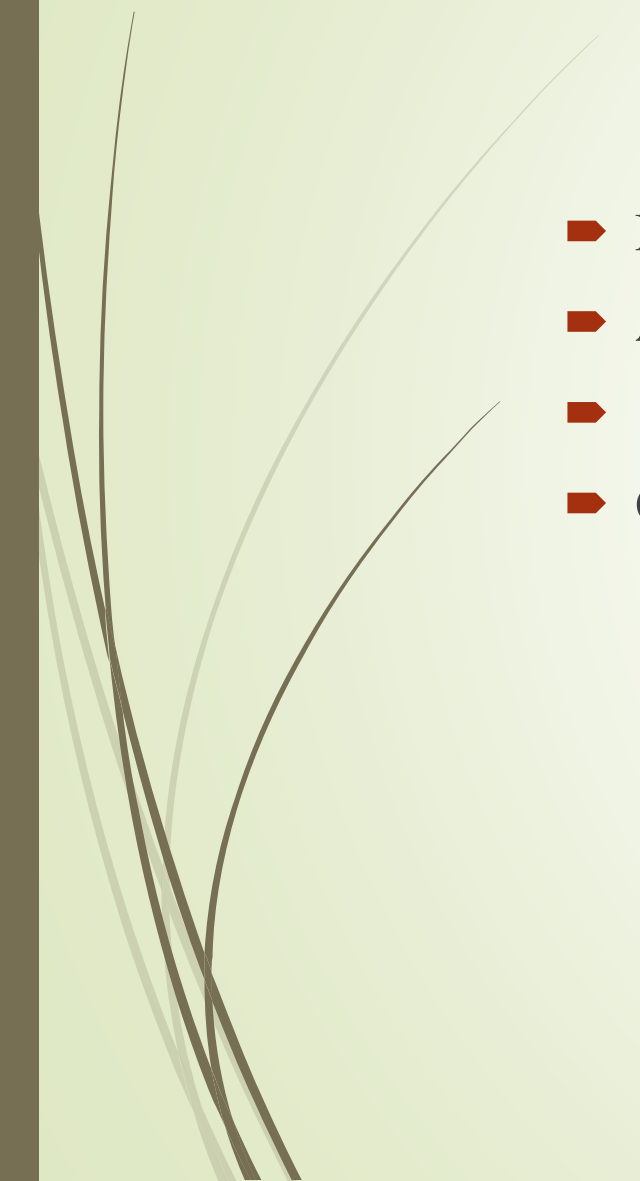


Our Study

- ▶ We use EU-LFS data, enhanced by some macro-economic indicators.
 - ▶ Data cover 1999-2017.
 - ▶ The countries included (15) are the “Old EU” countries + Switzerland, excluding Luxembourg due to its small size.
 - ▶ Included are: Austria, Belgium, Switzerland, Denmark, Germany, Spain, Finland, France, Greece, Ireland, Italy, Netherland, Portugal, Sweden, United Kingdom.
- ▶ Included in the sample are employed men, aged 25-64 (excluding those in the agricultural sector).
- ▶ The focus is on the solo self-employed, who are the vast majority among the SE and are more likely than self-employed employers to be affected by short-run swings in the business cycle.



Variables included: Individual Characteristics

- Marital status.
 - Age: 25-29, 30-59 (reference group), 60-64.
 - Education: less than tertiary (reference group), tertiary.
 - Occupational groups (as “specific human capital”):
 - professionals
 - technical workers
 - service workers
 - skilled manual workers
 - unskilled manual workers (not covered here due to small representation)
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Macroeconomic Variables

Control for macroeconomic environment

- First difference in real per-capita GDP growth rate (proxy for short-run expansion/contraction of market opportunities).
 - Chosen to neutralize the "business-as-usual" economic growth process.
 - Specifically, let: $g_t = \left(\frac{PC_GDP_t}{PC_GDP_{t-1}} - 1 \right)$ denotes the percentage growth of per-capita GDP from year t-1 to year t. Then, the first difference is: $\Delta g_t = g_t - g_{t-1}$.
- First difference in unemployment rate (proxy for changing tightness of the labor market).
 - Here, $\Delta Un_t = Un_t - Un_{t-1}$.



Crisis Indicator

- ▶ A *crisis dummy* which takes the values: 1 in every country-year recognized by the IMF (International Monetary Fund) as “a crisis year”; 0 otherwise (based on banking and financial events).
 - ▶ The IMF’s dating of crisis-years is based on “significant signs of *financial distress* in the *banking system*” and “significant banking policy intervention measures in response to significant losses in the banking system. ”
 - ▶ The same year might be a “crisis year” for some countries and not for others.

Figure 1: Evolution of the Average Values of the Macro Variables





Some Descriptive Statistics

Self-Employment over Time

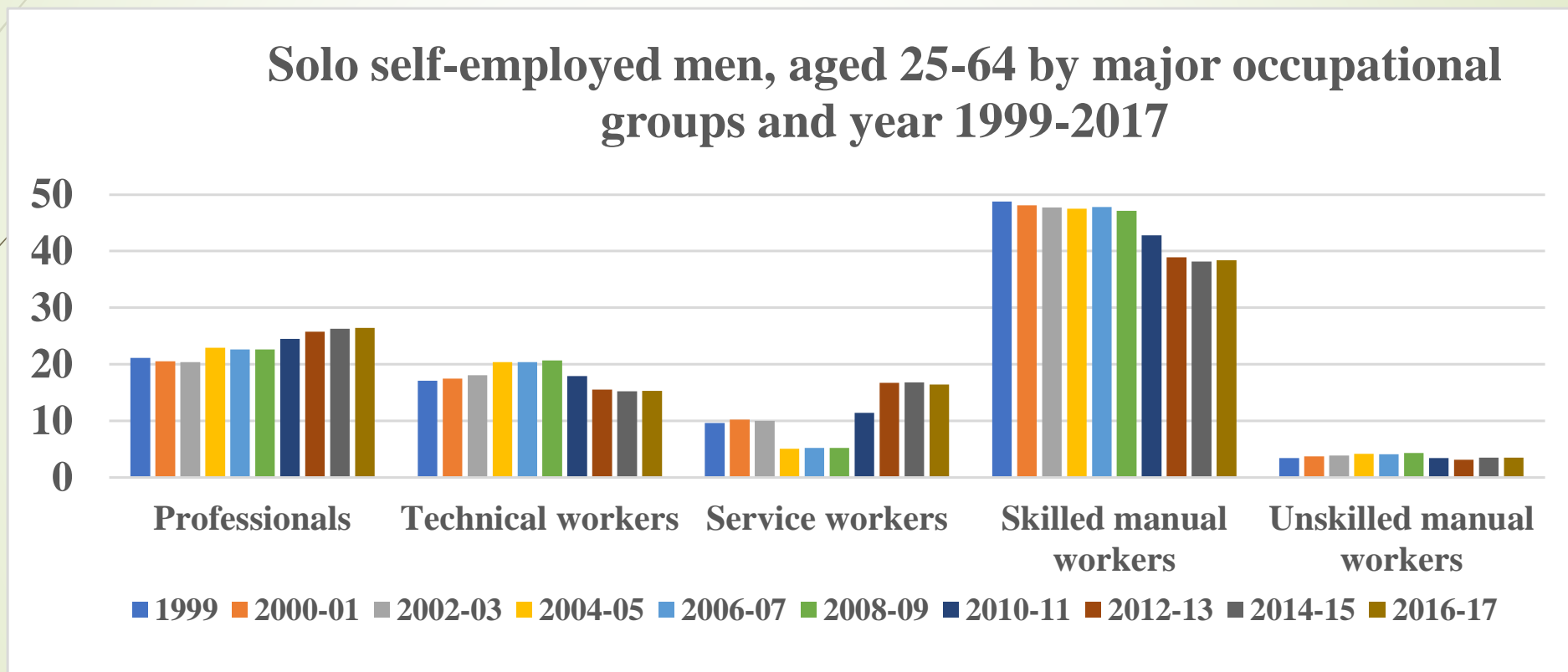




Self-Employment over Time

- Self-employment clearly rises, accelerating following the crisis, with a downward trend at the end.
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Distribution of Self-Employment by Occupation



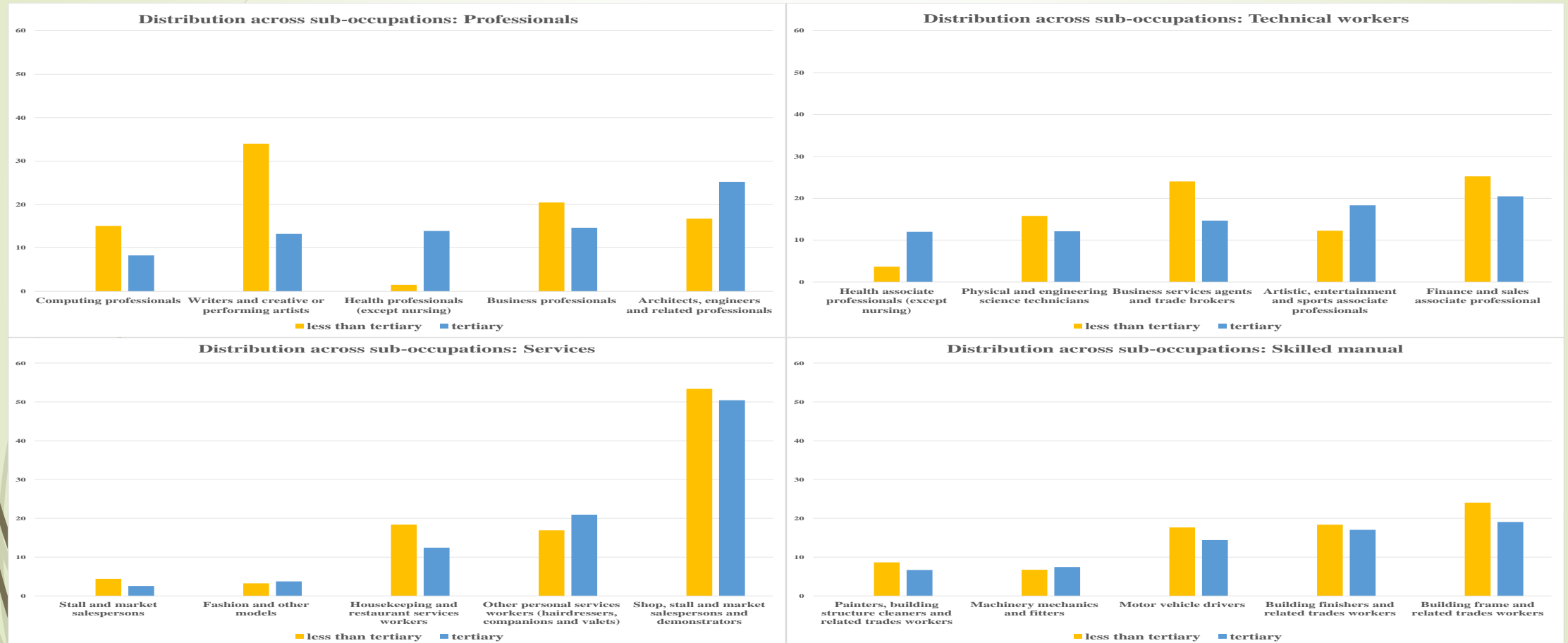
Note: The percentages are taken with respect to all solo self-employed men (100%) of each year (color).



Trends by Occupational Groups

- Most solo-SE are skilled manual workers, decreasing significantly after the crisis.
- Professionals' share is rising after the crisis.
- Technical workers' share is rising up to the crisis, then falling.
- Service workers' share significantly higher after the crisis than initially. Not clear what happened in the intermediate period, may be due to changing classification (particularly in Italy).

Distribution of the Self-Employed over Sub-Occupations by Education





Occupations and Education

- Professionals: different distributions across education groups, those with less than tertiary education concentrated in writing and performing arts.
- Technical workers: also different, though less so. Those with less than tertiary education significantly present in business and finance related occupations.
- Services and Skilled Manual: distribution almost the same for the two education groups.
- **These differences have bearing on the results of the multivariate analysis.**



Multivariate Analysis: Logistic Regressions

The Model

- ▶ We fit a logistic regression model predicting the probability that individual i , residing in country j at time t , is solo self-employed, denoted by $SE_{ijt} = 1$, or employee, i.e. $SE_{ijt} = 0$.
- ▶ Accordingly, we assume that

$$Pr[SE_{ijt} = 1 | X_{ijt}, C_{jt}] = \frac{\text{Exp}(\alpha X_{ijt} + \beta C_{jt})}{1 + \text{Exp}(\alpha X_{ijt} + \beta C_{jt})}$$

Where: X_{ijt} represents a vector of the individual's personal characteristics (age, education, marital status) with α denoting the corresponding coefficients, and C_{jt} his country's macroeconomic indicators at time t , with the associated coefficient vector β .

- ▶ All regressions include country and time fixed effects.

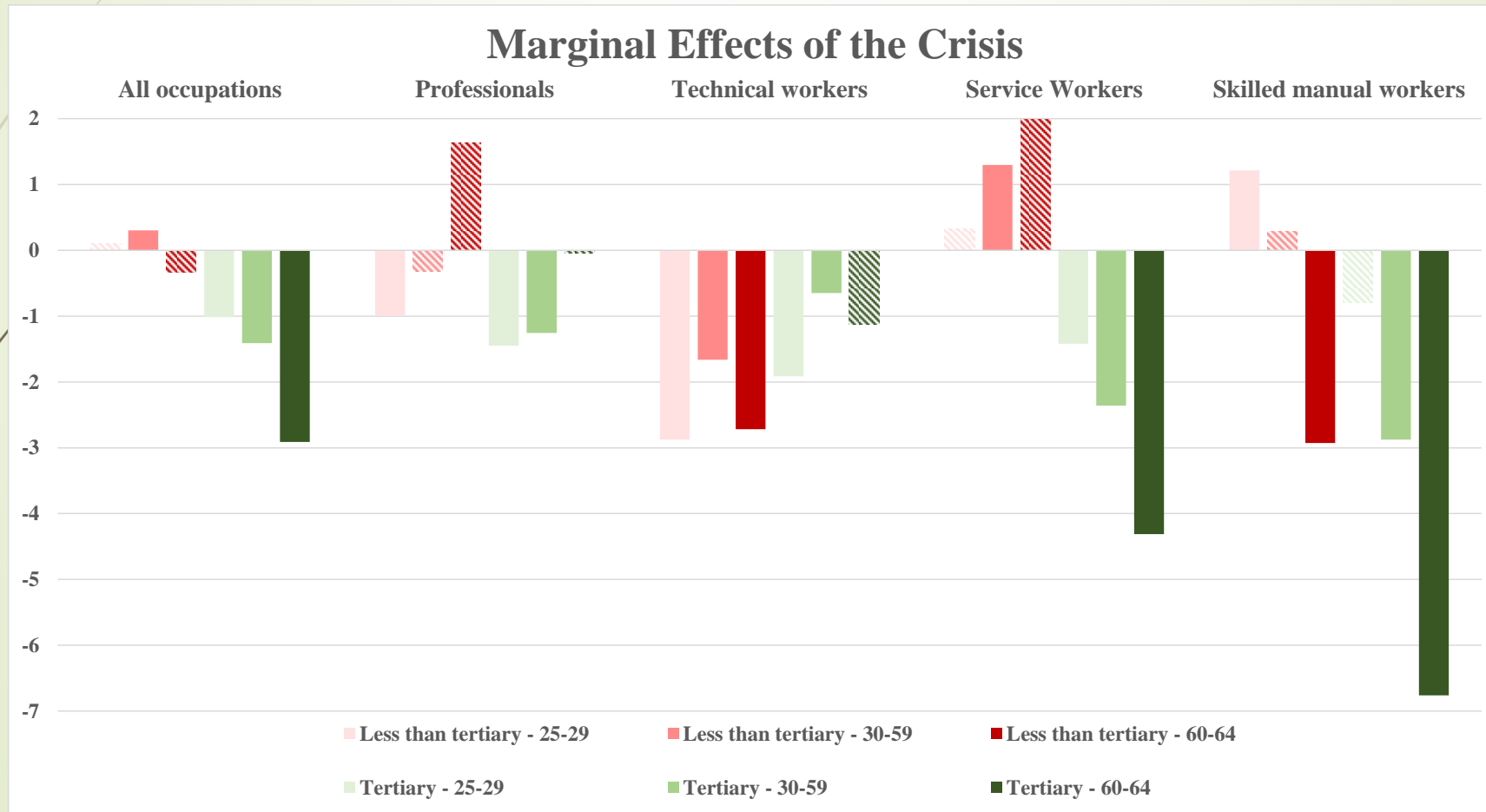
Regression Coefficients: Net Crisis Effects

	All *	Professionals	Technical workers	Services	Skilled Manual
Crisis	0.030*	-0.026	-0.164***	0.132***	0.027
Crisis#Tertiary	-0.180***	-0.091*	0.093*	-0.403***	-0.261***
Crisis#(25-29)	-0.015	-0.098	-0.235***	-0.062	0.147***
Crisis#(60-64)	-0.051*	0.115*	-0.003	-0.016	-0.219***

* Including all occupations

We summarize the results by implementing the *marginal effect* procedure for the crisis over occupation-education-age groups.

Marginal Effects



Shaded columns indicate "not significant"

Marginal Effect of Crisis on SE - 1

Using the *marginal effect* of the crisis on each age group/education combination, we find:

- Pooled sample:

- *Positive* for those with less than tertiary (LT) education at the main working-age.
- *Negative* for those with tertiary(T) education, increasing with age, replicated for service workers.

- Professionals:

- *Negative* for youngest age group of LT.
- *Negative* for youngest age and main working age, T.

Marginal Effect of Crisis on SE- 2

- Technical workers:
 - *Negative*, mainly for those with less than tertiary education and the young ones.
- Service workers:
 - Similar to pooled sample.
- Skilled manual workers:
 - *Negative* impact on T except the youngest group and the oldest LT age group .
 - *Positive* for the youngest LT group.

Possible Explanations

- **Professionals:** Employers of the main working-age T group keep them employed. Young may not find business opportunities.
- **Technical workers:** The larger negative effect on LT may be because they are mainly enrolled in business services and finance, which were particularly hit by the GFC.

Note: The distributions of **Services** and **Skilled Manual** workers over sub-occupations are not related to education and hence cannot help in providing explanations.

- **Services:** *Negative* for T workers and *positive* for LT (in main working age), possibly because:
 1. Educated workers perform more capital-intensive tasks requiring funding which is hard to obtain during the crisis.
 2. Employers fire the less-educated workers.

Answers to Questions

- ▶ How has the 2008 Global Financial Crisis affected the incidence of self-employment?

Answer: *In general, during the GFC the incidence of self-employment has decreased.*

- ▶ Are the processes occupation-dependent?

Answer: *Yes. Most strikingly where LT technical (↓) and service (↑) workers are concerned.*

- ▶ Is the special case of the 2008 crisis relevant also for the Covid-19 case?

Answer: *Yes in the broad sense, i.e. the specifics of the crisis matter; No in the particular sense, because the specifics are different.*

