Survey data on entrepreneurs’ subjective plan and perceptions of the likelihood of success

Quan Hoang Vuong

Centre Emile Bernheim, Solvay Brussels School of Economics and Management, Université Libre de Bruxelles, 50 Ave. E.D. Roosevelt, Brussels B-1050, Belgium

ARTICLE INFO

Article history:
Received 16 October 2015
Received in revised form 3 December 2015
Accepted 18 January 2016
Available online 30 January 2016

Keywords:
Entrepreneurship
Vietnam
Likelihood of success
Entrepreneurial attempt
Socioeconomic conditions
Transition economy

ABSTRACT

Entrepreneurship is an important economic process in both developed and developing worlds. Nonetheless, many of its concepts appear to be difficult to ‘operationalize’ due to lack of empirical data; and this is particularly true with emerging economy. The data set described in this paper is available in Mendeley Data’s “Vietnamese entrepreneurs’ decisiveness and perceptions of the likelihood of success/continuity, Vuong (2015) [1]” http://dx.doi.org/10.17632/kbrtrf6h4.2; and can enable the modeling after useful discrete data models such as BCL.

© 2016 The Authors. Published by Elsevier Inc. This is an open access article under the CC BY license (http://creativecommons.org/licenses/by/4.0/).

Specifications Table

Subject area Economics
More specific subject area Business Economics/Entrepreneurship
Type of data Table, text file, graph
How data was acquired Survey
Data format Raw, filtered, and partially analyzed
Experimental factors Raw data obtained from direct survey on participants of seminars, conferences and meetings. Incomplete data sheets are eliminated.

E-mail address: qvuong@ulb.ac.be

http://dx.doi.org/10.1016/j.dib.2016.01.034

2352-3409/© 2016 The Authors. Published by Elsevier Inc. This is an open access article under the CC BY license (http://creativecommons.org/licenses/by/4.0/).
Experimental features
The experiment focuses on perceptions and subjective understanding of prospective and extant entrepreneurs in Vietnam.

Data source location
Hanoi, Ho Chi Minh City, Buon Ma Thuot, Da Nang of Vietnam

Data accessibility
Datasets are provided with this article. Mendeley Data, v2, http://dx.doi.org/10.17632/kbrtrf6hh4.2

Value of the data

- The data offer an opportunity to measure the decisiveness and preparedness of an entrepreneur given various conditions that characterize an emerging market.
- Information and deeper insights that might be obtained through discrete data analysis can help predict behaviors of entrepreneurs in typical situations, and formulate policy responses if the government wishes to improve the business/economic environment.
- Important aspects of entrepreneurship such as creativity/innovation, previous professional experience, personal perceptions of socio-cultural values, and the like can be researched and later ‘operationalized’.
- The data reflect the transition of the emerging market economy of Vietnam.

1. Data

The data set contains 3071 records obtained from a nationwide survey of perceptions, intentions and assessments from entrepreneurs, existing and prospective, about the socio-economic conditions, values of their previous employment, need of government- and society-supported entrepreneurship-enabling programs. The data also provide subjective evaluation of the likelihood of success or continuity of entrepreneurs’ project given certain environmental conditions. The following discrete (categorical) variables are measured in the survey:

| Coded name | Explanation | Values |
|------------|-------------|--------|
| X1.job     | Previous job (or the most important) | Human resources (hmr); sales/marketing (salesm); production/operations (pom); finance/accounting (finance); administrative or other departments (admin); no significant job experience (none) |
| X2.starthis| Entrepreneurial status | Running, dropped, notyet |
| X3.econdf  | Assessment on whether current socio-economic conditions are favorable. | Favorable (fav); somewhat favorable (somewhat); and, unfavorable (unfav) |
| X4.suppval1| Influence of government or society-funded supports on decision? | High; avg; low |
| X5.suppval2| Influence of government or society-funded entrepreneurship programs on success? | High; possible; none |
| X6.infpeople| Influence from family, friends, colleagues. | Strong; somewhat; light; none |
| X7.tforstart| How much time for this entrepreneurial attempt? | Less than 12 months (less12); 12–24 months (b1224); and, until success (g24) |
2. Experimental design, materials and methods

The survey was designed to obtain discrete data that can be employed by the multi-category logit models to enable analysis based on baseline-category logits (BCL), which helps provide estimated coefficients for computing probabilities upon events of hypothetical influence. The logic for designing the experiment and thus data set is described as follows. For designing both the survey and prepare the data set and suitable subset, an entrepreneur (among n) is treated as independent and identical. Each data point has outcome in any of J categories for each factor to be investigated. Let $y_{ij} = 1$ if entrepreneur $i$ has outcome in category $j$ and
Fig. 1. Some graphs from the raw data.
y_{ij} = 0 otherwise. Then, \( y_{ij} = y_{i1}, y_{i2}, \ldots, y_{ic} \) represents a multinomial trial, with \( P_j y_{ij} = 1 \). As \( n_j = \sum y_{ij} \) the number of trials having outcome in category \( j \), the design is based on the assumption that \( n_1, n_2, \ldots, n_c \) show a multinomial distribution. Let \( \pi_j = P(Y_{ij} = 1) \) denote the probability of outcome in category \( j \) for each entrepreneur, the multinomial PMF is:

\[
p(n_1, n_2, \ldots, n_c) = \frac{n!}{n_1! n_2! \cdots n_c!} \pi_1^{n_1} \pi_2^{n_2} \cdots \pi_c^{n_c},
\]

where \( \sum n_j = n \). As \( \pi_j(x) = P(Y = j|x) \) and \( \sum \pi_j(x) = 1 \), data are grouped into \( J \) categories of \( Y \) as multinomial with corresponding sets of probabilities \( \{\pi_1(x), \ldots, \pi_J(x)\} \). Thus, each response is aligned with a baseline category:

\[
\ln \frac{\pi_j(x)}{\pi_J(x)} = \alpha_j + \beta_j x, \quad j = 1, \ldots, J - 1.
\]

BCL analysis simultaneously models the effects of \( x \) on \( (J - 1) \) logits, which in general vary according to the response paired with the baseline category. The estimating of \( (J - 1) \) equations employing a given empirical data set would provide for parameters for these logits, as:

\[
\ln \frac{\pi_a(x)}{\pi_b(x)} = \ln \frac{\pi_a(x)}{\pi_J(x)} - \ln \frac{\pi_b(x)}{\pi_J(x)}.
\]

The empirical data set enables the computing of Pearson-type likelihood ratio test statistics \( (X^2, G^2) \) for goodness-of-fit, following a multivariate generalized linear model (GLM) estimations:

\[
g(\mu_i) = X_i \beta.
\]
where, \( \boldsymbol{\mu}_i = \mathbb{E}(\mathbf{Y}_i) \), corresponding to \( \mathbf{y}_i = (y_{i1}, y_{i2}, \ldots) \); row \( h \) of the model matrix \( \mathbf{X}_i \) for observation \( i \) contains values of independent variables for \( y_{ih} \). For a BCL model, \( \mathbf{y}_i = (y_{i1}, y_{i2}, \ldots, y_{ij-1}) \); \( y_j \) is redundant, thus:

\[
\boldsymbol{\mu}_i = (\pi_1(\mathbf{x}_i), \pi_2(\mathbf{x}_i), \ldots, \pi_{j-1}(\mathbf{x}_i)) \quad \mathbb{g}_j(\boldsymbol{\mu}_i) = \ln\left\{ \mu_j/\left[ 1 - \left( \mu_1 + \cdots + \mu_{j-1} \right) \right] \right\}.
\]

Technical details for practical modeling of polytomous logistic models is provided in [2]. Applied analysis can be performed in R (see [3]). Practical uses of survey data can be referred to [4].

Explanation of data subsets filtered for different analysis purposes (from [1]) (Fig. 1).

| File name | Filtered with variables: | Frequency distributions table | Appropriate for hypothesis testing of: |
|-----------|-------------------------|-------------------------------|--------------------------------------|
| x14.15.23 | • “X14.inno” gt1.1      |                               | Creativity and differentiation (entrepreneurs' products/services) influence entrepreneurs' perceptions of the likelihood of success/continuity. |
|           | • “X15.diff”            |                               |                                      |
|           | • “X23. chance”         |                               |                                      |
| x3.5.23   | • “X3. econdf”          | gt1.2                         | Entrepreneurs' assessments on economic conditions and environmental factors (such as support programs) and their impacts on the likelihood of success/continuity. |
|           | • “X5. suppval2”        |                               |                                      |
|           | • “X23. chance”         |                               |                                      |
| xsex.7.18 | • “sex”                 | gt2.1                         | Gender and strategic intent of timing and duration of efforts by entrepreneurs, in conjunction with their final decision. |
|           | • “X7. tforstart”       |                               |                                      |
|           | • “X18. startplan”      |                               |                                      |
| x1.3.15.18| • “X1.job”              | gt2.2                         | The impact of entrepreneurs' past employment together with self-assessment of economic conditions, product innovations on the startup decision and likely continuity. |
|           | • “X3. econdf”          |                               |                                      |
|           | • “X15.diff”            |                               |                                      |
|           | • “X18. startplan”      |                               |                                      |
| x1.9.15.18| • “X1.job”              | gt2.3                         | The impact of entrepreneurs' past employment together with self-assessment of economic conditions, and their networks on the ultimate decisions of starting up and likely continuity. |
|           | • “X3. econdf”          |                               |                                      |
|           | • “X9. member”          |                               |                                      |
|           | • “X18. startplan”      |                               |                                      |
| x11.23.7  | • “X11.plan”            | gt2.4                         | Impacts of entrepreneurial planning and perceptions on chance of survival on the timing and likelihood of entrepreneurial undertaking/continuity. |
|           | • “X23. chance”         |                               |                                      |
|           | • “X7. tforstart”       |                               |                                      |

One example of the analysis is to compute response probabilities from multinomial logits, i.e., \( \{ \pi_j(\mathbf{x}) \} \), using \( \pi_j(\mathbf{x}) = \frac{\exp(\alpha_j + \mathbf{b}_j^T \mathbf{x})}{1 + \sum_{h=1}^{k} \exp(\alpha_h + \mathbf{b}_h^T \mathbf{x})} \); with \( \sum_j \pi_j(\mathbf{x}) = 1 \); \( \alpha_j = 0 \) and \( \mathbf{b}_j = 0 \). An empirical distribution is provided in Table 1.
Picking two different trends, the contrast shown by the empirical data becomes apparent in Fig. 2, suggesting that, if a government aims to promote entrepreneurship, it is better to improve general socio-economic conditions.

Acknowledgments

I wish to thank research staff of Vuong & Associates (Hanoi, Vietnam) for assisting in collecting data, and two anonymous reviewers for helpful suggestions on improving the manuscript.

Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at http://dx.doi.org/10.1016/j.dib.2016.01.034.

References

[1] Q.H. Vuong, Vietnamese entrepreneurs’ decisiveness and perceptions of the likelihood of success/continuity, Mendeley Data, 2015, v2 http://dx.doi.org/10.17632/kbrtrf6hh4.2.
[2] A. Agresti, Categorical Data Analysis, Wiley, Hoboken, New Jersey (2002) 774.
[3] PennState Science, Analysis of Discrete Data (STAT 504). (https://onlinecourses.science.psu.edu/stat504/), (accessed 16.10.15).
[4] Q.H. Vuong, Be rich or don’t be sick: estimating Vietnamese patients’ risk of falling into destitution, SpringerPlus 5 (2015) 529. http://dx.doi.org/10.1186/s40064-015-1279-x.