Unemployment and Growth Aspirations:
The Moderating Role of Education

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Outline

• Motivation
• Theory and hypotheses
• Conceptual model
• Data and methodology
• Results
• Conclusions
MOTIVATION
Entrepreneurship and new firm growth

• Employment creation

• Regional development

• Social well being

• Indicator of firm success
Entrepreneurial growth aspirations (EGA)

• Positive relationship between aspirations and actual growth (Wiklund and Shepherd, 2003)

• External conditions and entrepreneur’s background have an impact on the formation of such aspirations (Acs and Autio, 2010; Estrin et al., 2013)

• Growth-oriented entrepreneurs:
  • Increase social welfare via...
    • Employment creation
    • Tax revenues
Drivers of EGA

- Human and financial K
- Start-up motivations
- Business opportunities
- Institutional framework
- Socio-economic environment
- Cultural norms
Contribution of the paper

• Interaction between:

  1. Entrepreneurs’ background -> education levels

  2. Environmental conditions -> unemployment change rate
Research question

How do entrepreneurs’ levels of education shape the relationship between changes in the unemployment rates and EGA?
THEORY AND HYPOTHESES
The regional context

- Some regional factors determining firm formation rates:
  - Population growth (Reynolds et al., 1994)
  - Regional share of labor force employed in small business (Fritsch, 1992)
  - Unemployment rates (Bosma and Schutjens, 2011)

- Entrepreneurs are embedded in their territorial context.

- Depending on environmental conditions, growth intentions are likely to be heterogenous among entrepreneurs (Dutta and Thornhill, 2008)

- During economic slowdowns, territories show poorer economic conditions, which negatively impact (Acs and Armington, 2004):
  - Local demand
  - Quality of local entrepreneurship
  - Entrepreneurs’ growth aspirations
Unemployment and EGA

• Unemployment is a key indicator of regional performance

• The global economic downturn has had major effects on employment rates across the globe

• Higher unemployment rates are associated with environmental barriers that limit entrepreneurs to expand their new ventures (Capelleras et al., 2010)

• Territories with increasing levels of employment may offer larger market potential (Wagner and Sternberg, 20114)

• Expected returns in regions with increasing levels of unemployment would be likely to be lower

Hypothesis 1 Entrepreneurial growth aspirations are negatively correlated with increases in the local unemployment rate
Moderating role of entrepreneurs’ education

• The judgment-based approach in entrepreneurship (knight, 1921; Mises, 1949)

• Entrepreneurs exercise judgement about the use of productive resources under uncertainty

• However, others focus entrepreneurs role as a profit opportunities discovers (Kizner, 1973)

• Overall, both views require the exercise of judgment

• Judgment and the act of evaluating opportunities (Foss and Klein, 2012)

• Entrepreneurs’ judgmental decisions are actually beliefs or conjectures

• Therefore, entrepreneurs’ beliefs are likely to be influenced by education and training
Higher education and unemployment

- Knowledge and ability to identify changes in the economic environment (Alvarez and Busenitz, 2001)

- Highly educated entrepreneurs to have more systematic planning than improvisation (Karlsson and Honig, 2004)

- Higher education will allow entrepreneurs to better readjust their conjectures or beliefs about the future profits in line with environmental conditions (Dutta and Thornhill, 2008)

**Hypothesis 2** The negative relationship between growth aspirations and unemployment changes is stronger among individuals with higher education
Entrepreneurship training and unemployment

• Individuals holding entrepreneurship training are more likely to undertake opportunity-identification tasks (DeTienne and Chandler, 2004)

• Certain skills related to identifying credible opportunities can be indentified and taught (Fiet and Barney, 2002)

• During crisis periods some ways of doing business may be destroyed which may imply an opportunity in the Shumpeterian process of creative destruction

• Skills and knowledge gained through training in entrepreneurship pursue better profit opportunities regardless difficulties in economic environment

Hypothesis 3 The negative relationship between growth aspirations and unemployment changes is stronger among individuals with entrepreneurship training
Conceptual model and hypotheses

Higher education

Unemployment annual rate change

Entrepreneurship training

H1

ENTREPRENEURIAL GROWTH ASPIRATIONS

H2

H3
Database GEM

The entrepreneurship process and GEM* operational definitions (Global Report, 2013)
| **Sample** |
|-----------------|----------------|
| **Individual variables** | GEM Project in Spain |
| **Regional variables** | INE (Spanish Statistics Institute) |
| **Years covered** | 2008-2010 |
| **Dataset structure** | Cross sectional pool data |
| **Unit of analysis** | Nascent entrepreneurs |
| **Level of analysis** | Provinces in Spain (NUTS 3 established by EUROSTAT) |
| **Sample** | 652 |
Dependent variable

**Entrepreneurial Growth Aspirations (EGA):**

The difference between the natural logarithm of the entrepreneurs’ expected number of employees in the next 5 years and the real number of employees at inception (Estrin et al., 2013)
## Independent and control variables

| Individual-level variables | Age  
Gender  
Opportunity  
Spanish nationality  
Family size  
Entrepreneurship by necessity  
Owner-manager of existing business  
Manufacturing sector  
Higher education  
Entrepreneurship training |
|----------------------------|----------------------------------|
| Regional economic-level variables | Unemployment annual rate change  
Annual population change  
GDP/h                         |
### Variables descriptive

<table>
<thead>
<tr>
<th></th>
<th>MEAN</th>
<th>STD. DEV.</th>
<th>MIN</th>
<th>MAX</th>
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<td><strong>DEPENDENT VARIABLE</strong></td>
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<td>Entrepreneurial growth aspirations (ln)</td>
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<td>0.820</td>
<td>0</td>
<td>5.303</td>
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<td><strong>INDEPENDENT VARIABLES</strong></td>
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<td>Unemployment annual rate change (%)</td>
<td>36.607</td>
<td>25.255</td>
<td>-15.909</td>
<td>137.539</td>
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<td>10.924</td>
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<td>Spanish nationality</td>
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<td>Entrepreneurship by necessity</td>
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<td>0.383</td>
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<td>Owner – manager of existing business</td>
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<tr>
<td>Manufacturing sector</td>
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<td>0.449</td>
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<td>GDP/h (€)</td>
<td>23604.53</td>
<td>4537.7</td>
<td>15625</td>
<td>35905</td>
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<td>Annual population change (%)</td>
<td>1.533</td>
<td>1.0971</td>
<td>-1.004</td>
<td>6.118</td>
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</table>
Methodology

- Nested regression equation
  - Model 1: individual-level variables
  - Model 2: individual-level variables + regional economic-level variables
  - Model 2: individual-level variables + regional economic-level variables + interactions

- Multilevel analysis
  - Cluster: province level
  - Observations: weighted following GEM Standards (considering the population in each region)

- Model
  - F-test to check robustness -> dependent and independent variables (Allen, 1997)
  - VIF (Variance Inflation Factor) < 5. So, no multicollinearity bias problem (Studenmund, 1997)
RESULTS
## Nested regression results

<table>
<thead>
<tr>
<th></th>
<th>MODEL 1</th>
<th>MODEL 2</th>
<th>MODEL 3</th>
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<tbody>
<tr>
<td><strong>INDIVIDUAL-LEVEL VARIABLES</strong></td>
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<tr>
<td>Age</td>
<td>-0.007 (0.002)**</td>
<td>-0.007 (0.002)**</td>
<td>-0.008 (0.002)***</td>
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<tr>
<td>Gender</td>
<td>-0.104 (0.081)</td>
<td>-0.100 (0.082)</td>
<td>-0.102 (0.079)</td>
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<tr>
<td>Opportunity perception</td>
<td>0.113 (0.070)</td>
<td>0.109 (0.073)</td>
<td>0.112 (0.072)</td>
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<tr>
<td>Spanish nationality</td>
<td>-0.003 (0.073)</td>
<td>0.003 (0.074)</td>
<td>0.005 (0.071)</td>
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<td>Family size</td>
<td>-0.055 (0.026)**</td>
<td>-0.058 (0.026)**</td>
<td>-0.059 (0.025)**</td>
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<td>Entrepreneurship by necessity</td>
<td>0.049 (0.089)</td>
<td>0.045 (0.086)</td>
<td>0.046 (0.085)</td>
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<td>Owner – manager of existing business</td>
<td>-0.709 (0.076)***</td>
<td>-0.705 (0.075)***</td>
<td>-0.712 (0.077)***</td>
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<tr>
<td>Manufacturing sector</td>
<td>0.207 (0.088)**</td>
<td>0.211 (0.090)**</td>
<td>0.211 (0.091)**</td>
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<tr>
<td>Higher education</td>
<td>0.062 (0.055)</td>
<td>0.058 (0.054)</td>
<td>0.050 (0.060)</td>
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<tr>
<td>Entrepreneurship training</td>
<td>0.165 (0.070)**</td>
<td>0.182 (0.070)**</td>
<td>0.210 (0.072)**</td>
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<td><strong>REGIONAL ECONOMIC-LEVEL VARIABLES</strong></td>
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<tr>
<td>GDP/h</td>
<td></td>
<td>-0.000 (0.000)</td>
<td>-0.000 (0.000)</td>
</tr>
<tr>
<td>Annual population change</td>
<td></td>
<td>0.068 (0.034)*</td>
<td>0.072 (0.035)**</td>
</tr>
<tr>
<td>Unemployment annual rate change (UARC)</td>
<td></td>
<td>-0.002 (0.001)*</td>
<td>-0.003 (0.001)**</td>
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<tr>
<td><strong>INTERACTIONS</strong></td>
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<tr>
<td>UARC * Higher education</td>
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<td>-0.000 (0.002)**</td>
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<tr>
<td>UARC * Entrepreneurship training</td>
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<td>0.004 (0.002)***</td>
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<td><strong>N of observations</strong></td>
<td>652</td>
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<td><strong>N of groups</strong></td>
<td>48</td>
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<tr>
<td><strong>F</strong></td>
<td>25.18***</td>
<td>29.29***</td>
<td>30.65***</td>
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<tr>
<td><strong>R²</strong></td>
<td>0.268</td>
<td>0.273</td>
<td>0.2773</td>
</tr>
</tbody>
</table>

H1 is supported

H2 is not supported

H3 is supported
Moderating effect of entrepreneurship training

- Lower change in UARC
- Higher change in UARC

- Entrepreneurship training = 1
- Entrepreneurship training = 0
CONCLUSIONS
Discussion and concluding remarks

• An increase in the unemployment rate reduces EGA

• Connection between economic conditions and entrepreneurial behavior

• The general effect of unemployment rate change is contingent upon the entrepreneurship training of the individual
  • Knowledge and skills gained by individuals’ opportunity identification and exploitation may vanish the influence of global economic conditions
  • Opportunity identification is a unique capability that might be developed in parallel with other capabilities (DeTienne and Chandler, 2004)
Implications

• Improvement in the design of public support policies towards entrepreneurs
  • Relevant for those policy makers interested in promoting venture growth
  • From educators point of view be aware of a possible overconfidence bias

• Better understanding of the determinants of growth intentions will be relevant for anyone with a stake in growing venture:
  • Venture capitalist
  • Customers
  • Suppliers
Limitations and future research

• One single country study
• 3 years covered
• Global economic crisis context
• Binary outcomes

• Future research should tackle more fine-grained education level definition
• More specific human capital controls (prior industry experience etc.)
THANK YOU!

April 15, Birkbeck Centre for Innovation Management Research (CIMR), Birkbeck University of London, UK