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Labour market flexibility and technological
innovation or, desperately seeking a trade-off

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Abstract

Lack of labour market flexibility has often been accounted for the low growth rates in the European Union. A recent report on "An Agenda for a Growing Europe", better known as the Sapir Report, discussed this issue and clearly stated the terms of the trade off between growth and lack of flexibility. The Report acknowledges that flexibility involves a range of social and economic drawbacks. Nonetheless it contends that "At a time of very rapid change and a need to adjust both production and skills quickly, flexibility comes at a premium.". In this paper I focus on a range of microeconomic issues, involving the conceptual plausibility of the claimed trade off and the implications that a policy based on such a trade off may have in terms of both growth and social welfare. I argue that the assumptions underlying the trade off are not clear because the notion of innovation in the Report is rather confused. Contrary to what the Report claims, flexibility turns out to be irrelevant for the innovation it purports. Flexibility might produce some effects but only with innovations that the Report neglects. I contend that the effects of flexibility may be to reduce innovation and the potential for growth. Truly, flexibility may allow firms to introduce new technology, but it may also lead firms away from innovation in so far as it allows them to pursue profit through other means, i.e. through cost scrapping. My final argument is that the notion of trade off that the Report refers to is misleading in that it in no way takes account of the social costs that flexibility would determine. I conclude my discussion by drawing a few implications for economic policy.

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1 Introduction

Lack of labour market flexibility has often been accounted for the low growth rates in the European Union. A recent report on "An Agenda for a Growing Europe", better known as the Sapir Report (henceforth Report), discusses this issue and clearly frames the argument in terms of a trade-off between growth and lack of flexibility. The Report acknowledges that flexibility involves a range of social and economic drawbacks. Nonetheless it contends that "At a time of very rapid change and a need to adjust both production and skills quickly, flexibility comes at a premium." (Report, p. 40).

Technical considerations and value judgements underlie the above contention. Once they are clearly stated it is not obvious that the contention should be so clear cut. It goes without saying, for instance, that effective demand and its impact on growth is disregarded in the Report. I will not criticise the Report on these grounds, however. A great deal of literature has been produced to show the negative effects that restrictive fiscal and monetary policies exert on the rate of growth (see, for instance, Arestis, Sawyer 2003). My aim is to focus on a more microeconomic set of issues. They involve the conceptual plausibility of the above mentioned trade-off and the implications that a policy based on such a trade-off may have in terms of both growth and social welfare.

The paper is organised as follows. First, I argue that the assumptions underlying the trade-off are not clear (Section 2). The Report does not distinguish among different types of innovation. As a result, the relation between innovation and flexibility is rather confused. Contrary to what the Report claims, flexibility turns out to be irrelevant for the type of innovation it is in favour of, while it could produce some effects only for innovations that the Report neglects.

I then contend that the effects of flexibility may be precisely to reduce innovation and the potential for growth (Section 3). Flexibility is expected to favour the introduction of new technology but most likely it allows firms to avoid innovation in so far as it enables them to pursue profit by cost scrapping. From this perspective the envisaged trade-off turns out to be false. Finally, I argue that the notion of trade-off the Report refers to is misleading in that in no way it takes account of the social costs that flexibility would determine (Section 4). I conclude my discussion by drawing a few implications for economic policy.

2 An unexplained trade-off

The Report states that "Flexibility allows firms to match employment with output levels more closely. It also facilitates matching the skills and the abilities of the labour force with specific tasks, by enabling firms to redeploy (internal flexibility) or to change skill composition of the workforce through hiring and firing (external flexibility) more easily." (Report, p. 40).¹

Labour is conceived of as a resource that must fit specific productive requirements. The nature of these requirements is quantitative - labour must comply with a technologically given output/labour ratio - as well as qualitative: innovators must find the appropriate workers for their new technologies. The Report emphasises the latter aspect on the grounds that, contrary to post-war growth, innovation - as opposed to imitation - is claimed to be today's main engine of growth. Furthermore, the innovation that matters must be radical (cf. Report, p.29-30). It occurs through investment, especially in R&D. It involves new technologies, which require appropriate skills. So if firms cannot adequately employ people who have the right qualifications there is no point in identifying and introducing new technologies.

The Report does not provide a clear outline of what technologies it really has in mind. On the one hand, it points out specific industries. For instance, it recalls that recent studies stressed Europe's weakness in the field of computers and biopharma (cf. Report, p.34-35). On the other, it focuses on the requirements that make new technology different from the past as a result of changes both in production and consumption. In terms of production, new technology provides an alternative to standardised products, which are now fairly easy to produce in newly industrialising countries. As for consumption, new technology responds to greater demand for customised goods (cf. Report, p.29-30).

When it focuses on production, the Report basically refers to technology as blueprints, whereby technology is nothing more than applied science: it needs skills in order to be implemented but it is originated independently of them.² Organisation does not affect its insurgence. This neglect of the

¹A third type of flexibility is wage or reward flexibility, which is "the ability of pay and payment systems to respond to labour market conditions and to encourage improved performance" (Michie, Sheehan 2003, p. 126). The Report does not discuss it in relation to the flexibility-innovation trade-off. As I shall point out in Section 3, even when wage flexibility is not introduced directly, it comes as a consequence of the lower bargaining power that unions and workers have following the introduction of the other two forms.

²The difference between science and technology is clearly pointed out by Metcalfe (1998, p. 110): "As science is open so technology is closed, with quite different publication practices and a natural concern for secrecy or patent protection when private property rights are involved. Moreover, while it is essential to the replicability of scientific results that they

co-evolution of technology and organisationally created skills and competences definitely contrasts with the Report's reference to customisation as a distinctive feature of competitiveness. A more appropriate view, in this respect, consists in conceiving of technology in broader terms: as "tools", (individual) skills, the division of labour and related (firm and industrial) competences.³ This, however, suggests that there is more to innovation than the mere introduction of blueprints. It provides the basis for a distinction among three types of new technologies: those related to new industries, to new goods within previously existing industries and to new processes for the same products. Let us first consider how innovation affects each type separately.

The first type typically is a case where innovation tends to be radical and completely new plants are required. Owing to its radical novelty, such a technology is likely to lead to the establishment of new firms as well. This is presumably what the authors of the Report have in mind when they note that "new entrants more easily make innovations at the frontier" (cf. Report, p. 35). But, if this type of technology is associated to new firms, the flexibility argument tends to lose its importance. At the outset, workers are employed precisely to fit the newly established technology. Doubtless, changes may be required but they are definitely marginal: almost by definition, no restructuring occurs. Highly skilled workers may have to be moved from less innovative to more innovative firms but this type of interfirm flexibility has nothing to do with the flexibility depicted above. In so far as innovation is profitable, wages only need to rise when there is excess demand for a given worker: this is hardly precluded by the present state of affairs. Note that this situation is typically a temporary one. Radical innovation does not remain radical forever. It is followed by a flow of correlated innovation which consists in improving on the original novelty and in extending it to new applications. Thus, the first type of innovation eventually leads to the other types.

The second type of technology is associated to new goods within pre-existing industries. However pathbreaking the new "tools" may be, their use involves adaptation to the production and demand requirements of that industry: a DVD has to fit into some appliance such as a personal computer, a hi-fi equipment, a video-recorder. On the productive side some integration with pre-existing goods and technologies is required. As for the demand

be codifiable, much of technical practice rests in a tacit realm only easily communicated through observation and trial, not publication. This is why one important dimension of technology concerns the skills of the practitioners."

³These different views underlie the Skill Based Technological Change Hypothesis and the Skill Biased Organisational Change Hypothesis respectively. See Piva et al. (2003) for a survey.

side, how the DVD is provided (the appliance it is assembled on; the shops where it is sold) depends on how consumers relate to that type of good. Similar considerations apply to the third type of technology: process related technology. Here too, innovation may change a good to some extent but it has to comply with the requirements that the latter is expected to meet in terms of pre-existing consumer needs.

Products generally are not produced in a fully integrated industry. By changing one of them, we affect complementarities and substitutabilities in the production of a range of other goods and services. Interdependence involves some integration between the new technology and pre-existing industries with their technologies. Similarly, there is interdependence in consumption. Single types of goods are parts of consumer baskets. They are complements or substitutes for other types of goods. If we act on one good, we may affect the composition of the whole basket.⁴ In general, any innovation that affects customer choices must take their preferences into account. This is especially true in a market such as the EU, where customisation is ever more important. This suggests that even when R&D is required, a great effort must be devoted to conceiving novelty in such a way that customers will appreciate it. The relation between marketing, production and R&D is an interactive, not a sequential one. Interaction among technologies, firms and departments also involves interaction among workers. Old-technology workers must be able to interact with new technology workers. Should they not be able to do so, the positive effects of innovation would be undermined. This is where flexibility may be important. If some workers are unable to properly interact, flexibility allows firms to do away with them. Ironically, the Report does not consider this type of innovation - which might require flexibility - as important.

The above considerations apply to all industries but, as we move from completely new industries to new processes for pre-existing goods, productive interdependence among distinct activities tends to rise and complementarities become more important. In order to take account of this variability, it is therefore appropriate to consider two opposite cases. The first one is that innovation spreads throughout the economy, thereby determining product and process innovations in all industries.⁵ The degree of productive interdependence is high both within and among industries. Innovation does not involve radical changes in the industrial composition of output. The second case is that radical innovation affects new industries alone.⁶ Under these cir-

⁴This applies to consumption goods but also to intermediate and investment goods.

⁵Information and Communication Technology is typically viewed as one such "general purpose technology". The same seems to apply potentially to nanotechnologies.

⁶This case seems to apply to the pharmaceutical industry.

cumstances, if innovation is to produce any relevant effect on the economy, the new industries must grow relative to the old ones. Productive interdependence occurs here as well but it basically regards the activities within the new industry.

Consider the first case. Complementarities generally call for creative interaction: new routines need to be established that make the two types of technologies mutually compatible. The problem-solving activities that lead to new routines cannot but be based on pre-existing knowledge: mental models, information and heuristics that emerged over time (Egidi 1992). It is not just a matter of blueprints but also of tacit knowledge, learning by doing and corporate culture. Innovation may require investment in R& D at the outset but that is definitely not the end of the story. New knowledge, not just technology, has to substitute old knowledge (Loasby 1999).

Creative interaction is therefore required but it is only possible if workers invest in firm-specific skills and in firm-specific relationships, which involve trust and tacit knowledge. Workers are willing to do so only if they know that they are not going to lose their jobs. Furthermore, they must feel that they are part of a common project: the firm's goals must be their goals. This is hardly going to happen if flexibility - and the precarious professional condition it entails - is enhanced. The Report acknowledges this issue but its emphasis on radical innovation prevents it from appreciating its relevance.

A possible explanation for this lack of attention towards complementarities and interaction may lie in recent technological evolution.⁷ The so-called new economy provided a thrust to data processing and data transmission. Consequently, codification of previously tacit knowledge is easier and cheaper than in the past. This enables a firm to rely less than before on the tacit knowledge of its workers and to organise its activities into relatively standardised and independent modules.

The above process allows the firm to focus on its core competence and to outsource the rest. Market transactions substitute intra-firm transactions even when complementarities are involved. Tacit knowledge and trust are downplayed, thereby reducing the innovative capacity associated to (firm-related) competences.⁸ Productive specialisation occurs but, because of standardisation, it neglects adaptation and customisation - thus product differentiation - and favours price competition. Ironically, since complementarities and competences are less important, many workers turn out to be useless from the firm's point of view and flexibility is the best way to get rid of

⁷Caroli (2003) provides a discussion of this issue.

⁸Significant contributions to the competence theory of the firm are G.B. Richardson (1972/1990), C.A. Montgomery (1995), N.J. Foss, B.J. Loasby (1998), D.J. Teece, G. Pisano (1998), A. Amin, P. Cohendet (1999), Dosi et al. (2000).

them.⁹ This may make sense for radical innovators, i.e. to those who create the first type of technology depicted above. For the remaining firms, however, this is a blind alley. If they forsake innovation based on firm-related competences but are unable to carry out radical innovation, they are either outcompeted by firms in countries where costs are lower or they can survive only by complying with the requirements of innovative firms, who obviously will take advantage of their market power.¹⁰

This leads us to the second case, where innovation is industry specific.¹¹ Under these circumstances, the new industry must substitute previously existing industries. Flexibility is believed to provide the means to accelerate the process in that it prevents workers from sticking to their old jobs. As I mentioned above, however, in so far as there is excess demand for workers, new (profitable) industries can pay higher wages and attract workers away from old (non profitable) industries. Flexibility may accelerate the process but it is not essential.

In sum, if we focus on radical innovation as such, flexibility is not necessary. If we consider other types of innovation, flexibility may cause damage to firms as well as workers. One should therefore expect firms not to pay much attention to the issue. In some instances flexibility may allow firms to reduce their costs - or, one might suggest, to shift their costs on to the community¹² - but this issue is not strictly related to innovation. So, under these circumstances, we might feel free to conclude that, since a trade-off between flexibility on the one hand and innovation and growth on the other is rather difficult to identify, the whole flexibility issue is overstated, if not downright irrelevant. Unfortunately this is not the case.

Suppose, for the sake of argument, that there is no excess demand for workers who are employed by old industries or that it is not as intense as optimists would have it¹³ Flexibility would then do little in terms of the inter-industry shift. It would only allow firms in the old industry to reduce the

⁹Note that the depicted causal relation is the opposite of what the Report refers to: it is innovation that has made flexibility possible, not the other way round.

¹⁰This is consistent with evidence from Italy, where firms are forced to rely on organisational change if they are to survive. See Piva et al. (2003).

¹¹At the level of the economy as a whole, modularisation reduces the importance of complementarities. It is therefore more appropriate to refer to activities rather than industries. More specifically, innovation throughout the economy involves a shift from activities where innovation does not occur to activities where innovation does occur. For simplicity's sake, however, I will use the term industries.

¹²This is the central - and neglected - theme of Kapp (1963). See also Swaney, Evers (1989).

¹³Excess demand in the labour market may exist nonetheless. It may relate to workers who, precisely because of their skills, are unlikely to be employed by old industries.

wage bill. Apparently, this would be beneficial in that it would determine a rise in competitiveness and/or profitability albeit in backward industries. In the next section I will argue that, quite to the contrary, flexibility is likely to induce firms to behave in a way that is profitable in the short run but that precludes innovation and profitability in the long run.

3 A false trade-off

Let us return to the notion of innovation and technology that the Report refers to. Technology is a source of growth but it also involves a range of constraints. From the point of view of single firms, the faster innovation is the more difficult it is to repay past investment. On the other hand, firms that do not innovate may be excluded by competitors who do. This determines a great deal of uncertainty, so that "virtuous" behaviour cannot be determined a priori. Two reasons are worth pointing out. First, given the opposite risks involved, a firm must choose its rate of innovation in the light of what other firms choose: if other firms choose not to innovate too quickly, it has the time to recover past investment and possibly reduce its financial exposure. If the opposite occurs, it has to keep up with innovation even though this may increase its exposure. This leads to the classical paradox whereby each firm can formulate its expectations/decisions only when other firms have already formulated theirs.¹⁴ Second, the rate of radical innovation is rather difficult to predict. Although innovation usually occurs within the guidelines provided by a technological paradigm, it is by definition something that cannot be known in advance. It is therefore difficult to determine in advance what amount of investment is required to originate innovation. As a result, it is easy for the rate of investment in R&D to be either too high or too low relative to expectations, thereby leading to subsequent adjustments both by the investing firm and by its competitors. The result is that variability of investment and uncertainty are likely to feed on themselves, independently of how "rational" firms attempt to be in their decision-making process. The Report implicitly acknowledges this situation by stating that, "Because of the greater degree of uncertainty stemming from radical innovation, a higher degree of turbulence ensues as the selection procedure weeds out those new firms that fail to make it in the market and those existing firms that fail to adapt in time." (Report, p. 35).

It is therefore reasonable to believe that firms will attempt to escape this situation. What is at issue is whether they can. Conventional wisdom would

¹⁴This is a case of the so-called Richardson Paradox (Richardson 1959; Foss, Loasby 1998).

argue that the answer generally is no. Innovation improves the techniques whereby firms meet consumer needs so it provides an incentive to the growth of individual (firm) profit. Competition, in turn, sanctions whoever does not take advantage of innovation-related opportunities: if a firm does not innovate, consumers seek better products elsewhere. Finally, the pace and direction of innovation lie beyond the control of single firms. They cannot prevent it or slow it down because rival firms would take advantage of the opportunity. They cannot affect its direction because a single firm's innovation is only a small section of overall innovation and, above all, because the direction of innovation ultimately depends on what consumers want.¹⁵

This view of technology and of the constraints it poses on the behaviour of firms is rather restrictive. It is true that, while a single firm may act upon the flow of innovation, it cannot act upon technology as a whole. It is therefore true that a single firm is constrained by existing technology and by the dominating technological paradigm. This is less true for firms as a whole, however.

Let us focus on the direction of innovation. In order to simplify matters, let us disregard changes in the level of effective demand and assume that it remains constant. This is an unrealistic assumption, because the conducts that I will be discussing do affect demand. It is nonetheless reasonable to assume that such changes complicate but do not change the main conclusions of the argument.¹⁶

If aggregate demand is constant a single firm can increase its profit in one of the following ways.¹⁷ It may sell more, all other things given. Since aggregate demand is given, it has to increase its relative share of sales, i.e. the amount of its sales over total sales. In other terms, it has to increase its sales at the expense of some other firm. From the perspective of this work, this is where competitiveness and innovation come into the picture. Note, however, that this situation involves a clash of interests between firms which may also involve a price war or other forms of rivalry: advertising, alliances with other firms, political lobbying, carving out of market niches, etc..

The second way a firm can increase its profit is to cut direct costs in order to raise its mark up at the expense of its workers. Here too, the firm is

¹⁵These circumstances may change in oligopolistic or monopolistic markets.

¹⁶A further assumption is that firms do not give up their core business in order to move into industries where competition is milder (usually the service industry and, more generally, the non trade sectors) or where gains involve little sunk costs (finance) and no production. This, too, is a restrictive assumption, which only aims to focus on innovation strategies. The relevance of inter-industry moves is pointed out by Bianchi (2003) with respect to Italy.

¹⁷A more detailed discussion of what follows is in Ramazzotti (2004).

pursuing competitiveness but at the expense of its workers. The ensuing clash of interests may cause a range of reactions: workers may go on strike; qualified workers may resign and look for better jobs; trust and cooperation within the organisation may wither away, thereby undermining the investment in firm-specific skills by the workers and, more generally, their involvement in creative and innovative processes.

The third way is to change relative prices within the value chain: to charge downstream firms more and to pay upstream firms less.¹⁸ This strategy is somewhat similar to the previous one: from the firm's point of view, it is just another way to cut costs. It is probably not as intuitive. Apparently, in so far all firms can innovate in their core business, they are all on an equal standing, i.e. they can all be profitable. This is not the case when a firm holds a key position in the value chain. When this occurs, other firms may well innovate but this does not provide them with any greater market power: they simply have to comply with the requirements of the leading firm.¹⁹ In other terms, by outsourcing, the leading firm may enhance the division of labour and create a more innovative environment but it also shifts its costs on to the weaker links of the value chain.²⁰ Here, too, distributive conflict may undermine the cooperation that firms within the same value chain need. Since the main issue this paper is concerned with is labour market flexibility and technological innovation, I will not discuss this third strategy in greater detail.

When firms choose their strategy - i.e. how to pursue their profit goal - they must take into account at least two problems. The first one is what fields of action are viable. Three fields have been outlined: competing firms, firms in the same value chain and workers. Viability is likely to depend on how intensively other parties are going to react and wage a war to defend their income shares. Thus, if competition is very fierce and upstream and downstream firms have a high bargaining power while the unions do not, a strategy that is most likely to prevail is a cost scrapping one, based on wage cuts and/or a redefined organisation of production.

The second problem is the time range that is relevant to the firm. In the long run some strategy may be optimal, but pursuit of such a strategy may imply that in the short run the firm will not survive.²¹ Thus, technological

¹⁸This also includes imports and exports of intermediate goods in an open economy.

¹⁹Lombardi (2003) provides an interesting outline of how this is occurring in Italian local production systems.

²⁰This cost shifting among firms parallels cost shifting from firms to workers - and the community - that I mentioned at the end of the previous section.

²¹Minsky's financial instability hypothesis (Minsky 1982) and his notion of money manager capitalism (Minsky 1993) are both important in this respect. A recent assessment of

upgrading - and the resulting competition with other firms on the final good's market - may be appropriate in the long run but, if interest rates and/or uncertainty are high, cost scrapping - at the expense of workers - may be a more appropriate measure to achieve short run profitability.

Competitiveness may be achieved by acting on any one of the three fields of action. The competitiveness it achieves, however, is not the same. In conventional textbook terms, product innovation attempts to make the firm's demand curve steeper whereas cost scrapping lowers the marginal cost curve. In terms of the final good's market, this makes a difference which has to do with the price-elasticity of demand as well as with potential entry by new competitors. Price-elasticity depends on various circumstances but a key determinant is the income of the economy where the goods are sold. High income economies, like the present EU, tend to be less sensitive to prices than lower income countries. Consequently, a low cost niche in such markets may well persist but it is doubtful that domestic growth in output, determined by low prices, can compensate the lower profitability caused by low profit margins.

Let us see how this relates to flexibility and innovation. Flexibility allows firms to cut costs because of two circumstances. First, it allows firms to restructure the organisation of production independently of radical innovation, i.e. without having significantly to upgrade the technology used. Some sort of process innovation has to occur, since new machinery is usually required, but the nature of the industry and of the single goods may remain the same. From the point of view of single firms, the advantage of such a strategy is that it affects the production process alone, so it does not involve the uncertainty that a new industry or a new product entail. The obvious consequence is that a firm does not have to make any risky investment. Second, precisely because flexibility allows a firm to easily restructure its production process and to dismiss its workers, it raises its bargaining power in relation to the latter. As a result, the firm may renounce restructuring if the workers are willing to cut the wage bill by reducing the wage rate. This way, the firm does not have to invest at all.

Firms that adopt low cost strategies are subject to competition by low cost producers from other countries, where the overall wage structure is definitely lower. Thus, even if a low cost niche is viable, it will eventually be supplied through imports. Employers as such may remain unaffected in that they may substitute local with foreign plants. Employment and macroeconomic stability, quite to the contrary, may suffer dramatic consequences. It is therefore doubtful that such strategies are appropriate. As I mentioned in

the former is in Wolfson (2002) whereas the latter is discussed by Whalen (2002).

footnote 2, wage flexibility turns out to be a natural consequence of external flexibility.

There is a further implication of this type of strategy. In so far as it pursues competitiveness by reducing the real income of workers in industrial countries, it slows down the shift of low value added production to less industrialised countries. Since it is relatively more difficult for the latter to pursue radical innovation, they will try to enhance their own competitiveness by cutting costs as well. The consequence is likely to be an overall worsening of living standards in all of the countries involved, at least as far as workers are concerned: cost shifting can be carried out across borders.

In sum, a firm - or an industry - may choose a cost scrapping strategy because flexibility makes changes in distribution more convenient than innovative changes. Although flexibility apparently complements a strategy based on radical innovation, it is most likely to substitute it. The effects in terms of international competitiveness and of living standards may be all but desirable.²²

The pursuit of this type of strategy is likely not to remain an isolated phenomenon but to spread throughout the industry and, possibly, the entire economy. First, if a firm achieves price-based competitiveness by cutting its costs, its competitors may not have the time to pursue innovation but may have to respond by cutting costs themselves. Second, when cost scrapping is carried out by acting on upstream and downstream links within the value chain, the only rough and ready solution available to the affected firms is to cut costs themselves. Third, since value chains are not integrated sectors, all other industries may eventually be affected by this type of strategy. Unfortunately the same does not hold with strategies that pursue radical innovation. They require more time and more finance and they involve a great deal of uncertainty, so it is less likely that they will be adopted only because other firms do.

This strategy may also persist over time. Firms choose their strategies in relation to their competences. These depend on available information but, above all, on the skills and routines that the firm has acquired over time. When a firm "specialises" in cost cutting, it is fairly difficult that it may switch to a different type of strategy. The latter would require not only a different range of heuristics but also cooperation, trust and confidence among the workers and firms involved. In other terms, this type of strategy tends to be highly path dependent.

²²I chose to disregard effective demand. It may be worth noting, however, that the change in income distribution associated to wage cuts is going to affect sections of the economy where the propensity to consume is relatively high, thereby determining a negative effect on growth.

When we look at these strategies from the perspective of a regional or national economy, a few implications emerge. First, the three strategies outlined above exist from the perspective of a single firm but at the aggregate level, they boil down to two: firms either struggle to change the distribution of given aggregate profit - by either outcompeting rival producers of the same good or by shifting costs up- or down-stream - or they try to increase the share of profit on aggregate value added by raising the aggregate mark up. It is reasonable to believe that, even if all firms were to concentrate on the first type of strategy, losers would eventually move on to the second type. Second, in an international setting, where some countries are characterised by higher degrees of technological development or by active policies in favour of domestic industries, firms from other countries may simply have to acknowledge that they do not have the competences or the market power to compete effectively. They may therefore choose to bypass direct confrontation and choose strategies that avoid conflict with rival firms. This implies choosing a cost scrapping strategy rather than one based on radical innovation. Third, owing to path dependence and to stricter interdependence among firms of the same country, the chosen strategies may account for region- or country-specific patterns of technological specialisation. In other terms, while single firms are basically constrained by existing technology, taken as a whole they "choose" the direction of technological development: they may focus on (qualitative) innovation or on mere cost scrapping.

The upshot of the above discussion is that it is reasonable for firms to avoid the uncertainty associated to innovation. If they choose not to innovate the reason does not lie in some improper functioning of the market - a "market failure" - but in the way firms interact (Richardson 1972) and, in a more general perspective, in the features of an economy where "single-exit solutions" hardly exist (Latsis 1976; Groenewegen, Vromen 1997). This allows us to return to the trade-off between flexibility and growth. A trade-off tells you what you need to forsake (lack of flexibility) in order to achieve a goal (an x% growth rate). In order to be effective, such a relation must not change over time, at least not in a significant manner: aside from possible exogenous shocks, the flexibility-growth relation must be reliable, if not stable. The Report is cautious in this respect. Although it claims that, under the present circumstances, "flexibility comes at a premium", it acknowledges that flexibility may negatively affect growth by discouraging long-term investment in transferable skills by the employer as well as investment in firm-specific skills by the worker (Report p. 40). It does not draw all the implications, however. If it were to do so, the straightforward relation that the trade-off is supposed to identify would be undermined. The Report would have to acknowledge that exactly the opposite of what is expected may occur, i.e. that flexibility

may easily preclude radical innovation and its associated growth potential. The conclusion would be that what is being suggested as a major policy tool is a false trade-off.

4 A misleading trade-off

Lack of labour market flexibility as a constraint on growth is a relevant issue in so far as the latter is one of the prime goals a community is pursuing. A great deal of literature, however, points out that income is only a proxy for social welfare and that social costs may determine a significant gap between these two indicators.

Social costs of economic activity may contrast the positive effects of growth. The discussion in the previous section pointed out that when firms resort to external flexibility (dismissals) or to wage flexibility (redistribution) in order to eschew direct confrontation with their competitors, they are merely shifting their private costs out of the firm and transforming them into social costs. It also stressed that this situation is most likely to occur because it reflects a reasonable reaction by firms to the uncertainties of an innovative environment.

Indeed, the Report acknowledges that "greater flexibility comes at a cost in terms of more unstable employment trajectories" (Report, p. 40) and that "in both the US and the UK [it] has translated into greater income inequality both between and within groups." (Report, p. 41). Under these circumstances caution is required: growth may remain the prime goal only if these costs either are relatively low or may be somehow offset. To assess whether this is the case or not some sort of social accounting is therefore required.

One of these costs - income inequality - is somewhat easy to assess in money terms. It is reasonable to claim that, if growth determines inequality, its social cost amounts to the money required to offset such an effect through the redistribution of income. The other cost mentioned above - the social and psychological effects of unstable employment trajectories - is definitely more difficult to assess on monetary grounds. A restrictive approach might be to assess it in terms of the money required to overcome those effects. Nonetheless, while income redistribution - through taxes, transfers and social welfare policy - may prevent citizens from even perceiving changes in primary distribution - distribution that occurs before public intervention - this would not be the case for unstable employment trajectories.

The above difficulty in using money in social accounting is only one instance where it is reasonable to doubt that market mechanisms can prevent

or offset social costs.²³ The key issue is that social costs are not only the outcome of a malfunctioning market, what theory depicts as market failures. They are the result of purposeful cost and risk shifting by business. From this perspective, money is not only one out of a range of possible units of account. It is a misrepresentation of what actually occurs in what Polanyi (1957) termed a disembedded market.

The authors of the Report do not specify what unit of account they have in mind. They provide no assessment whatsoever of the cost of growth but they do assert, in a chapter explicitly devoted to "Economic trade-offs", that "the European experience suggests that some specific instruments chosen to preserve cohesion in the course of the process of market liberalisation and integration may have exerted too high a toll in terms of growth. This has been both through limiting the deepening of such processes and through trying to counter the unequal spreading of the resulting gains from trade in a distorting manner at both the European and national levels." (Report, p. 72; emphasis in the original). Reference to "too high a toll" implies that growth should be pursued despite the social costs it gives rise to but it is not clear why this is so. A range of possible units of account exists that could support such a claim. It is therefore surprising that none is mentioned and none is used.

A plausible explanation for this shortcoming is that the authors believe that taking account of the social and psychological costs of economic activity is pointless.²⁴ From this point of view reference to "too high a toll" would only be a rhetorical expedient, the real assertion being that "instruments chosen to preserve cohesion" are a burden to be done away with as soon as possible. If one follows this line of reasoning, however, the trade-off issue turns out to be misleading. A trade-off involves the measurement and comparison of the benefits and costs of some action. If social cohesion is a mere burden, there is no cost involved in removing it. The implication would be that, leaving aside other considerations, the Report merely pays lip service to the notion of a trade-off but it actually denies whatever relevance to social costs. It makes the implicit, albeit common, assumption that money income is the appropriate way to measure social welfare, which may be acceptable for introductory economics textbooks but is rather questionable when actual policy is discussed.

This criticism should not be considered as merely formal, i.e. that the

²³This is contrary to a major tenet of the new institutionalist literature, which, as far as this issue is concerned, dates back to Coase (1960).

²⁴This is a rather strong claim on economic grounds. Even if social cohesion were deemed necessary only to avoid riots or the disruption of the EU, its costs - which are induced by social costs - turn out to be relevant and must be assessed.

authors of the Report are not analytically rigorous. It is definitely arguable that the gains from growth can be completely offset by the worsened quality of life determined by the relatively higher social costs of flexibility. Consider, for instance, the comparison the Report makes between the dismal growth performance of the EU relative to the US, only to suggest that EU policy should be more like that of the US. Despite their apparently good performance, and although in 2001 the US has a higher per capita GDP than any other EU (15) country - with the only exception of Luxembourg - some of its social welfare indicators suggest that a great deal of caution is required when making policy suggestions such as those of the Report. The table that follows shows that its income distribution is the the most unequal among all the countries considered and that, in the absence of appropriate direct (money) or indirect (welfare policy) redistribution, its infant mortality rate and the probability al birth of not surviving to the age of 60 are the highest in the group of countries considered.

<u>Indicators of social welfare in the US and in the EU (15)</u>				
	Gini index (1)	Population below income poverty line (2)	Infant mortality rate, 2001	Probability at birth of not surviving to 60
Austria	30,5	10,6	5	9,5
Belgium	25,0	8,0	5	9,4
Denmark	24,7	9,2	4	11,0
Finland	25,6	5,4	4	10,2
France	32,7	8,0	4	10,0
Germany	38,2	7,5	4	9,2
Greece	35,4	..	5	9,1
Ireland	35,9	12,3	6	9,3
Italy	36,0	14,2	4	8,6
Luxembourg	30,8	3,9	5	9,7
Netherlands	32,6	8,1	5	8,7
Portugal	38,5	..	5	11,7
Spain	32,5	10,1	4	8,8
Sweden	25,0	6,6	3	7,3
UK	36,0	12,5	6	8,9
USA	40,8	17,0	7	12,6
Source: UNDP (2003); a: p. 282; b: p. 248; c: p.262; d: p.248				
Notes: 1) income or consumption, years range from 1994 to 1998 with the exception of Ireland (1987) and Spain (1990)				
2) 50% of median household available income in the most recent year available during 1990-2000				

It is also interesting to note that whereas in 1980 the UNDP Human Development Index of the US was higher than that of any EU (15) country (UNDP 2003, p. 237), in 2001 it ranked fourth, following Sweden, the

Netherlands and Belgium (*ibid.*, p. 241).²⁵

The conclusion that the data leads to need not be that there inevitably is a strict correlation between labour market flexibility, income inequality and dismal welfare indicators, even though the discussion in the previous and present sections suggests that such a correlation is indeed possible. What the data does corroborate is what was argued above, namely that income and growth are objectionable indicators of social welfare.

It is noteworthy that the claims of the Report are shaky even if one leaves aside the social implications of innovation and growth and focuses on strictly economic matters. According to the Report, firms either innovate or they are selected out of the market.²⁶ I have argued above that firms may well be profitable even if they do not innovate and, possibly, for the very reason that they do not. Selection may, therefore, keep the firms that do not innovate in, because they are profitable in the short run, and push out firms that make a small profit or are financially exposed because they are innovating.

Let us assume, however, that all firms actually attempt to innovate. This entails that they are faced with the uncertainty that the above mentioned Richardson Paradox involves. As Arena and Charbit argue, "This type of uncertainty does not come from ignorance of the future or from the multiplicity of the possible states of the world. It is directly related to the decentralisation of individual decisions and to the type of division of labour which prevails in a market economy. The simultaneous behaviours of my neighbours create uncertainty because I cannot forecast them." (Arena, Charbit 1998, p. 96). Under these circumstances no firm is able to identify the proper strategy through foresight. Potentially innovative organisations may well be selected out of the market, so that what the Report refers to as "weeding out" is not the elimination of a deadweight loss. Quite to the contrary, as competition becomes fiercer, selective retention may constrain variety creation. It may constrain it to the point that instead of the growth-enhancing effects of creative destruction we may be faced with the growth-precluding effects of a destructive creation: aside from an act of faith there is no reason to believe that the former are going to prevail over the latter.

The trade-off in no way measures these effects. It is even more misleading if we recall that "weeding out" does not consist in shutting down a firm and allowing someone else to use its resources. If this was the case, there would

²⁵The Human Development Index includes data on per capita GDP. This is a major reason why it is so high for the US, compared to the other countries. See UNDP 2003, p. 237 and related footnotes for details.

²⁶I already quoted, in section 3 the statement whereby a "selection procedure weeds out those new firms that fail to make it in the market and those existing firms that fail to adapt in time." (Report, p. 35).

be little reason for concern. The problem is that when a firm is shut down, its routines, thus its competences and a great deal of its accumulated knowledge, are dispersed. Nor do mergers and acquisitions change the matter, since they usually involve dramatic changes in the organisation of the firms.

A more cautious approach would consist in taking account of general patterns of industrial evolution and behaviour rather than relying on a trade-off that neglects not only social costs but also the economic costs of future economic development.

5 A few policy implications

The conclusion the above discussion leads to is that, from a business perspective, there is no reason why firms should pursue radical innovation at all costs, even if they have access to the required know how and to the required skills. In some instances it may be more convenient to pursue strategies which are equally, or more, profitable within the relevant time range. Cost scrapping is one such strategy. Flexibility favours it.

This is not an inevitable outcome. It can be avoided by adopting a perspective that escapes the shortcomings of economic orthodoxy. Conventional wisdom focuses on structure - i.e. on market failures that prevent relative prices from operating as they should - or on individual conduct, i.e. personal shortcomings. It considers information concerning new technology as a twofold manifestation of a market failure: first, in so far as it has to be discovered, it contrasts with the assumption that information is available; second, it is a public good. It therefore suggests policies that provide incentives to invest in R&D and that contrast the practical implications of Arrow's well known information paradox.²⁷ I am not concerned, here, with a discussion of the theoretical underpinnings of such a view. It is true that the availability of technological knowledge and skills is important. What deserves attention is whether it is enough. Much like other types of investment, the famous parable applies: you can provide a horse with water but that does not mean that it is going to drink.

Just as for other types of investment, firms are less likely to demand technology if uncertainty is high, if the relevant time range is short and if there are alternative ways to be profitable. I discussed these alternative ways and I pointed out that whether one is preferable to the others depends on a range of circumstances that are not reducible to market failures. This suggests that the other feature of conventional wisdom is open to doubt: any attempt to explain the lack of innovation in terms of entrepreneurial shortcomings may

²⁷See Report (p. 30) for a list of what should encourage research investment.

be misleading. As Loasby (1991, p. 49) puts it: "Interdependence is the reason why nothing comes out quite the way one wants it to' (Pfeffer and Salancik, 1978, p. 40). When it does not, our cognitive bias towards rationality is likely to attribute the result to managerial decisions; thus managers become convenient heroes or scapegoats - and sometimes both in a quick succession, as we have surely all noticed." Lack of innovation may undoubtedly depend on incompetent businessmen, but this should not blind us to the fact that other circumstances must be taken into account.

The discussion in the sections above is less concerned with the "efficiency" of the market or of its agents than with the variety of strategies that the latter can choose to follow. It does not merely claim that a flexibility-enhancing policy is not based on firm theoretical grounds. It argues that it is wrong because it is likely to achieve exactly the opposite of what it pursues. Flexibility favours cost scrapping, thereby providing a viable alternative to radical innovation, especially when firms and industries from other regions and countries have already upgraded their technology and are reaping the benefits in terms of scale and scope economies as well as in terms of market power. Since flexibility allows firms to be profitable without having to innovate, any attempt to make life easier for business by enhancing flexibility is likely to favour its flight from the uncertainties of innovation. This strategy may be successful in the short run. In the long run, however, profitability is going to be undermined by low cost producers from less industrialised countries and from high quality producers based in the industrialised countries. Furthermore, a subsequent change in policy may not be very effective because flexibility undermines the conditions for an innovative environment based on trust and cooperation.

Lack of innovation causes economic costs in terms of lack of competitiveness. These economic costs are eventually shifted on to workers in that, when they arise - e.g. when balance of payments problems arise - there is no time left to innovate and the only way to rapidly cope with the trade balance is to curb demand and cut costs.²⁸ Economic costs therefore involve social costs in that the lack of innovation eventually leads to unemployment and to a redistribution of income which determine a lower standard of living for workers and, possibly, other sections of society.

This does not imply that rigidity - however defined - is the automatic solution to all the problems outlined above. It would be so in a situationally deterministic context, i.e. one characterised by single-exit solutions. This is

²⁸For quite some time exchange rate variations provided a safety valve to some countries. Aside from the fact that such a policy is not available for countries who adopted the Euro, it has a disruptive effect on trade integration within the economic union.

not the kind of economy I have been discussing. Rather, I am suggesting that we should think of the economic system as "one made up of a large number of parts that interact in a nonsimple way" (Simon 1981, p.195), i.e. as a complex system. In such a system mechanistic policy prescriptions should be treated with great caution because, in general, more than one response is possible to any public action.

The variety of strategies that characterise a complex world suggests that there is no unique path in technological development or in economic growth and that we are not obliged to adapt to a clockwork economy or to the status quo of prevailing vested interests. We can ask key questions such as: What technology should we accept? What economy do we want?. I have basically focused on the first question but the possible answers relate to the second one. I tried to point this out especially in Section 4, where I discussed the social accounting issue. Despite its apparently technical nature, it turns out to be of dramatic importance if only we compare two notions of social welfare: money income and capabilities (Sen 1984, 1999). By focusing on capabilities, we turn our attention on the freedom people have to conduct their lives. This does not only imply that we must take due account of all social costs if we care to promote growth. The real problem is that we are indirectly answering the question whether society must merely adjust to the requirements of the existing economy or identify social values that will provide the guidelines for the economy itself.²⁹ In this perspective the embeddedness of the economy (Polanyi 1957) turns out to be the key issue for economic policy and, more generally, a key political issue.

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²⁹A more detailed discussion of these issues is in Rangone, Ramazzotti (2004).

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