

The Impact of Job Training

on the Performances of Moroccan Firms:

Empirical Evidence with Firm-Level Panel Data

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Introduction

- Human capital is a determinant of economic development
 - Increase employees' productivity (Becker (1964))
 - improves capacity to innovate or to adapt to new technologies (Nelson and Phelps (1966))
 - Human capital: measures
 - education
 - job training
- ⇒ Estimate the effects of job training programs

Introduction

- Level of analysis: Firm
 - Effects on employees' productivity,
 - Effects on organizational management,
 - Effects on innovative capacities
- Country of analysis: Morocco
 - Emerging country
 - Solutions concerning the management of human resources in direct link with the problems of growth and long-term development

Plan

- Database
- Descriptive statistics
- Evaluation Strategy
- Results
- Conclusion

Database

The sample of training firms

- Office for Vocational Training and Labour Promotion” (OFPPT)
 - Training firms with special training contracts prompted by the Moroccan government
 - Ministry of Industry, Commerce and Telecommunications (MICT)
 - Economic indicators on Moroccan firms
- ⇒ Matching and at least two period: 322 training firms

The control sample

- Selection of non training firms from MICT
- Sampling method: Stratification
 - Criteria of stratification: turnover, size, sector:
12 subgroups in training and non training sample
 - Calculate proportion of training firms for each stratum
 - Selection of firms, randomly, within each stratum of non training firms with respect of proportions of training firms in each stratum

⇒ 322 non training firms

The final database

- Questionnaire administered to firms
Restriction: firms of Large Casablanca
 - Context in which training take place or not
 - Strategies and means to manage training policy
- Final Sample: 256 firms
 - 50,6% training; 49,4% non training
 - Non cylinder panel: 631 observations from 2001 to 2003
 - Does not modify the structure of initial sample

Descriptive statistics

- 59,9% of training firms use training in order to include it in their development projects and to identify their training needs
 - 29,7% of training firms consider training as a simple financing opportunity to seize in order to reduce training expenses: “opportunist” firms
 - 69,5% of non training firms answer that they prefer recruit individuals with the required skills
- ⇒ Firms have different point of view about the role of human resources

Evaluation Strategy

- Measures of firm competitiveness:
 - Turnover
 - Turnover per capita
 - Output value
 - Output value per capita
- Training:
 - Compare training firms to non training firms
 - Compare training with a given context to other firms

- Firm unobserved heterogeneity :

$$Y_{it} = X_{it}\beta + F_i\gamma + \alpha_i + \varepsilon_{it}$$

- Fix effect: Within transformation
No identification of time-invariant parameters
- Random effect:
No correlation between unobserved heterogeneity and explicative variables

Evaluation Strategy

- Estimator of instrumental variables

$$Y_{it} = X_{it}\beta + F_i\gamma + u_i + \varepsilon_{it}$$

- 1st step: Within estimator to a model with only time-variant variables $\hat{\beta}_{within}$
- Calculate residuals and mean residuals (*B: Between*) $\hat{d} = BY - BX\hat{\beta}_W$
- 2nd step: Regress residuals on time-invariant variables by 2sls

$$\hat{d} = F_i\gamma + u + (B - BX(X'WX)^{-1}X'W)\varepsilon$$

Correction from heteroscedasticity and from selection bias due to non cylinder panel

Results

- Significant effect of training on firm performances
 - RM: turnover: 23,5% , turnover per capita: 18,3%
output: 16,7%, no effect on output per capita
 - IV: turnover: 12,5% , turnover per capita: 17%
no effect on output

⇒ Training improves firm competitiveness

- Significant effect of training when firm use training in their development projects:
 - RM: turnover: 28,1% , turnover per capita: 18,3%
output value: 26,5% , output value per capita: 17,7%
 - IV: turnover: 14,5% , turnover per capita: 14,9%
output value: 11,4% , output per capita: 11,9%

- No significant effect of training or negative effect for opportunistic firms

⇒ Honest firms are rewarded versus opportunistic firms are sanctioned

- Training center, extern advice services, explicit procedure to identify training needs: no significant effect.

⇒ Develop quality of training supply

- Training responsible or interviews with employees: significant effect from 10,8% to 13,1%

⇒ Efficient allocation of training

- Training to support equipment modernization or maintenance: significant effect from 10,2% to 13,9%

Conclusion

- Training is an efficient public policy to improve firm competitiveness
 - ⇒ Job Training is a way to reach economic development
 - ⇒ Public policy of training and not just of education
- Efficiency of training programs depends on firm conceptions of training public policy
 - ⇒ Importance of a good understanding of the role of training programs, and human resources
 - ⇒ Promote information and communication within employers and unions