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# The entrepreneurial ladder and its determinants

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## Abstract

We test a new model where the entrepreneurial decision is described as a process of successive engagement levels, i.e. as an entrepreneurial ladder. Five levels are distinguished using nearly 12 000 observations from the 2004 'Flash Eurobarometer survey on Entrepreneurship' covering the 25 European Union member states and the United States. The most surprising of the many results is that perception of lack of financial support is no obstacle for moving to a higher entrepreneurial engagement level whereas perceived administrative complexity is a significant obstacle. We also show that the effect of age on the probability of moving forward in the entrepreneurial process becomes negative after a certain age implying that if entrepreneurial engagements are not taken early enough in life they may well never be taken.

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## Notes

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[http://europa.eu.int/comm/enterprise/enterprise\\_policy/survey/eurobarometer\\_intro.htm](http://europa.eu.int/comm/enterprise/enterprise_policy/survey/eurobarometer_intro.htm)

<sup>2</sup>Following this literature we also apply quadratic terms for age and education next to the linear ones.

<sup>3</sup>We also ran regressions with 1) all engagement levels, 2) only without engagement level (2a) and 3) only without engagement level (5a). It turns out that all diagnostics are in favour of the model we use.

<sup>4</sup>We used a simple likelihood ratio principle to test for the significance of  $\gamma$  in the heteroskedastic specification. This test statistic, which compares the restricted log-likelihood value (when  $\gamma = 0$ ) with the unrestricted one, is asymptotically  $\chi^2$  distributed under the null hypothesis with 7 degrees of freedom (number of restrictions imposed). Note that we did not include a constant in  $z_i$ , again due to an identification problem. The resulting value of the test statistic (261.40) is far above the 5% critical value of a  $\chi^2$  distribution with 7 degrees of freedom (14.07) and hence, we reject the null hypothesis of  $\gamma = 0$  finding statistically sufficient evidence that the heteroskedastic ordered logit model is preferred to the homoskedastic ordered model.

<sup>5</sup>To illustrate these binary regressions, suppose one has three engagement levels. One can now perform two separate binomial logit regressions:  $\Pr(Y_i = 1)$  vs.  $\Pr(Y_i > 1)$  and  $\Pr(Y_i \leq 2)$  versus  $\Pr(Y_i = 3)$ . For each binary regression a different coefficient vector is

estimated. When these coefficient vectors do not significantly differ from each other, there is no reason to reject the ‘parallel regression assumption’.

<sup>6</sup>The computation of the marginal effects is done as follows: for each observation a marginal effect is calculated and the sample averages of these values are displayed in [Table 2](#) for each variable. The p-values of these effects are comparable to p-values of the coefficients of the binary regressions in the same table.

<sup>7</sup>If the ‘parallel regression assumption’ is not violated for a variable, this does not necessarily imply that the marginal effects in [Table 2](#) are statistically the same across all binary regressions.

<sup>8</sup>Furthermore, we investigated the redundancy of the variables in the heteroskedastic specification (testing for each  $j$ ) with a likelihood ratio test statistic (7 degrees of freedom, 0.05 critical value is 14.07). The four test statistics given in [Table 3](#) (79.42; 69.08; 58.20; 51.22) are all in excess of 14.07, leading us to the conclusion that for each binary regression the heteroskedastic specification is again preferred to the homoskedastic specification. We also assessed the significance of each binary heteroskedastic regression in its totality (46 degrees of freedom, 0.05 critical value is 62.83). The four test statistics given in [Table 3](#) (3343.66; 2034.88; 1776.52; 1351.76) are all in excess of 62.83.

<sup>9</sup>These results support the use of the influential TEA (Total Entrepreneurial Activity) measure of GEM where nascent and young entrepreneurs are taken together (Reynolds et al., [2005](#)).

<sup>10</sup>For each binomial regression in [Table 2](#) the turning point where the effect of age becomes negative is 36, 46, 48 and 51 years old. These numbers are similar to those obtained in the heteroskedastic binary regressions, except that the turning point of any level of engagement below having a business for at least 3 years versus the highest involvement level of being an owner for at least 3 years becomes 50 years instead of 51.

<sup>11</sup>Reynolds ([1997](#)) using the concept of “nascent entrepreneurs” (those reporting two or more firm gestation behaviours) finds that age is the dominant factor affecting decisions to start a new firm and that this effect is non-monotonic attaining its peak for the age class 25 to 34.

<sup>12</sup>The turning point for education resulting from the coefficients in Table 1 takes the value of 47 for the variable 'age when finished full time education'.

<sup>13</sup>The absence of a significant impact of the perception of lack of financial support as well as the unambiguous influences of the perception of administrative complexities, preference for self-employment and risk tolerance are in line with findings in earlier studies using different non-ordered models but also based on the 'Flash Eurobarometer survey on Entrepreneurship' data sets of different years (Grilo and Thurik, [2005a](#), 2008; Grilo and Irigoyen, [2006](#)).

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