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The Effect of Information Technology Investments on Intermediate Performance of Firms

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THE EFFECT OF INFORMATION TECHNOLOGY INVESTMENTS ON INTERMEDIATE PERFORMANCE OF FIRMS

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ABSTRACT

Our project is designed to investigate the impacts of information technology (IT) investments on "intermediate" performance variables as opposed to aggregate firm level measures (such as market share and profitability). Given the reported potential of IT to streamline administrative processes in organizations, our first objective is to contrast the impacts of IT investments on labor and administrative productivity. Further, we observe that none of the empirical studies to date have examined the relationship between IT investments and the utilization of a firm's resources such as inventory and assets. Resource utilization metrics are referred to as activity ratios. Given the increasing attention to the process reengineering phenomenon, it appears that the link between key activity measures and IT investments needs to be investigated. Hence, the second objective of our study is to assess the impact of IT investments on activity ratios.

Longitudinal data for a three year period (1991-1993) was obtained by collating data from two primary sources: *Information Week* and *Compustat*. There was data attrition due to missing data for firms in one or more of the three years being considered. We ended up with a usable sample of 86 firms; 47 of these firms belong to the manufacturing sector and this sample was used in our initial analysis reported here.

Four intermediate performance variables were considered. Labor productivity was measured by the ratio of sales to the number of employees. Administrative productivity was measured as the ratio of sales to the selling, general and administrative expenses of the firm. Data on asset turnover and inventory were obtained directly from *Compustat*. The analysis was geared to detect time-lagged effects and appropriate measures of IT invesment were accordingly correlated with changes in intermediate performance.

Our results provide partial support for a positive association between IT investment intensity and labor productivity. However, no significant relationship was observed between IT investment intensity and administrative (non-labor) productivity. Some significant associations were observed between IT investment intensity and asset and inventory turnover. Overall, our results provide some support for a positive association between IT investment intensity and intermediate performance measures of a firm.