The Future in Mind: Aspirations and Forward-Looking Behaviour in Rural Ethiopia

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Summary

- Do people’s aspirations – mental models about their opportunities and whether and how they can achieve them – limit whether they invest?

- Randomly assign Ethiopian farmers to receive a ’vicarious experience’ of the lives of four role models.
  - Treatment = one hour of documentaries.
  - No other intervention.

- We find:
  - Improvements in aspirations after screening and after six months.
  - Changes in related psychosocial concepts, but not risk aversion or time preferences.
  - Small improvements in savings, credit, demand for credit, children’s school enrolment and spending on schooling 6 months after screening.
Why do poor people underinvest?

- **Market failures**
  - Risk and credit in agriculture (Karlan et al., 2013), seasonal migration (Bryan et al., 2012) or in health (Miguel and Kremer, 2004).

- **Norms and power structures**
  - Gender (Goldstein and Udry, 2008); caste (Munshi and Rosenzweig, 2006; Hoff and Pandey, 2013).

- **Mental processes**
  - Impatience, discounting, struggles to commit (Mullainathan and Shafir, 2009; Duflo et al., 2008; Ashraf et al., 2006).
  - **Mental short-cuts** (Kahneman, 2002).
    - Structure our understanding of our opportunities and constraints and reduce information-processing costs (Jones et al., 2011).
    - BUT = cognitive biases, neglect of information, under-investment (Hoff and Stiglitz, 2010; Gilovich et al., 2002; Benabou, 2012; Hanna et al., 2012).
Low aspirations may be self-limiting mental shortcuts

- Aspirations = forward-looking goals or targets (Locke and Latham, 2002)
  - Prominent in social psychology and recent economic theory (Ray, 2006; Genicot and Ray, 2010, Dalton et al. 2013)

- In economic terms: bounds among individuals’ preferences: limits of the choice sets which they consider as relevant.
  - In forming aspirations, we may fail to consider part of a possible choice set.
  - Then aspirations function like other mental models, by focusing our attention on some options and filtering out others.

- Can we alter poor people’s understanding of the opportunities they face by actively trying to change their mental models of their possible lives using an experimental design?
No other intervention: clear link from exposure to potential role models to outcomes.

- Beaman et al. (2012) - suggest exposure to female role models -> changes in women’s occupational aspirations -> behaviour.

Information is not specific or directive.

- Jensen - labour market returns (2012) and returns to education (2010); Hanna et al. (2012) - inputs on seaweed farms.

Experimental design and a placebo to control for effects of exposure to media.

Measures of aspirations on 4 dimensions

- 4 dimensions.
  - Annual income in cash
  - Assets: house, furniture, consumer goods, vehicles
  - Social status: do villagers ask advice
  - Level of education of oldest child

- Two phrasings:
  - Level on each dimension they wished to attain
  - Level they expected to attain in ten years

- Total aspirations index: \[ A_i = \sum_k \left( \frac{a_{ik} - \mu_k}{\sigma_k} \right) \cdot w_{ik} \]
  - \( a_{ik} \) = individual i’s aspiration response to dimension k.
  - \( w_{ik} \) = weight individual assigned to dimension k.
  - \( \mu_k \) and \( \sigma_k \) = sample mean and standard deviation.
<table>
<thead>
<tr>
<th></th>
<th>Mean (ETB)</th>
<th>Aspirations</th>
<th>Actual Mean (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>S.E</td>
<td>Mean</td>
<td>Mean p/c</td>
</tr>
<tr>
<td><strong>Lifetime</strong></td>
<td></td>
<td>(USD)</td>
<td>(USD)</td>
</tr>
<tr>
<td>Income</td>
<td>146,057.00</td>
<td>(609,111)</td>
<td>8,114</td>
</tr>
<tr>
<td>Wealth</td>
<td>152,577.10</td>
<td>(2,841,719)</td>
<td>8,476</td>
</tr>
<tr>
<td>Children’s ed.</td>
<td>12.91</td>
<td>(1.71)</td>
<td></td>
</tr>
<tr>
<td>Status</td>
<td>75.00</td>
<td>(31.92)</td>
<td></td>
</tr>
<tr>
<td>Index</td>
<td>0.03</td>
<td>(0.56)</td>
<td></td>
</tr>
<tr>
<td><strong>10 years</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td>33,081.82</td>
<td>(231,346)</td>
<td>1,837</td>
</tr>
<tr>
<td>Wealth</td>
<td>28,073.07</td>
<td>(70,491)</td>
<td>1,559</td>
</tr>
<tr>
<td>Children’s ed.</td>
<td>12.43</td>
<td>(2.52)</td>
<td></td>
</tr>
<tr>
<td>Status</td>
<td>70.95</td>
<td>(29.30)</td>
<td></td>
</tr>
<tr>
<td>Index</td>
<td>0.02</td>
<td>(0.56)</td>
<td></td>
</tr>
</tbody>
</table>

n=2,063. Trim outliers above or below 4 SD: n=26 on 10 years (1.5% of sample), n=61 on lifetime (3% of sample).
Aspirations indices and components behave as expected

**Figure:** CDFs of components of aspirations indices

- Except for social status at lower levels, always higher over life time than over 10 years.
- Mostly higher for men, those with formal education and more assets.
The experimental design: individual treatment

- 64 villages. Random selection of 6 treatment HH, 6 placebo HH, 6 control HH after HH listing.
- Head and spouse treated.
- 3 arms
  - Treatment: ticket to view mini-documentaries about similar people who were successful in small business or agriculture.
    - No other intervention.
    - 4 x 15 minute documentaries (2 men, 2 women) = 1 hour in Oromiffa
    - Examples on CSAE Oxford YouTube channel
  - Placebo: local Ethiopian end-of-year TV show in 15 minute segments.
  - Control: surveyed at their home.
- 3 rounds: baseline (Sept-Dec 2010), aspirations immediately after treatment, follow-up (Mar-May 2011).
One team of enumerators went village to village
Specification

\[ y_{i2} = \alpha + \delta_1 T_i + \rho_1 P_i + \gamma y_{i1} + X_{i1}' \pi + \mu_v + \eta_i \]  

- \( y_{i1} \) = lagged outcome. \( \eta_i \) = individual-level error. \( \mu_v \) = village fixed effects.
- \( X_{i1}' \) = controls at baseline
  - age, gender, education, assets, marital status, food insecurity.
- \( \delta_1 \) and \( \rho_1 \): effect of being allocated a ticket. ITT - 96% compliance.
- For individual-level variables, cluster standard errors to account for clustering at HH level.
- Multiple testing correction: Benjamini et al. (2006) procedure.
  - 6 families: (i) aspirations, (ii) other psychological, (iii) time and risk, (iv) financial outcomes, (v) hypothetical demand for credit, and (vi) children’s education.
  - [ns] if unadjusted outcome is significant but adjusted outcome is not.
Small effects on aspirations immediately, after 6 months

Treatment effect compared to control is above the bar. [Baseline sample mean]. n.s. = no longer significant when accounting for multiple testing. Individual level, S.E. clustered at HH level, includes lagged outcome, village fixed effects and controls. “10 year” index: level respondents thought they would reach in 10 years. “Life” index: level respondents would like to achieve on each of four dimensions. Indices are standardised.
People liked the documentaries a lot

<table>
<thead>
<tr>
<th></th>
<th>Treatment (standard error)</th>
<th>Placebo (standard error)</th>
<th>Difference (p-value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liked what I saw</td>
<td>0.968 (0.175)</td>
<td>0.725 (0.447)</td>
<td>0.000***</td>
</tr>
<tr>
<td>Discussed with my neighbours</td>
<td>0.874 (0.332)</td>
<td>0.709 (0.454)</td>
<td>0.000***</td>
</tr>
<tr>
<td>Discussed in last 2 weeks</td>
<td>0.939 (0.24)</td>
<td>0.736 (0.441)</td>
<td>0.000***</td>
</tr>
<tr>
<td>Generated discussion in village</td>
<td>0.323 (0.468)</td>
<td>0.205 (0.404)</td>
<td>0.000***</td>
</tr>
</tbody>
</table>

Table: Assessment of documentaries and placebo
Effects on index are driven by education component

<table>
<thead>
<tr>
<th></th>
<th>Index</th>
<th>Income</th>
<th>Wealth</th>
<th>Education</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treated individual</td>
<td>0.03*</td>
<td>3949.01</td>
<td>-4573.58</td>
<td>0.16*</td>
<td>0.65</td>
</tr>
<tr>
<td></td>
<td>(0.02)</td>
<td>(12334.83)</td>
<td>(4336.40)</td>
<td>(0.09)</td>
<td>(1.32)</td>
</tr>
<tr>
<td>Placebo individual</td>
<td>0.03</td>
<td>11682.79</td>
<td>-852.72</td>
<td>0.09</td>
<td>1.01</td>
</tr>
<tr>
<td></td>
<td>(0.02)</td>
<td>(12178.91)</td>
<td>(4289.66)</td>
<td>(0.09)</td>
<td>(1.30)</td>
</tr>
<tr>
<td>P val: $\delta_1 = \rho_1$</td>
<td>0.81</td>
<td>0.53</td>
<td>0.39</td>
<td>0.48</td>
<td>0.79</td>
</tr>
</tbody>
</table>

Individual level, S.E. clustered at HH level. Includes lag, village F.E., controls.
Larger effects for those with higher aspirations at baseline

\[ y_{i2} = \alpha + \delta_1 T_i + \theta_1 Z_i + \theta_2 T_i \times Z_i + \gamma y_{i1} + \mu_v + X_{i1}' \pi + \eta_i \]  \hspace{1cm} (2)

- \( \theta_2 \) captures whether the treatment effect increases, decreases or is constant with the characteristic \( Z \).
- No differences in treatment effects by gender, age or level of education.
- Treatment effect is driven by those with aspirations above the median at baseline.
  - Treatment effect of 0.26 SD in aspirations immediately (ATE=0.12), and 0.05 after six months (ATE=0.03).
  - No significant effects for those below the median.
No effect on having savings or credit; effect on kids enrolled

Treatment effect compared to control is above the bar. [Baseline sample mean]. n.s. = no longer significant when accounting for multiple testing. Savings and credit at individual level, S.E. clustered at HH level. Education at HH level. All include lagged
Effects (vs control) on savings, credit and ed. spending, lost with testing correction

Treatment effect compared to control is above the bar. [Baseline sample mean]. n.s. = no longer significant when accounting for multiple testing. Savings and credit at individual level, S.E. clustered at HH level. Education at HH level. All include lagged

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Aspirations and Forward-Looking Behaviour

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Increase in sense of control over own life

Figure: Locus of control and perceptions of causes of poverty

(a) Locus of control (Levenson, 1981)

(b) Causes of poverty (Feagin, 1972)

n.s. = no longer significant when accounting for multiple testing. At individual level, S.E. clustered at HH level. All include lagged outcome, village fixed effects and controls.
No effect on other psychological outcomes; time

- Seems likely that the channel is through aspirations and self-concept.
  - No effect on wellbeing.
  - No effects on discount rates or risk preferences, measured non-experimentally.
- No effects on reported time allocation.
Theory suggests peers affect aspirations formation

- **Social psychologists**
  - Beliefs are learned through experience, watching others’ behaviour and discussions with others (Rotter, Chance and Phares, 1972; Bandura, 1977).

- **Economic theory on aspirations**
  - Individuals form aspirations by observing outcomes for individuals whose behaviours they can observe and with whom they can identify (Genicot and Ray, 2010; Ray, 2006).

- If people don’t have ’reference points’ or have a limited ’aspirations window’, their capacity to aspire may be limited.
Design varied exposure of peer network to shocks

- 4 villages surveyed together and invited to one screening venue.
- In 2 villages, 18 extra HH not surveyed but given treatment. In 2 villages, 18 extra HH not surveyed but given placebo.
- Screenings were still the same size.
Measures of networks: self-selected peers

- Higher numbers of people in treated villages know one or more people who saw the documentary.

**Figure:** Number of an individual’s peers who saw

![Bar chart showing the number of an individual’s peers who saw the documentary in (a) Treatment and (b) Placebo villages.](chart.png)
Underpowered; peer effects on education spending, hints for other variables

\[ y_{i2} = \alpha + \delta_1 T_i + \rho_1 P_i + \delta_2 n_i^T + \rho_2 n_i^P + \gamma y_{i1} + \mu_s + X_i^\prime \pi + \eta_i \]  

- \( n_i^T \) – number of one’s peers who were invited to watch a documentary.
- \( n_i^P \) – number of one’s peers invited to watch the placebo.
- Screening site fixed effects and cluster standard errors at village level.
- Only find peer effects for education spending.
  - Attending the documentary increases spending on children’s education by 61 ETB
  - For each additional peer who attends the documentary, spending on children’s education increases by 34 ETB.
- Not due to sorting effects.
Conclusion

- Watching documentaries about role models improves aspirations compared to a control group and, in some cases, compared to a placebo group.
  - Driven by those with above-median aspirations at baseline.
  - No changes in risk aversion or time preferences.
  - Also improvements in individuals’ sense that they control their lives.
- Small effects on ‘forward-looking behaviour’ - children’s school enrolment, spending on schooling, hypothetical desire for credit - that are robust to multiple testing.
  - Effects on savings, credit aren’t robust to multiple testing.
- Suggestive evidence that peer effects may reinforce individual effects.
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