

The productivity paradox



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??? You can see the computers everywhere but in the productivity statistics??? (Solow, 1987). According to standard measures of labor productivity, until 1995, computers were not enhancing the productivity. Then, as a question in mind, which brings up the paradox??™s itself, why did most of the firms prefer to invest more and more in computers and information technologies? At first glance, it seems that information technology (IT) had an undeniable impact on the U. S. economy. Since two decades, microelectronics has remodeled many services and products, the way of production, and the life-styles of consumers (Attewell, 1994). Although IT changed lots of our everyday life, a growing number of researches indicated that the information revolution has failed to deliver in one important respect. That is, IT has not improved the productivity of the U. S. economy or U. S. firms. The computer revolution would appear to have been extremely successful. Computers rapidly diffused across almost all of industries and today, computers are fundamental parts of all enterprises. The next step was expected to be a marked improvement in productivity in the industries that had used computers.

Such a productivity increase was necessary because since the late 1960s the productivity of U. S. factories and service industries had been stagnant while that of the nations international economic competitors had been rising. National Academy of Engineering stated in 1988 that firms in the United States were losing market share, in part because of their higher cost structure (Harris, 1994). The promises made for IT were usually centered on productivity payoffs. Vendors of the technology assured buyers that the technology would increase productivity by requiring fewer workers to

perform a work or by replacing expensive skilled labor by cheaper semiskilled labor. American industry changed their perspective and increased their investments to unbelievable levels in order to improve their IT departments.

According to a research of U. S. Department of Commerce held in 1991, in 1990^{??}™s U. S. businesses invested around \$61 billion to buy hardware, around \$18 billion to purchase software, and around \$75 billion to data processing and computer service. Nowadays, IT departments account almost quarter or more of firms capital stock in U. S.

companies. These accounts also include the total value of its equipment and plant (Attewell, 1994). On the other hand, others believe that U. S.

industrialists have taken really high risks by investing on IT, in terms of the success of their individual firms and also nations competitive standing, because it is obvious to see the apparent decrease of the productivity of firms^{??}™ and nations gains. Nevertheless, those who believe in the productivity paradox do not argue that computers are a bad thing because they are aware the computers^{??}™ improvement effects in goods, services, and the quality of life but they still believe that it is not most important promise which can increase economic productivity of U. S. companies and competitiveness of U. S. industry. Regarding these concerns and speculations, in the 1980s and 1990s, empirical research generally did not find relevant productivity improvements associated with IT investments (Strassman, 1990; Loveman, 1988; Franke, 1987). However, if we examine the situation closer, we can conclude that the correlation between higher IT

spending and lower productivity at the level of the entire US economy is not compelling because so many other factors affect productivity.

Brynjolfsson (1992) tries to explain this productivity paradox. He summarizes the explanations into four categories:(1) Measurement errors. There are problems in measuring and comparing ICT investments owing to rapid price and quality changes; and economic statistics generally fail to measure qualitative improvements in the output of service industries. We can state these errors as outputs and inputs errors.(2) Time lags. Productivity gains from IT investment materialize only after time when it reached a critical mass of diffusion and experience.(3) Management practices. This is mismanagement of information and technology.

It could be argued that these have not evolved sufficiently to take full advantage of technology.(4) Redistribution. IT might help individual firms relative to competitors, but not increase productivity in the whole economy. I agree with the way he thinks about productivity paradox. We cannot say that IT alone has not increased the productivity because it is not the only effect on productivity.

Moreover, when we look at the studies and their findings in a historical order in Table 1, we can conclude that the findings are in a trend of change in terms of IT and its impact on productivity. Although the older ones are indicated that IT and productivity are not relevant to each other, recent studies show that they are actually in a positive relationship. Table 1.

Productivity Paradox Research Studies and Their Findings| Loveman| 1988| IT investments added nothing to output| Strassman| 1990| No correlation

between IT and profits or productivity| Harris and Katz | 1991| Weak positive relationship between IT expense ratios and various performance ratios| Greenan and Mairesse| 1996| There is a positive relationship between a firm's productivity and the fraction of its employees who report using a PC at work| Bresnahan et al.| 2002| IT hardware capital has a significant positive impact on productivity| Numbers clearly showed that the life of an American citizen is way better than any time in the history, growth of the pushing annual labor productivity were 2.5 percent between 1995 and 2000, and 2.8 percent between 2000 and 2004.

In every department of company, there is a clear result, more technology more efficiency, more technology more flexibility. Because of that in the US, companies averagely spend \$7500 per worker on technology to raise the productivity. Mckinsey consultants stated that, non-complex transactional positions were reduced, as a result of the benefits of productivity-stimulating technology. Now software engineers should think about the jobs require experience, interaction, knowledge and judgment. We cannot say that if we use more productivity-enhancing technology, there should be an increase in the productivity.

Basexs research that firm focusing on the economy says that, there is a loss up to 30 percent of each day which means 28 billion hours for the entire U. S. workforce, just because of the interruptions from e-mail, mobile phones, text messages. That costs \$588 billion to the U. S.

economy. Doing a job faster by using advanced technology may not mean that doing it better. Harder problems make the workers unhappier in some

cases. This reduces the overall productivity in long run. In a research made among the sales and marketing teams at Intel stated that e-mail or the productivity-enhancing hardware and software, ? is decreasing their productivity and creative thinking while increasing the distraction. They also stated that, e-mail has a negative impact on their collaboration on the cases (Frei and Mader, 2008). Because of the competitive global market place, we should really think huge changes about interaction and collaboration to raise the net profit and sales.

? Automating the knowledge economy reveals an increase to productivity growth. It is a must nations??™ health if it is used by hard-working people and well-meaning companies. It should not be a concern that investment on technology? is a total waste of time, maximizing the returns of these investments should be the concern for managers.