**Appendix. A**



Let,

Y = to denote a firm’s core competence

 $x\_{1 }$ = to denote value generating characteristic

 $x\_{2} $= to denote inimitability characteristic

 $x\_{3}$ = to denote access to a wide range of new markets characteristic

We may write:

$$Y=f\left\{x\_{1 }\right., x\_{2}, \left.x\_{3}\right\}$$

Where,

Y is a dichotomous variable indicating to the presence or otherwise of a firm’s core competence,

That is,

 Y = 1 if a firm has a core competence

 Y = 0 otherwise

This is a classification problem, as a firm either has a core competence or not given its output characteristics. Within this framework, however, it would be possible to estimate the conditional probability that a firm has a core competence, given the presence of one or more of these output characteristics. For this purpose, we have formulated a logistic probability function as follows:

Pr ( Y=1) =$\frac{1}{1+exp-⁡(α+β x1+βx2+βx3)}$ (Eq.1 )

Where,

 $x\_{1 }$ = 1, if a firm successfully added value into product/ services ( output

 characteristics 1)

 $x\_{1 }$ = 0, otherwise

 $x\_{2}, $= 1, if a firm successfully embedded its knowledge into its organizational

 memory. ( output characteristic 2)

$ x\_{2}, $= 0, otherwise

$ x\_{3}$ =1, if a firm has access a wide variety of new markets (output

 characteristic 3)

$ x\_{3}$ =0, otherwise

**Appendix. B**

Table. 1**:** Bivariate Models: conditional probability of a firm’s core competence

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Components (independent variables)** | **Indicator**  | **B****(Coefficient)** | **S.E** | **WALD** | **df** | **Sig.****P value** | **Exp(B)****O.R** | **Probability of core competence of the firm**  |
| Value generation($x\_{1}$*= (V.a = 1)*  | **Value added products**  | 1.959 | .536 | 13.365 | 1 | 0.001 | 7.095 | **0.9700**$$C.C=f\left\{v.a\left. \right\}\right.$$ |
| Inimitability$x\_{2}$*= (Emb= 1)* | **Retention and protection of knowledge** | 1.080 | .480 | 5.055 | 1 | 0.025 | 2.944 | **0.9636**$$C.C=f\left\{Emb\left. \right\}\right.$$ |
| Potentiality to enter a wide variety of markets $$x\_{3 }=(nme=1 )$$ | **New market entries** | 2.452 | .505 | 23.593 | 1 | 0.000 | 11.614 | **0.9748**$$C.C=f\left\{nme\left. \right\}\right.$$ |

|  |
| --- |
| **Variables in the Equation** |
| Components | B | S.E. | Wald | df | Sig. | Exp(B) |
|  | Potentiality to enter new markets | 2.104 | .528 | 15.911 | 1 | .000 | 8.200 |
| Firms succeed to embed their knowledge  | 1.204 | .537 | 5.032 | 1 | .025 | 3.333 |
| Value added product and services  | 1.773 | .576 | 9.481 | 1 | .002 | 5.891 |
| Constant | -.075 | .490 | .024 | 1 | .878 | .927 |

Table B.2. Multivariate logit estimation results

**Appendix. C**

**Constructing a classification system of firms.**

 A scoreboard is constructed (Table. 6) to provide a classification system of firms to help in the allocation of scarce resources for innovation activities. This scoreboard is constructed based on the following output of the logit regression model :

1. Value of the Wald statistic (determines the statistical significance of a given output characteristic).
2. Change in the odds ratio (Exp *(B)*) (given the highest weighting in scoring method).
3. Predicted conditional probability of a firm’s core competence.

Table. C.1 Scoreboard of the organizational attributes by their contributions to a firm’s core competence

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Factor**  | **Wald Statistic** | **Odd ratio (Exp (B))** | **Conditional Probability of a Firm’s Core Competence, Given the Factor**  | **Score**  |
| Inimitability / embeddedness of knowledge | **4.276** | **0.37** | **96.36%** | **2** |
| Value generation  | **13.365** | **7.096** | **97%** | **3** |
| Potential of a firm to access new markets  | **23.593** | **11.614** | **97.48%** | **5** |
| **Total** |  |  |  | **10** |