

Creative Destruction in Finnish Manufacturing

THE IMPORTANCE OF BEING A PRODUCTIVE NATION

John Maynard Keynes once said that in the long run we are all dead. How happy citizens are until their deaths is nevertheless much dependent on the prosperity of their homeland. Prosperity, in turn, is created by productivity growth in the long run.

If Finnish policy makers had been able to find a way to boost annual productivity growth by a quarter of a percentage point since 1956, the Finnish economy would now have a productivity level equal to that of the United States. In reality, Finland was 12.5 percent behind the United States in terms of productivity in 2002.

For the sake of assessing the economic importance of productivity, with full employment the Finnish economy would now be enjoying living standards that it will probably have in a couple of years anyway thanks to productivity growth.

Living standards and productivity levels were relatively poor in Finland in the 1970s. This implies that the economy's growth performance was not quite satisfactory during the first three post-war decades. It seems, however, that the 1980s constituted a new departure in the development. According to some studies, Finland outperformed most other developed countries in productivity growth in the previous decades when various explanatory factors are controlled for by econometric methods.

A STORY OF THE GREAT LEAP IN PRODUCTIVITY

Despite long-lasting deindustrialisation tendencies, the industrial sector still is a key to success in a small open economy and, therefore is an important research topic. This article provides a story of the great leap in Finnish manufacturing productivity in the last quarter of the 20th century (see the adjacent figure).



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By using various types of productivity decompositions, it can be shown that productivity-enhancing restructuring at the plant level started to contribute to productivity growth in industries in the mid-1980s. The major part of this process can be attributed to plants that



were established during the 1980s, some of which had a high productivity level. They made a lot of investments and created jobs that were equipped with modern technology. At the same time, there was a lot of job destruction among the very low productivity plants. All in all, there is definitely a case for characterising this process as “creative destruction,” a good indicator of which is the so-called “between component” of the productivity decomposition (see the figure below).

The correction of sclerotic micro structures started, at least in many manufacturing industries, well before real interest rates surged and the economic crisis began in the early 1990s. About half of the healthy restructuring has taken place within narrowly defined industries while the remaining half can be attributed to the reshuffling of industry structures.

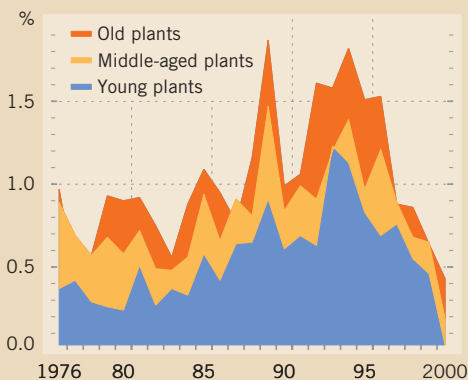
Thanks to the accelerated productivity growth, the Finnish manufacturing sector moved close to the group of countries with the highest productivity by the end of the 1980s and then jumped into this top group by the mid-1990s, as seen in the figure on the previous page.

Although the process of creative destruction started to moderate in the latter part of the 1990s, it is likely that it involved some dynamic effects that boosted productivity growth in subsequent years. Total factor productivity growth within plants accelerated substantially in the early 1990s. It can be hypothesised that the experimentation and selection process, which took place in the latter part of the 1980s, successfully picked up some potential winners of the technology race in the so-called “new economy” era that was soon to emerge.

INDUSTRY DIVERGENCES IN CREATIVE DESTRUCTION

Differences in the micro-level dynamics of productivity growth between industries are interesting in several respects. Although many industries started to benefit from creative destruction, some industries were left behind. For example, the food industry and the manufacture of non-metallic mineral products remained lethargic until 1992, when Finland officially applied to join the European Communities (see the figure below). The economic environment finally started to change in a fundamental way in these industries in those

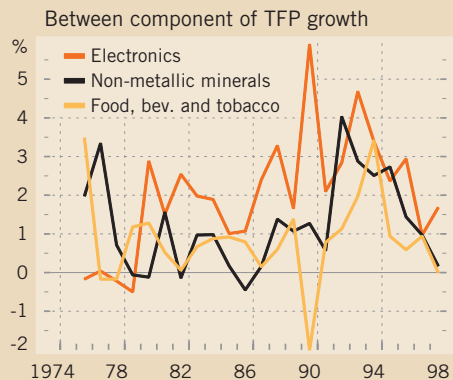
Between Component of TFP Growth



Sources: Maliranta & University of Groningen.

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Waves of "Creative Destruction" in Selected Industries



Sources: Maliranta & University of Groningen.

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days. This can be seen, for example, in the rapid increases in imports and exports. Retail trade, where activity remained quiet until the latter part of the 1990s (see the figure below), is another example of a late awakening in healthy turbulence. The increase in foreign ownership is likely to have triggered the creative destruction in this sector.

Divergent patterns in intra-industry dynamics of productivity growth provide an invitation to explore the factors behind creative destruction. Various theoretical considerations emphasise the view that innovations and technological progress entail experimentation, selection and the reallocation of resources. We would then expect R&D efforts to be positively related to creative destruction, possibly with some time lag needed for generating new technological knowledge and then implementing it at plants. Indeed, empirical evidence obtained from Finnish industry panel data seems to confirm this hypothesis. The results suggest that increases in R&D efforts that occurred in many manufacturing industries since the early 1980s generated technology advances. Equally important, these steps were taken through the crea-

tive destruction process occurring within industries. How much of this can be attributed to the “new innovation” policy, which was manifested for instance in the foundation of the National Technology Agency of Finland (Tekes) in 1983, is an interesting question.

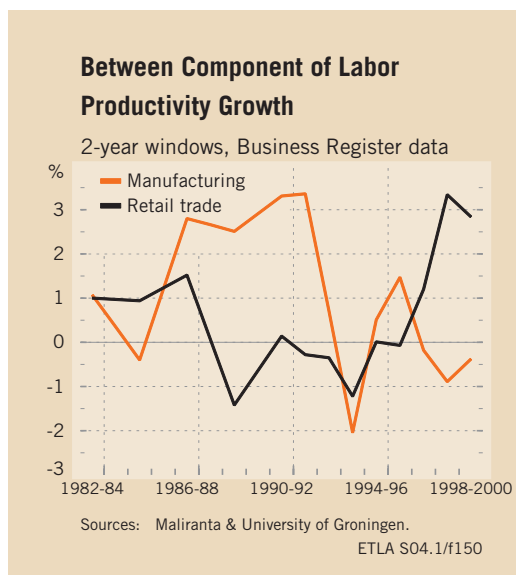
Furthermore, the recent theoretical literature suggests that competitive pressure leads to selection in a way that boosts industry productivity. We would then expect to find that exposure to global competition through imports and exports has a positive impact on creative destruction. Empirical evidence lends support to this hypothesis, as well. These results help us understand why healthy restructuring did not start in the food and non-metallic minerals industries in the mid-1980s, as it did in most other industries, but as late as in the early 1990s.

The timing and features of the Finnish creative destruction process indicate that two common myths on the creative destruction process in Finland should be laid to rest. First, the essential story of this thesis is not a “recession story”. Second, neither is it a mere “Nokia story”.

FINLAND'S GREAT RECESSION

The abrupt and deep economic plunge in the early 1990s is comparable to only a few occasions in the peacetime economic history of the developed countries. The unemployment rate surged from 3.2 to 16.7 percent in 1990-94. Thereafter, the Finnish economy witnessed a seven-year period of exceptionally strong economic recovery. So, unlike Japan for instance, Finland did not remain stuck in a state of sustained stagnation following the start of its recession.

An interesting and important research question concerns how the Finnish productivity leap and the great depression are mutually related. Or are they possibly two completely separate economic episodes? Professor Matti Pohjola



has advocated the hypothesis that inefficiency in the use of capital is to blame for the Finnish economic crisis. In his frequently cited book on “inefficient capital” published in 1996, he claimed that 1990 was the turning point. At that time real interest rates jumped up, which uncovered the underlying inefficiencies and led to the painful adjustment in the early 1990s.

Timing is a problem in this hypothesis. As already mentioned, the first signs of creative destruction were evident as early as in the mid-1980s when real interest rates were still at a reasonable level in Finland. Furthermore, Pohjola’s theory does not provide any explanations for why there were differences in productivity growth dynamics across industries. On the contrary, he explicitly insisted, for example, that the manufacturing and service sectors were equally inefficient at the onset of the recession in 1990.

THE ROLE OF THE LABOUR MARKET

There has been an interesting discussion in Finland about the flexibility of the labour market in general and that of wage formation in particular. Various international comparisons indicate that the Finnish labour market has been at least reasonably flexible in terms of job flows. This may be due to comparatively low layoff costs, for instance. In any case, this kind of flexibility is important especially for creative destruction.

The Finnish labour market system, characterised by centralised bargaining, seems to have been able to yield wage moderation at times when this was been important for macroeconomic stability. In addition, flexibility in agreements concerning working conditions and the organisation of work at the micro level has increased over the years, which probably has been important for productivity growth within firms and plants.

The system seems to have been able to guarantee reasonably peaceful industrial relations,

a result that tends to support continual development work and high productivity in firms and plants. Labour market rigidity mainly pertains to the lower bound of wage increases. This imposes a challenge to maintain and create jobs in low productivity and unprofitable plants and firms. However, all firms are allowed to increase wages more than agreed in the collective bargaining agreement if they feel a need for it in order to, for example, attract workers or induce them to exert greater efforts.

If wage premiums between low and high productivity firms help foster the reallocation of labour, one would expect to find that increases in wage dispersion between plants pave the way for creative destruction. This is because high productivity firms may use wage drift to speed up the adjustment process. No empirical evidence for this hypothesis was found, however. On the other hand, the results do show that an increase in productivity dispersion within an industry usually is a sign of creative destruction that is imminent in a few years. This fits the picture outlined by some theoretical models emphasising the role of firm heterogeneity in the economic evolution.

SKILLS AND CREATIVE DESTRUCTION

It is widely believed that restructuring has boosted productivity by displacing low-skilled workers and creating jobs for the high skilled. This hypothesis can be tested by taking into account the quality of labour input in productivity decompositions. This can be done by using so-called “linked employer-employee” data. These data allow labour input to be measured in terms of “efficiency units”. It turns out that the basic findings and conclusions remain unaltered after the inclusion of the labour quality aspect in the productivity computations. In essence, creative destruction means that low productivity plants are displaced by high productivity plants.

This is not to say, however, that education and skills are irrelevant from the point of view of

economic growth and restructuring. On the contrary, a worker needs to be equipped with modern technology in order to fully utilise his or her skills in a productive way. As a consequence, in order to turn higher skills into higher aggregate productivity, new technologies must be implemented. Labour must be reallocated to those plants that have managed successfully to implement high productivity technologies. So skill upgrading needs to be accompanied by restructuring through job destruction and creation. In addition, high skills probably facilitate adjustment because skilled workers can easily learn to use the new machines and techniques at their new jobs. From this perspective, the recent findings concerning the high basic skills of Finnish pupils are, of course, encouraging. It seems that workers will be able to adopt new techniques that are created by the current high R&D intensity.

POLICY CONSIDERATIONS

As creative destruction is shown to be an important element of economic growth, there is definitely a case for public policy to support this process, or at least avoid disturbing it without good reason. Competition in product markets is important. Subsidies, on the other hand, may insulate low productivity plants and firms from healthy market selection, and curb incentives for improving their productivity performance. Business failures, plant shut-downs and layoffs are the unavoidable by-products of economic development. High priority should be given to creating better general prerequisites for technology transfer

from abroad, innovation, entrepreneurship and job creation. Preventing job destruction in different ways is not equally important.

Of course, some business subsidies are more easily justified than others. For example, there might be a case for supporting innovations. However, it is worth bearing in mind that while stimulating the creation of jobs that are equipped with modern techniques, it simultaneously makes some other techniques, and jobs based on them, obsolete. So some supporting measures, such as training, may be necessary in order to alleviate the turbulence.

The flip side of creative destruction deserves attention from the government for at least two reasons. The first is normative and the second is more practical. First, in a fair and just society, the troubles of less fortunate citizens must be compensated somehow. Second, if a decent social security system is guaranteed by the government, it may be easier for insider workers to accept painful measures such as low layoff costs or the deregulation of product markets, which stimulate incessant micro-level renewal of production and thus also long-run growth.

This article is based on the author's *lectio praecursoria*, or introductory lecture, given during the defense of his doctoral dissertation accepted by the Helsinki School of Economics.