EDITOR'S COMMENTS – SUPPLEMENT

A Study in IT and Entrepreneurism in the Campania Region of Southern Italy

A recent empirical investigation[1] involving a sample of 567 entrepreneurial enterprises confirms the intimate link between new entrepreneurs and IT. To get a feeling for what questions could and should be asked of entrepreneurs, focus groups were first assembled, a process which involved querying a selected number of firms and participants. Participants were encouraged to discuss and publicly examine their IT requirements, especially with reference to the opportunities, impacts, and, above all, issues and obstacles related to the adoption of such new technologies.

To carry out data collection in the followup field study, a questionnaire was utilized. This questionnaire was administered using the CATI (computer-aided telephone interview) method, and consisted of 40 questions regarding the use of IT and its connection to start-up decisions and business performance. Identified initially in the population of entrepreneurial firms in Campania were 3,112 entrepreneurial enterprises; of these, 932 were excluded from the sampling frame because they were not suitable (in response to an opening question they declared that they did not use IT systems for the management of their business). Of the 2,180 remaining, 537 could not be contacted, leaving 1,643 in the sampling frame. Of these, 394 could not find the time to participate and 682 turned down the interview, leaving 567 in the sample for a 35 percent response rate.

In general terms, more than half of the interviewed enterprises were very positive about the capacity of IT to stimulate entrepreneurism—*ex ante*, encouraging the individual to create a new enterprise; *ex post*, intervening in order to improve performances and business processes, increasing business productivity, redesigning internal processes, making existing processes more efficient, and extending organizational flexibility. Over 70 percent of the firms agreed on the capacity of IT to make an impact on relational and communication systems, especially with regard to improving relations with customers and suppliers, increasing the sharing of information and resources, facilitating the exchange of information and the sharing of strategic lines. The same group of interviewees noted the strong influence of these IT capabilities on their decision to create a new enterprise. In particular, the 567 start-ups confirmed, without significant differences among them, that they had established their enterprises relying on IT to manage external relations (for example, sales, marketing, customer management, and external logistics), administrative functions (for example, accountancy and management control), and internal business processes (for example, production, warehouse, and internal logistics). The empirical data, analyzed through structural equation models (see Figure 1), provides interesting results, prompting further in-depth investigation to confirm the close correlation between the availability of information technologies and the inclination to entrepreneurism. The research model allowed the team to test additional variables that were posited to have a direct or indirect effect (entrepreneurial performance, IT capacity factors, etc.) (see Figure 1).

Furthermore, the covariance-based SEM analysis shows how firms born from a strong IT strategy continue to improve their performance, always establishing new interaction models with consumers, based on

- Individual involvement of the consumer in a culture of cocreation
- Increasingly more direct, non-intermediated interaction
- Transition from the personalization of communication (content and channels) to contextualization of customer interest and purchases
- Transition from behavioral targeting to a sharing of the identity of the corporate brand

Future Research

The model in Figure 1 enabled the research team to formulate tentative conclusions and to propose future research using a methodology that explains the impact of IT capital on performance and thus on the growth of new enterprises. The theoretical model of growth accounting (elaborated in greater detail below) stresses determinants of economic growth; in fact, it is broken down into contributions arising from different

[1]The study was conducted by researchers associated with the Faculty of Economics of the Second University of Naples.

factors. The underlying theoretical model is the neoclassical theory of production, according to which it is possible to describe technology in terms of a continuous and differentiable production function that correlates output, factors of production, and technical progress. It is assumed that the production function, which links the output (that is, the product) to the production inputs (labor and capital, the latter possibly divided into IT and non-IT), has the functional form of a Cobb-Douglas equation:

$$Y_t = A_t\, L_t^{\alpha}\, K_t^{B1}\, I_t^{B2} \qquad \alpha + \beta 1 + \beta 2 = 1 \tag{1}$$

where Y_t is the added value to time t, L_t is the labor input (measured in working hours), K_t is the input of non-IT capital and I_t is IT capital. A_t identifies the shifts of the production function linked to technical progress, that is, the total factor productivity (TFP), which residually captures all of the changes of the output not explained by the other factors.

In the hypothesis of perfect competition (and profit maximization), α, β1, and β2, which identify product elasticity compared to every factor of production (labor, non-IT capital, and IT capital, respectively) are equal to the quota cost of that factor on the output value.

Expressing the growth rates in logarithmic terms (where Y°= lnYt-lnYt-1; that is, the growth rate), (1) becomes:

$$Y° = A° + \alpha L° + \beta 1K° + \beta 2I° \tag{2}$$

where β2I° identifies the contribution of IT capital to product growth. From (2), the total factor productivity growth is residually calculated:

$$A° = Y° - \alpha L° - \beta 1K° - \beta 2I° \tag{3}$$

Labor productivity is obtained by dividing the production function (1) by the labor input (measured, in our case, in working hours, but, as an alternative, labor units could be taken into account):

$$y_t = Y_t / L_t = A_t\, (K_t / L_t)^{\beta 1}\, (I_t / L_t)^{\beta 2} = A_t\, K_t^{\beta 1}\, i_t^{\beta 2} \tag{4}$$

where with k, i, and y per capita values are indicated (or, in this case, per working hour). From the logarithmic differentiation of (4), the deconstruction of labor productivity growth is obtained in order to highlight the effect of capital deepening:

$$y° = A° + \beta 1k° + \beta 2i° \tag{5}$$

Finally, to highlight the contribution of IT not only to growth productivity (β2i°) due to capital deepening, but also to technical progress (from TFP), the formulation adopted by the European Commission in its work on productivity growth engines can be applied (European Commission European Economy (2004), n.6, Directorate-General for Economic and Financial Affairs, p. 156):

$$y° = (1 - \alpha)(1 - \eta)\ [K° - L°] + (1 - \alpha)\eta\ [I° - L°] + A°_{it\ ind} \tag{6}$$

where

- η identifies the IT capital quota on added value (= β2 / 1 – a)
- (1 – α)η [I° – L°] is the contribution to productivity growth due to *capital deepening*
- $A°_{it\ ind}$ indicates the contribution to technical progress (TFP) that comes from IT industries

We urge researchers to think along these lines when trying to establish economic links between IT and entrepreneurial activity.

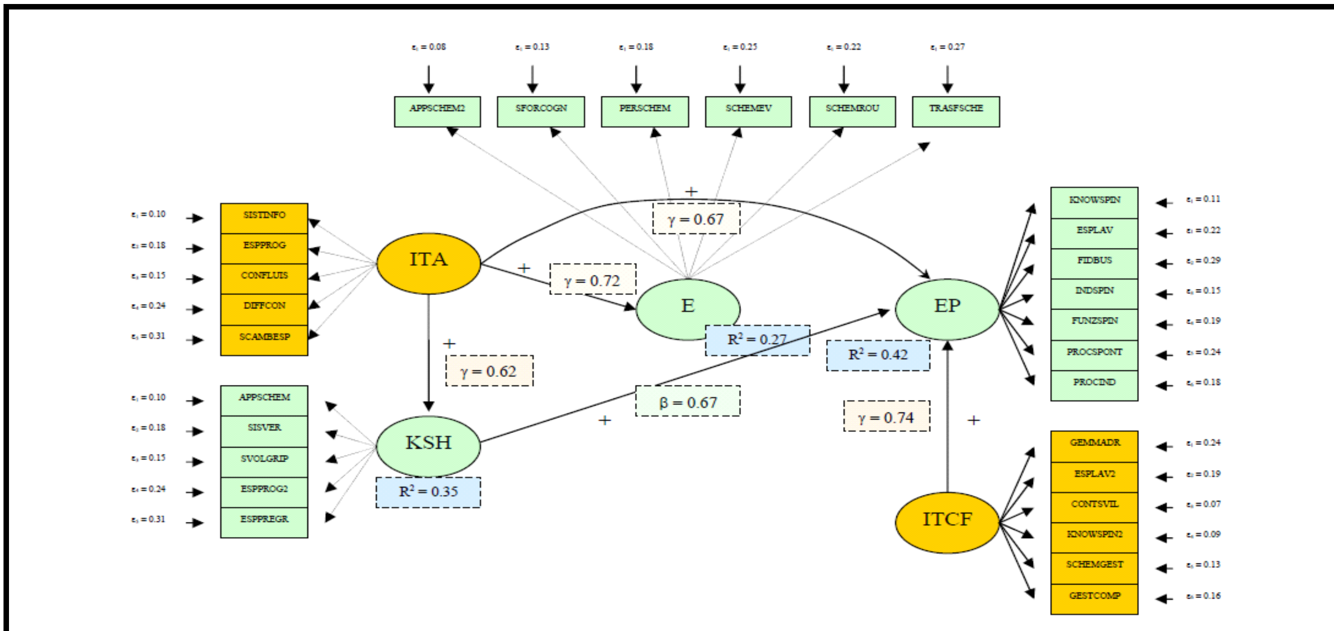

Figure 1. Covariance-Based SEM Results on Links Between IT and Entrepreneurism

Notes:

Exogenous Variables
ITA = IT Availability
ITCF = IT Capacity Factor

Endogenous Variables
KSH = Knowledge sharing ($R^2 = 0.35$)
E = Entrepreneurism (= propensity to entrepreneurship) ($R^2 = 0.27$)
EP = Entrepreneurial performance ($R^2 = 0.42$)

***Solid lines indicate significant paths.

H1 ⇛ *ITA is positively associated with E.*
The positive impact of the ITA variable on the E variable was registered by a value of the structural coefficient $\gamma = 0.72$, compatibly with a *measurement error* (E) variable in a range of $0.08 < \varepsilon < 0.24$ ($\chi^2 = 27.20$, df = 566, $P < .05$; GFI = 0.84; AGFI = 0.92).

H2 ⇛ *ITA is positively associated with EP.*
The positive impact of the ITA variable on the EP variable was registered by a value of the structural coefficient $\gamma = 0.67$, compatibly with a *measurement error* (EP) variable in a range of $0.11 < \varepsilon < 0.29$ ($\chi^2 = 32.50$, df = 566, $P < .05$; GFI = 0.80; AGFI = 0.91).

H3 ⇛ *ITA is positively associated with KSH.*
The positive impact of the ITA variable on the EP variable was registered by a value of the structural coefficient $\gamma = 0.62$, compatibly with a *measurement error* (KSH) variable in a range of $0.10 < \varepsilon < 0.31$ ($\chi^2 = 33.29$, df = 566, $P < .05$; GFI = 0.77; AGFI = 0.85).

H4 ⇛ *ITCF is positively associated with EP.*
The positive impact of the ITCF variable on the EP variable was registered by a value of the structural coefficient $\gamma = 0.74$, compatibly with a *measurement error* (EP) variable in a range of $0.11 < \varepsilon < 0.29$ ($\chi^2 = 31.20$, df = 566, $P < .05$; GFI = 0.76; AGFI = 0.89).

H5 ⇛ *KSH is positively associated with EP.*
The positive impact of the ITCF variable on the EP variable was registered by a value of the structural coefficient $\beta = 0.67$, compatibly with a *measurement error* (EP) variable in a range of $0.11 < \varepsilon < 0.29$ ($\chi^2 = 28.43$, df = 566, $P < .05$; GFI = 0.81; AGFI = 0.87).