Entrepreneurship training and self-employment among university graduates: Evidence from a randomized trial in Tunisia

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Summary

1. The problem
2. Intervention
3. Impact evaluation
4. Data & Results
5. Conclusions
The Problem
High Youth Unemployment

- Low return to higher education in Tunisia
High Youth Unemployment

- 23% among all higher education graduates (in 2009)
- And ... hits particularly young women
- Is particularly rampant for recent graduates (reaching 46% 18 months after graduation)
- Catalyst of the Tunisian Revolution.

Unemployment rates by Education Levels

Source: INS, 2009
High Youth Unemployment

• Constraints hindering graduates’ labor-market insertion relate with labor demand and labor supply:
  – Lack of job relevant skills. Graduate curricula and education often criticized for not addressing private sector needs. And lack of relevant job experience.
  – Queuing for public sector and high wage formal jobs.

• Challenge: Design and evaluate an intervention that fosters entrepreneurship among cohort of young graduates, by promoting their interest in setting up their own business and eventually creating more jobs.
Intervention
Intervention: The “entrepreneurship track”

- National reform during 09-10 academic year (inter-ministerial committee: Min of Vocational Training & Employment; Industry; Education & Higher Education)

- Entrepreneurship track for third year university students in “applied programs”
  - Business training:
    - Entrepreneurship courses offered by the public employment office (21 days/full time, small groups)
    - Practical research on the ground and interactive sessions, aimed at fostering participants’: (i) behavioral skills; (ii) business skills; and (iii) networking skills
    - Initial business idea: modified after evaluation by bankers and experts
  - Personalized coaching:
    - Private sector entrepreneurs or specialized coaches (8 sessions, either individually or in small groups)
  - University professors:
    - Supervision in development and finalization of the business plan
  - Graduation and possibility to enter into “business plan thesis competition”
Implementation of the intervention

Information campaigns
application
Selection
Training (CEFE)
Coaching
business plan
Winners selection
Impact evaluation
Objectives of the evaluation

• Assist policy makers in answering a set of core policy questions to inform program scale-up:

  – Are students interested in entrepreneurship training? What is the profile of interested students?

  – Does the intervention promote self employment among university graduates? Are their earnings higher?

  – Who does the intervention benefit most? For which projects and where was it most successful?
Impact Evaluation Design

- No resources to reach all interested students
- Given over-subscription of interested students, randomized selection of 750 projects to participate in the pilot.
- Randomization conducted at project level
  - stratified by gender and subject (15 groups of licences)

1920 Applicants
(1702 eligible students, 1506 projects)

Block Randomization

Treatment Group
(856 students, 757 projects)

Control Group
(846 students, 749 projects)
Data & Results
• **Baseline Application Survey** (online and paper, December 2009)

• **Baseline Entrepreneurship Survey** (phone, January – February 2010)
  – Capture broader range of characteristics, particularly on personal traits, preferences, attitudes towards entrepreneurship,…
  – 90% re-contact rate

• **Qualitative work** (October - November 2010)
  – To finalize content of follow-up survey instrument and provide feedback on program implementation

• **Follow-up survey** (face-to-face; April-June 2011)
  – 93% re-contact rate (uncorrelated with treatments status)
  – 1-year after graduation
  – First labor-market survey after the revolution.
Results

- What are the impacts on labor-market outcomes?
  - Self-Employment
  - Employment
  - Quality of Employment

- What are the channels behind the employment results?
  - Business skills
  - Networks
  - Preferences
  - Behavioral Skills (Entrepreneurial Skills, Big 5,…)
  - Attitudes towards the future and opportunities
  - Access to credit
Results: Labor-Market Outcomes
**Labor-market Outcomes: Self-Employment**

The intervention led to an increase in self-employment.
- Small absolute effects
- Effect sizes ranging between 48%-81% for ITT

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<tbody>
<tr>
<td>Self-employed (last 12 months)</td>
<td>0.05</td>
<td>0.09</td>
<td>0.04***</td>
<td>0.01</td>
<td>0.07***</td>
<td>0.02</td>
</tr>
<tr>
<td>Self-employed, including seasonal (last 7 days)</td>
<td>0.04</td>
<td>0.08</td>
<td>0.03**</td>
<td>0.01</td>
<td>0.05**</td>
<td>0.02</td>
</tr>
<tr>
<td>Self-employed, excluding seasonal (last 7 days)</td>
<td>0.03</td>
<td>0.04</td>
<td>0.01*</td>
<td>0.01</td>
<td>0.02*</td>
<td>0.01</td>
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Note: n = 1580.
Labor-market Outcomes: Employment

• No evidence that the program significantly affected overall employment
  (note: general equilibrium effects not captured)
• Suggests substitution between employment and self-employment (as in Fairlie et al. (2012) in the US)

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<tbody>
<tr>
<td>Employed (last 7 days)</td>
<td>0.28</td>
<td>0.29</td>
<td>-0.00</td>
<td>0.02</td>
<td>-0.00</td>
<td>0.04</td>
</tr>
<tr>
<td>Self-employed (last 7 days)</td>
<td>0.04</td>
<td>0.08</td>
<td>0.03**</td>
<td>0.01</td>
<td>0.05**</td>
<td>0.02</td>
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<tr>
<td>Salaried worker (last 7 days)</td>
<td>0.21</td>
<td>0.18</td>
<td>-0.03</td>
<td>0.02</td>
<td>-0.05</td>
<td>0.03</td>
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<tr>
<td>Unemployed (last 7 days)</td>
<td>0.48</td>
<td>0.49</td>
<td>0.01</td>
<td>0.03</td>
<td>0.01</td>
<td>0.05</td>
</tr>
<tr>
<td>Studying (last 7 days)</td>
<td>0.19</td>
<td>0.18</td>
<td>-0.00</td>
<td>0.02</td>
<td>-0.01</td>
<td>0.03</td>
</tr>
<tr>
<td>Inactive (last 7 days)</td>
<td>0.03</td>
<td>0.03</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
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Labor-market Outcomes: Quality of Employment

- No evidence of impacts on earnings
- Increase in reservation wage for private sector wage jobs (but not public sector wage jobs)
- No effects on other measures of “quality” of employment

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<tr>
<td>Monthly labor earnings</td>
<td>74.79</td>
<td>88.97</td>
<td>17.51</td>
<td>33.86</td>
<td>29.80</td>
<td>56.38</td>
</tr>
<tr>
<td>Reservation wage (private sector)</td>
<td>473.50</td>
<td>491.20</td>
<td>17.13*</td>
<td>8.73</td>
<td>28.85**</td>
<td>14.68</td>
</tr>
<tr>
<td>Reservation wage (public sector)</td>
<td>487.86</td>
<td>491.45</td>
<td>4.15</td>
<td>7.30</td>
<td>6.99</td>
<td>12.00</td>
</tr>
<tr>
<td>Has contract</td>
<td>0.12</td>
<td>0.10</td>
<td>-0.02</td>
<td>0.02</td>
<td>-0.03</td>
<td>0.03</td>
</tr>
<tr>
<td>Covered by Social Security</td>
<td>0.05</td>
<td>0.06</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.02</td>
</tr>
<tr>
<td>Work in large firm</td>
<td>0.07</td>
<td>0.07</td>
<td>0.00</td>
<td>0.01</td>
<td>0.00</td>
<td>0.02</td>
</tr>
<tr>
<td>Hours worked in last week</td>
<td>8.55</td>
<td>9.35</td>
<td>0.66</td>
<td>0.98</td>
<td>1.12</td>
<td>1.64</td>
</tr>
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</table>

N= 1580
Results: Channels
What is behind these employment results?

<table>
<thead>
<tr>
<th>Channels</th>
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<tbody>
<tr>
<td>Business skills</td>
<td>+++</td>
</tr>
<tr>
<td>Networks</td>
<td>++</td>
</tr>
<tr>
<td>Preferences</td>
<td></td>
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<tr>
<td>Behavioral skills: Big Five</td>
<td>++</td>
</tr>
<tr>
<td>Behavioral skills: Entrepreneurial</td>
<td></td>
</tr>
<tr>
<td>skills</td>
<td>+</td>
</tr>
<tr>
<td>Attitudes towards the future</td>
<td>+++</td>
</tr>
<tr>
<td>Access to credit</td>
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Behavioral skills (Big Five Personality traits)

- Measures of Behavioral Skills (10-item Big Five Scale from Gosling, 2003)

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<tbody>
<tr>
<td>Agreeable</td>
<td>-0.00</td>
<td>-0.23</td>
<td>-0.24***</td>
<td>0.05</td>
<td>-0.40***</td>
<td>0.08</td>
</tr>
<tr>
<td>Extraversion</td>
<td>-0.00</td>
<td>0.11</td>
<td>0.10**</td>
<td>0.05</td>
<td>0.18**</td>
<td>0.07</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>-0.00</td>
<td>-0.14</td>
<td>-0.14**</td>
<td>0.05</td>
<td>-0.24***</td>
<td>0.08</td>
</tr>
<tr>
<td>Emotionally Stable</td>
<td>0.00</td>
<td>-0.11</td>
<td>-0.11**</td>
<td>0.04</td>
<td>-0.18***</td>
<td>0.07</td>
</tr>
<tr>
<td>Openness</td>
<td>0.00</td>
<td>-0.02</td>
<td>-0.03</td>
<td>0.04</td>
<td>-0.05</td>
<td>0.06</td>
</tr>
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</table>

N = 1580; controls include behavioral measures from baseline phone survey.

- Suggests the intervention affected a range of behavioral skills (personality traits)
- Consistent with Cobb-Clark and Tan (2010): agreeableness negatively associated with probability of being a manager or business professional
Attitudes towards the future

- Subjective measures of optimism and attitudes towards the future (inspired by de Mel et al. (2010) and positive items from a depression scale)

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</thead>
<tbody>
<tr>
<td>Optimism</td>
<td>1,578</td>
<td>-0.00</td>
<td>0.12</td>
<td>0.13***</td>
<td>0.04</td>
<td>0.21***</td>
</tr>
<tr>
<td># days during which subject felt moving forward (last week)</td>
<td>1,578</td>
<td>3.79</td>
<td>4.09</td>
<td>0.28**</td>
<td>0.11</td>
<td>0.47***</td>
</tr>
<tr>
<td># days during which subject thought about how to move forward (last week)</td>
<td>1,578</td>
<td>5.62</td>
<td>5.87</td>
<td>0.23**</td>
<td>0.11</td>
<td>0.39**</td>
</tr>
<tr>
<td>Higher faith in future now than last year</td>
<td>1,574</td>
<td>0.52</td>
<td>0.57</td>
<td>0.04*</td>
<td>0.02</td>
<td>0.08*</td>
</tr>
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</table>

- Suggests beneficiaries have higher optimism and more positive attitudes towards the future
Access to credit?

- Entrepreneurship track did not directly aim to alleviate credit constraints (clients’ main hypothesis was that skills are the constraint, not credit)
- Training involved providing information to students about credit applications, as well as connecting them to bankers

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<tbody>
<tr>
<td>Knows how to apply for credit</td>
<td>1,580</td>
<td>0.20</td>
<td>0.22</td>
<td>0.02</td>
<td>0.02</td>
<td>0.03</td>
<td>0.03</td>
</tr>
<tr>
<td>Expect to be able to obtain credit</td>
<td>1,568</td>
<td>0.30</td>
<td>0.39</td>
<td>0.08**</td>
<td>0.04</td>
<td>0.14**</td>
<td>0.06</td>
</tr>
<tr>
<td>Has applied for credit (</td>
<td>business idea)</td>
<td>674</td>
<td>0.04</td>
<td>0.08</td>
<td>0.04**</td>
<td>0.02</td>
<td>0.06**</td>
</tr>
</tbody>
</table>

- Treatment group more confident to be able to obtain credit and more likely to have actually applied for credit (conditional on business idea)
- However, not more likely to report knowing how to apply for credit
- Many applications remain pending, too few observations to identify impact on access to credit at follow-up
Conclusions
Conclusions

• Business plan reform promoting entrepreneurship attracted attention and interest from Tunisian graduate students, especially females, with very diverse course backgrounds.

• In spite of the implementation challenges, the program reached a reasonable group of students (approx 800) allowing a rigorous evaluation through a small randomized pilot. Data was collected before and after the program started for both beneficiaries and interested applicants not selected.

• Although we only observe short term effects of the program (less than one year after the intervention), the program is associated with higher self employment activity among selected beneficiaries. There is no evidence of the program yielding higher earnings though.
Thank you
Annex
Impact of offering business training and coaching:

\[ Y_i = \beta T_i + \gamma X_i + \pi_{is} + \epsilon_i \]

With:
- \( Y_i \) = employment outcomes
- \( T_i \) = randomized assignment to entrepreneurship track
- \( X_i \) = baseline controls
- \( \pi_{is} \) = strata fixed effects (by gender and subject)
- Standard errors clustered by strata

Robustness checks:
- Different sets of baseline controls
- Standard errors clustered by governorate
Impact of actually *completing* entrepreneurship training and coaching:

**IV estimation:**

(1st Stage) \[ U_i = \beta T_i + \gamma X_i + \pi_{is} + \eta_i \]

With: \( U = \) Actual program take-up (from administrative data)

(2nd Stage) \[ Y_i = \phi \hat{U}_i + \xi X_i + \pi_{is} + \varepsilon_i \]

With: \( \hat{U} = \) Predicted Program take-up (from (1))

- Actual take-up considered as *completing* training and coaching (59%)
- Local-average treatment effects (LATE) to be interpreted as impact on compliers (those who complete the training if offered, and do not complete if not offered)
- In practice, take-up among control very low (3.4%)