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Employment protection, international specialization, and innovation

Gilles Saint-Paul[a,b,c,*]

[a]*Université de Sciences Sociales, Toulouse, France*
[b]*CEPR, London, UK*
[c]*Universitat Pompeu Fabra, Barcelona, Spain*

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Abstract

We develop a model to analyze the implications of firing costs on incentives for R&D and international specialization. The key idea is that countries with a rigid labor market will tend to produce relatively secure goods, at a late stage of their product life cycle. Consequently, their researchers tend to specialize in 'secondary innovation' which improves existing products, rather than 'primary innovation' which introduces new products. This is roughly consistent with the observed pattern of R&D in Europe versus the U.S. Employment protection does not necessarily harm the country where it prevails, but typically reduces world welfare and the world number of goods. © 2002 Elsevier Science B.V. All rights reserved.

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1. Introduction

Much of the research on the economic effects of European labor market rigidities has focused on its impact on employment. However, they may also

* Correspondence address: MF 206, GREMAQ-IDEI, Manufacture des Tabacs, Allée de Brienne, 31000 Toulouse, France.

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have an impact on other variables, such as long-run productivity, which may have greater consequences in terms of welfare. In Saint-Paul (1997), I have shown that employment protection legislation distorts the pattern of international specialization in favor of low-risk, mature goods. In the present paper, I analyze the implications of such a specialization pattern for the structure of innovation. We distinguish between 'primary innovation', which is the introduction of a new good, and 'secondary innovation', which is a cost reduction in an existing good. We also assume a 'home bias' in that it is cheaper to produce a good in the country where the innovation has taken place. The main result is that a high-firing cost economy will tend to specialize in 'secondary innovation', i.e. in improving existing products rather than creating new ones.

That Europe tends to innovate more in established products than in new ones is evident from the data. For example, in 1993 the US accounted for 54% of world patents in biotechnology, 51% in computers, and 32% in communication, versus 13%, 14% and 13%, respectively, for France plus Germany. By contrast, these two countries accounted for 25% of world patents in instruments, 25% in construction, and 52% in transportation, versus 6%, 5% and 3% for the US.[1] A paradigmatic illustration of a mature, 'medium tech', stable good in which Europe as a comparative advantage is the automobile tire industry, where Michelin of France is a world leader. Interestingly, Michelin is also a dynamic innovator.[2] But its innovations are always improvements on an existing, well-defined good whose demand is clearly established and fairly stable. This is to be compared with the proliferation of new goods and risky undertakings that come out of the Silicon Valley.

This paper therefore sheds light on why Europe appears as less 'high-tech' than the United States.[3] It does not necessarily follow, however, that such a pattern of specialization and innovation is necessarily harming Europe relative to the United States. To the extent that secondary innovation improves efficiency, it may well be a good idea to specialize in that activity and leave the more risky primary innovation to another country. What we are able to show, however, is that if secondary innovation does not reduce costs by too much, an increase in employment protection in one country reduces welfare and the total number of goods the *integrated* world economy. But the distribution of losses is unclear: the high-firing cost country may lose less than the flexible one, and may

[1] See Office de la Science et de la Technologie (1997).

[2] See Scherer (1991).

[3] It may be argued that most of R&D firms are small, so that if they were located in Europe they would probably fall below the employment threshold beyond which employment protection binds. However, most of the rewards from setting up such firms comes from being eventually bought by a larger firm, and because of labor regulation large firms in Europe will be more reluctant to engage into such a venture, which ex-ante discourages entry of small R&D firms.