The Effects of Human and Social Capital on the Development Process of Industrial Clusters: The Case of Wooden Furniture Cluster in Sri Lanka

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Abstract

This paper investigates how human and social capital assists for the development of clustered and non-clustered firms in wooden furniture industry in Sri Lanka. The study resulted three major findings; the most experienced and educated entrepreneurs played important role to secure their market through introducing brand name for the product; human capital acquired through formal education and experience is highly significant on the performances of clustered firms than that of non-clustered firms; and irrespective of clustered or non-clustered, performance of the firms in wooden furniture industry in Sri Lanka are significantly relying on social capital.

1. Introduction

Many researchers and academics have realized and emphasized that accelerated industrial growth has been crucial in reducing poverty and unemployment in developing countries (Schumpeter 1939, Yamamura 2009, Sonobe and Otsuka 2006). Since high productivity growth considered as the basis of rising per capita income, the low income countries can only achieve it through industrialization.

Within industrial development strategies, industrial
clusters have earned steady position in the literature and it has a long history. Industrial clustering reduces the cost in a business owing to proximity of transaction parties. More specifically, as additional firms locate in the same geographic area, the lower cost of production can be achieved through rivalry suppliers, supporting firms, and specialized labor force. Furthermore, the greater the number of firms located in an area, the greater the overall market to which a business can sell its goods or services.

In the process of the development of industrial clusters the important role played by human capital has been emphasized in the literature by many (Yamamura, 2009, Schultz, 1961, Padmasiri, 2011). Factors such as formal education and participation in ongoing training related to the workplace help to enhance the human capital.

The concept of social capital can be defined as “features of social organization, such as trust, norms, and networks that can improve the efficiency of society” (Putnam et al., 1993).

This paper sees how these concepts assist for the development of business firms by studying wooden furniture industry in Sri Lanka. Succinctly this study sees how human and social capital assist in the success of business organization within a clustered and how it affects the performance of non-clustered firms.
2. Wooden Furniture Industry in Sri Lanka

Wooden furniture industry is one of the key and oldest industries in Sri Lanka. There are over 9000 furniture and other wood working industrial plants are operating in the country. The majority of wooden furniture firms are concentrated around “Moratuwa” town which is popular everywhere in the country as traditional city of carpentry.

3. Hypothesis

H1: Highly educated and experienced firm managers of clustered and non-clustered wooden furniture firms tend to use brand names for the products to secure their own marketing channel.

H2: The formal education of the managers of wooden furniture industry is highly significant on their performance, in clustered firms than in non-clustered firms.

H3: In wooden furniture, clustered firms and non-clustered firms social capital (measured by membership of business association and trust) significantly contribute to the business performance.

4. Method and Data Analysis

Both cross sectional and time series data of 96 active firms related to the wooden furniture industry in Sri Lanka is used in this study. The data set contains the information on managers’ education, experience, social relationship and some other basic information in addition to the annual sales, cost of production, marketing in 2000, 2002, 2004, 2006, and 2008.
**Regression Model 1**

Brand Name  = $\beta_0 + \beta_1(HC)_{it} + \beta_2(Trust)_{it} + \beta_3(EXP)_{it} + \beta_4(Asso.Mem)_{it} + \beta_5(V.Training)_{it} + \beta_6(Asso.Mem * Trust)_{it} + \beta_7(EXP * Trust)_{it} + u_{i}$,  

Where; $u_i$ = error term, which captures the impact of all the unobserved factors.

**Regression Model 2**

$\ln(\text{Value added revenue})_{it} = \beta_0 + \beta_1(HC)_{it} + \beta_2(Trust)_{it} + \beta_3(EXP)_{it} + \beta_4(Asso.Mem)_{it} + \beta_5(V.Training)_{it} + \beta_6(HC*EXP)_{it} + \beta_7(Asso.Mem * Trust)_{it} + \beta_8(EXP * Trust)_{it} + c_{it} + u_{it}$,  

Where; $c_{it}$ = unobserved component or random effect  

$u_{it}$ = error term, which captures the impact of all the unobserved factors.

To test Hypothesis 1 ($H_1$), a regression model 1 was used. Because brand name is a binary dependent variable (=1 if firm has a brand name, = 0 otherwise), the probit regression model was applied.

Since this study also indicates that there is no significant difference between fixed and random effect results (Hausman test), random effects model was used to test hypotheses 2 and 3.

5. Estimation of Result and Discussion

In the regression, the number of years of schooling of the managers and their operational experience within their own business has a positive and highly significant effect on the introduction of a brand name for the products in both
types of wooden furniture firms. These two independent variables are statistically significant at 1% significance level. Also experience gained by working as managers in the firms in the industry is also significant at the 1% significance level. This result supports hypothesis 1 and is consistent with extant literature.

According to these results, formal education and prior work experience as managers are significant at 1% significance level in the case of clustered wooden furniture firms. However, in non-clustered wooden furniture firms formal education significant only at 5% level indicating that the human capital contributes more to the clustered firms than that of non-clustered firms in wooden furniture industry in Sri Lanka. These results support the second hypothesis. In order to capture the social capital for the analysis the study has used four independent variables including two multiplicative variables. Among them the number of years of operation (trust) is the most important variable to capture the social support for the success of any business. According to the analysis, this particular variable is significant at 1% level in both the clustered and non-clustered cases. In addition, the multiplicative variable of “EXP_{it} * Trust_{it}” is also significant at 5% level in both cases.
## Regression Results

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Cluster</th>
<th>Non Cluster</th>
<th>Cluster</th>
<th>Non Cluster</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>In Value Added (Random Effect estimates)</td>
<td>Brand Name Dummy (Probit estimates)</td>
<td>In Value Added (Random Effect estimates)</td>
<td>Brand Name Dummy (Probit estimates)</td>
</tr>
<tr>
<td>Years of Schooling</td>
<td>.11(.043)***</td>
<td>.35(.06)***</td>
<td>.084(.048) **</td>
<td>.36(.061)***</td>
</tr>
<tr>
<td>Years of Operation</td>
<td>.052(.013)***</td>
<td>.14(.05)***</td>
<td>.044(.013)***</td>
<td>.11(.04) ***</td>
</tr>
<tr>
<td>Years of Experience (EXP)</td>
<td>.059 (.009)***</td>
<td>.13(.03)***</td>
<td>.10(.025)***</td>
<td>.12(.031) ***</td>
</tr>
<tr>
<td>Asso.Mem *Trust</td>
<td>.019 (.010)**</td>
<td>-.01(.05)</td>
<td>.012(.011)</td>
<td>.010(.04)</td>
</tr>
<tr>
<td>Association</td>
<td>.19(.21)</td>
<td>.33(.70)</td>
<td>.067(.22)</td>
<td>-.056(.62)</td>
</tr>
<tr>
<td>V.Ttraining</td>
<td>-.016(.24)</td>
<td>.99(.36)***</td>
<td>1.05(.36)***</td>
<td></td>
</tr>
<tr>
<td>EXP* Trust</td>
<td>.0009(.0003)**</td>
<td>.007(.001)***</td>
<td>.001(.0004)**</td>
<td>-.006(.001)**</td>
</tr>
<tr>
<td>Constant</td>
<td>-.46(.72)</td>
<td>-6.68(1.24)***</td>
<td>13.86(.68)</td>
<td>-6.2(1.1)***</td>
</tr>
<tr>
<td>Sample Size</td>
<td>216</td>
<td>216</td>
<td>211</td>
<td>208</td>
</tr>
</tbody>
</table>

Notes: Numbers in parentheses are standard errors. The symbols *** and** indicate statistical significances at the 1 and 5 percent levels respectively.

### 6. Conclusion

The arguments made by the author in this paper are clearly supported by empirical evidence. Even though the social capital is very difficult to measure, the author used social trust as a proxy and able to reveal that the social trust is one of the key factors that contribute positively in the success of business. Within the broader industrial development process human and social capital can be considered as key production factors that influences to the firm performance.