BANCA D'ITALIA

EUROSISTEMA

Questioni di Economia e Finanza

(Occasional papers)

Reports on trends in the Italian productive system

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This Report was completed in February 2009 and contains the data available up to that date. In particular, revisions of the national accounting and the industrial production series published in March 2009 are not included; nevertheless these revisions do not alter the conclusions reached in our Report.

In the tables, the symbol "–" indicates that the phenomenon in question does not occur, whereas the symbol "...." indicates that it occurs but the value is not known.

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INTRODUCTION

In the last decade, the performance of the Italian economy has been unsatisfactory, both from a historical perspective and compared with the main European countries. It is widely acknowledged that this trend reflects unresolved structural problems, made more pressing by the major changes that have reshaped the global economic landscape. This Report aims at recomposing, in a unitary framework, various analyses of Italy's growth deficit and deriving useful indications for economic policy. It examines the performance of the Italian productive system in a medium to long term perspective, pointing out the elements of weakness and signs of recovery, investigating the systemic traits which – either directly, or in relation to exogenous shocks – may have had an adverse effect on Italy's performance. The Report adopts a primarily, but not exclusively, microeconomic approach, in the belief that an analysis of the marked heterogeneity among firms will improve our ability to identify the factors crucial for growth.

The Report refers to numerous data sources, some of which were compiled and processed especially for it, and probes the vast empirical evidence available, combining academic studies with analyses conducted as part of the research project on the Italian productive system launched in the Bank of Italy at the beginning of 2007. The interviews with entrepreneurs and private equity operators merit special mention. While not statistically representative, they nonetheless helped shape some of the in-depth analyses described in the Report, by extending the range within which answers to questions can be sought, and refining several theories subsequently verified at the empirical level.

At the time of writing, the global economy was in the grips of a serious crisis. It is difficult to foresee how severe the effects of the financial crisis on the real economy will be, and even more so to assess the depth of the long-term repercussions on the operation of the markets, the mechanisms for funding firms, the State's role in the economy and international economic integration. Whatever future developments may be, the Report sets out to identify the point of departure for the Italian productive system in the wake of the 2008-09 global crisis.

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As Angus Maddison writes (2007, p. 73), "In analysing growth causality, it is useful to distinguish between proximate and measurable influences and deeper, non-quantifiable features …". The second set of factors include

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institutional arrangements, the legal and regulatory infrastructure and the rules of social behaviour, to which economic analysis attributes growing importance and on which particular emphasis is placed in the pages that follow. The quantification of these characteristics and their effects on the economy is possible only under strong hypotheses and approximations. This is partly why the Report does not attempt to build an exhaustive econometric or growth accounting model, with which to estimate the relative weight of each of the hypothetical causes of Italy's backwardness. It does, however, propose a conceptual framework that guides the analysis of the chapters and organizes the statistical material and quantitative studies on which the Report is based. The task of this introduction is to outline this interpretative framework.

The analysis begins by identifying the changes in the external context, defined − for the sake of brevity − as "exogenous shocks", which influenced recent trends both in the Italian economy and in the other advanced economies (Chapter 1): the shift in the technological paradigm, ushered in by the new IT and communication technologies; "globalization", that is the global integration of the real and financial markets; the process of European integration, culminating in the introduction of the single currency. Three changes with a common consequence: a strong and sharp increase in competitive pressure. A scenario that was the result not only of the flooding of world markets with low-cost goods and services from emerging economies, primarily affecting firms in the traditional sectors that rely most heavily on unskilled labour, but also of the need to keep up with firms that proved better able to exploit the gains in efficiency made possible by the technological revolution and, finally, of the extension of the single European market and the impossibility of recovering price competitiveness through depreciations of the nominal exchange rate.

While similar in nature, the impact of these shocks varied among the advanced countries, depending on the structural characteristics of each economy. Overall, Italy was harder hit than other countries. The aggregate data show a worrying growth deficit, evident in the efficiency gaps in the productive system and competitiveness of Italian products (Chapter 2). The timid signs of improvement glimpsed in the two years 2006-07 have been rendered more uncertain by the economic and financial crisis. However, if one considers the microeconomic data, the statistics appear more varied and less negative: some signs of restructuring by Italian firms can be seen in the business demographic data, the comparative analysis of firms' performance and the results of business opinion surveys (Chapter 3). The difference between the aggregate and microeconomic data exemplifies how the analysis cannot disregard the heterogeneity of the productive system, which in recent years has become

increasingly marked, even within sectors, thus making the explanations of Italy's backwardness that revolve around sectoral specialization less persuasive than in the past. This difference also suggests that several statistical problems may have led to an underestimation of trends in output and productivity at the aggregate level, a possibility that is confirmed by the latest upward revisions to official statistics (Chapter 4). In a phase of transformation characterized by massive migratory flows and delocalization of production, it is increasingly difficult for statistics to provide a reliable picture of an economy with a chronically large underground sector and a fragmented productive structure. In particular, it is difficult to reconcile the strong and constant growth of employment with the stagnation of production.

The official description of the economy may have exaggerated the actual situation, above all by not capturing in full the signs of improvement in more recent years. These statistical doubts, however, are not strong enough to alter the worried assessment of Italy's overall economic performance. What factors have led to this situation? The exogenous shocks intensified and revealed latent structural problems, in part linked to firms' characteristics and in part inherent in the structure of the Italian economy as a whole, especially in respect of the laws that regulate it.

Growth accounting exercises identify in total factor productivity, a variable that approximates the development of innovative and organizational capabilities, the main reason for Italy's slowdown: indeed, the accumulation of capital goods (which by international and historical standards remained at high levels compared with GDP), proved adequate, while there was strong growth in employment, supported in part by migratory inflows (Chapter 2). If the trends in labour productivity are broken down, the contribution of capital intensity was positive, albeit less so than in the past due to the shift towards relatively more labour-intensive techniques driven by greater flexibility in the use of labour; by contrast, there was no improvement in efficiency measured by an increase in total factor productivity. Despite the high degree of approximation that surrounds the measurement and interpretation of this variable, calculated as a residual, this result suggests that the analysis should be concerned above all with the factors affecting technical and organizational progress.

Within Italian firms there are factors which, despite their remote origins, make them more vulnerable to changes in the international context. First of all, innovation is inadequate and firms are slow to adopt new technologies, the main drivers of productivity increases (Chapter 5). Italian firms report low levels of investment in both R&D and innovative output, the result of a sectoral specialization that is overly biased towards traditional low-tech

products; a highly fragmented productive system, which makes it difficult to exploit economies of scale in research; and a dearth of skilled workers. Secondly, Italian firms have not participated fully in the internationalization process. There is a close correlation between exports and the availability of plants abroad, on the one hand, and a propensity for innovation, vocational training, and an appetite for organizational change, on the other (Chapter 6). The integration of global markets offers new opportunities to internationalized firms, which in Italy tend to become more productive not only because they are exposed to greater competitive pressures but also because of the possibility of acquiring better technologies from foreign competitors and receiving useful suggestions from foreign clients on how to extend and improve their range of products. Italy's economic performance is affected by the ownership structure of firms, the great majority of which are family-owned enterprises (Chapter 7). Notwithstanding the significant changes in the regulatory and institutional framework, which is no longer dissimilar to that of the main developed countries, the ownership and control structures of the Italian productive system have changed little in the last fifteen years, especially as regards unlisted companies. The high private benefits of control may have driven the owners of family-run enterprises to opt for maintaining this structure over the long term rather than strengthening profitability and growth.

These fundamental decisions – how much to innovate, if and how to move abroad, what ownership structure to adopt – fall within the competence of firms, but they also reflect government policies.

First, a regulatory framework and system of enforcement capable of promoting competition in all markets, governing situations where monopolies are dominant, and fostering scope for efficient entry and exit of firms from the market, are all important conditions for economic development (Chapter 8). At the end of the 1990s, Italy was among the group of advanced countries where anti-competitive barriers were highest. Driven by European integration, the liberalization of services, and competition from emerging economies, the situation has gradually changed. Several services sectors, however, continue to be subject to levels of protection that are higher than the average in the advanced countries, with negative repercussions on their own economic performance and that of the user sectors.

Second, public intervention through industrial policies (Chapter 9) and the corporate tax system (Chapter 10) plays a key role. In a modern market economy, industrial policies aim not so much at directing the allocation of resources as at streamlining this process, stimulating activities such as innovation and internationalization, and promoting structural changes such as

increasing the size of firms. While limited by public finance constraints, the resources allocated to incentives for firms in Italy remain abundant; however, most of the measures adopted do not appear to have achieved the objectives set, owing both to flaws in their design and to the lack of continuity of the interventions. This regulatory variability has also characterized Italy's tax policies on firms, which have been subject to three reforms of opposite sign in a very limited time span. The heavy fiscal burden on firms affects investment and competitiveness.

Third, the cost of labour and the ways in which it is used influence many of the strategic choices of firms (Chapter 11). Since the mid-1990s, the labour market has seen a rise in employment and a fall in unemployment. This was due in part to the reforms that increased flexibility in the use of labour, mostly implemented through greater recourse to fixed-term contracts. These developments have had medium to long-term negative effects on labour productivity. Company compensation policies, which potentially can spur growth in output, have remained circumscribed to a small share of the employed.

Finally, the availability of external sources of finance and the size of financial markets are crucial factors in the birth and expansion of firms (Chapter 12). The Report does not attempt to examine the many different aspects of the relationship between firms and financial intermediaries, but concentrates instead on private equity, a form of investment that is still rather uncommon in Italy. Underpinning this choice is the recognition of the positive role that private equity has played – in the countries where it is more developed – in promoting growth, capital, innovative capabilities and the internationalization of firms. Exploiting specially compiled data, this positive role appears to be confirmed in Italy as well. In particular, the contribution of the private equity intermediaries can be important in delicate phases of a firm's life, such as the restructuring phase or a generational changeover.

One key variable recurs throughout the various chapters of the Report: firms' size. The smaller they are, the more difficult it is to sustain the high fixed costs related to R&D, innovation, and access to foreign markets. The economies of scale extend beyond the productive dimension of plants to embrace "tertiary activities" such as "non-technological innovation" (brand creation, design, the marketing of products, and post-sales assistance), which are also characterized by high fixed costs that need to be distributed over the broadest possible range of customers – a point already highlighted by Barca and Magnani (1989) in their analysis of the industrial restructuring of the early 1980s.

Based on the data gathered for this research project, 18 per cent of industrial firms classify themselves as small compared with their main competitors, but only a little more than half describe their machinery or equipment as inadequate. The term "small" must be interpreted flexibly. Surveys of entrepreneurs have shown that there can be small firms that have recourse to a consolidated base of suppliers, and to a reliable and extensive client network, which, while formally independent, in reality operate as agents for the firm, above all in foreign markets. The decision not to combine these activities into one much bigger firm stems from the need to guarantee flexibility in how production is organized, to spread risk among several independent operators, and not to water down firms' ownership, without this necessarily diminishing the ability to innovate and export. Overall, however, smaller firms are limited in the extent to which they can restructure their production processes and radically change their corporate strategy. These limits are made more severe by the changes that have taken place in the external context.

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There are important questions that the Report does not address. First of all, the exclusive focus on supply, efficiency, and the structural characteristics of the Italian productive system does not necessarily mean that shortcomings on the domestic demand side are not partly to blame for the Italian economy's disappointing performance. The lack of competitiveness in the international markets and the substantial stagnation of firms' efficiency point, however, to problems of supply. Secondly, the Report overlooks the broad and persistent regional gaps in the Italian economy (Banca d'Italia, 2008a, pp. 115-128; Cannari, Magnani and Pellegrini, 2008). This is partly because the competitiveness and efficiency gaps clearly involve the entire productive system, and partly owing to the emphasis placed on an analysis of existing problems at the level of the individual enterprise, rather than by sector or geographical area. Neither does the Report address, with few exceptions, the role of physical infrastructure endowment, not because this is considered to be irrelevant but because Italy's serious infrastructure deficit is universally acknowledged (Cannari and Chiri, 2003). Both these issues, the territorial disparities and the infrastructure endowment, form the object of dedicated research projects by the Bank of Italy.

What is missing, finally, is a specific focus on human capital, but its importance nonetheless emerges in several places in the Report: where it is shown how the transformation of the productive system is associated with a restructuring of labour towards more highly specialized professionals; where it is observed that the lack of qualified staff has held back the adoption of new

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technologies; and where consideration is given to the importance of partnerships between firms and universities. The serious problems of Italy's educational system are well known (Banca d'Italia, 2008a, pp. 89-90; Cipollone and Visco, 2007; Barbieri, Cipollone and Sestito, 2008), but the consequences for Italy's economic performance are not immediately apparent, partly owing to the difficulty of establishing the actual level of firm's demand for human capital. This is borne out by the conflicting indications that emerge from the interviews of entrepreneurs conducted for this project. Judgments on relations with the universities are sometimes critical, but all in all, businesses do not appear dissatisfied with the quality of school leavers and graduates. Right up to the extreme case of the president of a leading international player in a high-tech sector who did not hesitate to conclude that he could find no difference between the graduates who had trained at the Turin Polytechnic, forming the bulk of those hired for his Italian plant, and those from MIT, from which he recruits for his plant in the United States. An increase in human capital appears fundamental for returning to lasting economic growth, but a reflection on the problems of schools, the main source of training and skills, requires a separate effort that lies beyond the scope of this Report.

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The growth deficit of the Italian economy in the last decade is attributable to structural characteristics of the productive system, many aspects of which have remained unchanged for decades, and which have proved ill-suited to addressing the new competitive pressures and fully exploiting the opportunities offered by technological innovation and European and global economic integration. In its selection and organization of the themes, the foregoing analysis has already raised some possible areas of intervention for economic policy to focus on. Others include:

Increasing the degree of competition – The distinctive trait of the recent economic phase has been the increased competitive pressure on Italian manufacturers, driven by a range of different factors: among which several of an economic nature (globalization, technological innovation), others linked to developments in the regulation of markets (privatization and the liberalization of services), and still others of a political-institutional nature (the single market, monetary union). While this greater competitive pressure may have accentuated the difficulties of many Italian firms, the Report shows that it has also been a spur for improving the effectiveness of the productive system. Intense competition cannot be combated through protectionist measures, but only by preparing the right instruments to reap its positive effects. Some of these effects, in terms of productivity and employment, have already followed from the liberalizations recently undertaken in Italy. But much remains to be

done, including by enlarging the number of sectors involved and taking account of specific sectoral traits. Greater contestability in the service sectors would also enable monopolistic rents to be reduced, benefiting both consumers and user firms.

Facilitating the reallocation of resources among firms – Competitive dynamics impose a reallocation of resources from the least productive to the most productive firms, with aggregate gains in efficiency for a given level of firms' productivity. The aim is to create the conditions so that this reallocation can take place, while avoiding the temptation to subsidize firms in difficulty that do not have any concrete prospects of being restructured. Bankruptcy law, for firms, and the social protection net, for workers, play an essential role.

Bankruptcy law is called on to guarantee the fluidity of the mechanisms that allow firms to exit the market, by reducing the related costs. The recent reform launched in Italy goes in this direction, but its positive effects could be greater if several interpretative problems were resolved and a number of legal constraints overcome. To this end, simply using the best practices that favour the coordination of businesses in the settlement of crises can prove useful. An extension of the regulations' scope should also be considered, since a large number of firms are currently excluded.

An adequate system of automatic stabilizers can not only permit the social costs of the reallocation process to be attenuated through a well-designed economic indemnity, but can also improve efficiency by providing the persons who lose their jobs with tools for retraining and effective employment services to accompany them in their search for a new one. Despite some patchy adjustments in recent years, the Italian social security system is inadequate overall and in need of systematic reform, aimed above all at achieving the universal nature of insurance coverage, which now varies across sectors and types of employment and excludes broad categories of workers.

Promoting greater efficiency at firm level – While judging the effects of the free play of competition positively, the risk of a scaling down of the Italian productive system should not be disregarded. At the macroeconomic level, competitive pressures require the most exposed firms to change strategy, restructure and become more efficient. The Report's analysis highlights the substantial heterogeneity of firms, even within sectors. This calls for the formulation of economic policy measures to boost efficiency.

Given that the market tends to produce sub-optimal levels of R&D, due to the presence of significant externalities, and in view of the importance of increasing the presence of Italian firms in foreign markets, there is a case for policy interventions to promote the adoption of new technologies and

innovative activity in the broadest sense of the term, and to foster internationalization. The numerous incentives adopted so far to promote these objectives have been rather ineffective overall and their design leaves room for improvement. When fiscal policy is used to stimulate activities such as investment and spending on R&D, the stability of the regulatory framework must be guaranteed to reduce the uncertainty of the context in which firms operate.

After the progress made in the last decade in terms of employment and unemployment, labour market measures must also aim to support productivity. On the one hand, from an efficiency perspective it appears opportune to limit recourse to fixed-term contracts. This should not be obtained through legal constraints that would probably have negative effects on the demand for labour, but through mechanisms aimed at gradually strengthening employment safeguards based on workers' years of service, together with a reduction in the number of atypical contracts and in the grounds for their use. This could reconcile the need to maintain flexibility in the use of labour with that of stabilizing employment relationships. On the other hand, the spread of compensation policies defined at the firm level can stimulate the efficiency of firms when they are combined with innovative organizational practices. Hence it is advisable to adopt appropriate tax concessions for wage increases at the company level with a view to enhancing productivity.

The size issue – Size, albeit with the necessary qualifications of the term, is vital for the influence it has on firms' strategic decisions . Smaller firms find it difficult to absorb the fixed costs connected with the launch of an export activity or production abroad and the informational asymmetries related to the modes of access to foreign markets; nor are they able to exploit the economies of scale inherent in technological innovation and in all those other activities upstream and downstream of production – marketing, advertising, distribution networks – that this Report shows are fundamental for the competitive capacity of firms.

Among the many explanations for the persistence of a production model based on small enterprises, there is a lack of managerial and organizational resources, reported by 28 per cent of industrial firms that classify themselves as small. This brings us back to the characteristics of business owners and managers and the prevalence of family-owned firms in Italy. These enterprises were a fundamental factor in the development of the Italian economy in the years after the Second World War. The new economic landscape requires, however, that other forms of control be strengthened. Family-owned businesses, in fact, tend to be characterized by a high degree of risk aversion in

strategic planning that stems from the substantial correspondence between the family's own wealth and that of the business; at the same time, there is a low propensity to turn to external managers, including when managerial resources within the proprietary family are lacking. These characteristics, which in periods of stable and regular growth are not very damaging, can constitute a bigger disadvantage when the economic system is subject to shocks of the kind discussed previously.

The priority objective, therefore, appears to be the identification of measures that will encourage firms to increase their size and overcome the restrictive vision of family control. This is no easy task because it clashes with deep-rooted attitudes and the dominant entrepreneurial culture in Italy, but the spread of forms of control other than family ownership and a substantial increase in the medium-large component of firms, appear to be key to the survival of the Italian productive system.

This objective can be pursued through the design of incentive mechanisms, by creating the managerial and organizational resources which firms often complain are in short supply, and by facilitating the development of instruments such as private equity for the positive role it can play in transition phases, like reorganizations and generational changeovers, and in accompanying innovative activity and internationalization.

Policy design – In conclusion, it may be useful to return to several general indications arising from the analysis of the existing situation, which should be part of any proposed measure. First, it is necessary to pursue an organic and stable regulatory framework; for example, in the experience of the last ten years, the benefits for competitiveness deriving from tax concessions, even if substantial, appear to have been obscured by the sharp discontinuities in the fiscal policy stance. Reducing uncertainty over access and the instruments available helps the medium to long-term planning that characterizes firms' strategic choices; the granting of any incentives or concessions should follow a decision-making process that prioritizes transparency and accountability. Second, there should be mechanisms for monitoring and assessing policy measures with a view to selecting the most effective; to avoid potential conflicts of interest, these assessment should be made by independent authorities, following the best practices recognized at international level. Finally, economic policy must always adopt a broad perspective that takes account of the interconnections and complementary elements of the various instruments.

1. THE EXOGENOUS SHOCKS

To understand a prolonged crisis like that of the Italian economy, one must start out by identifying the fundamental changes in the surrounding context. As will be seen, Italy's traditional medium/low-tech industries, particularly exposed to price competition from the emerging countries, are the sectors showing the deepest difficulties. This points to the process known as *globalization* as one of the most important exogenous shocks for the Italian economy. The worldwide integration of markets was coupled with the process of *European integration*, which gained substance with the creation of the single market at the start of the last decade and subsequently with the introduction of the euro. The single market and the euro had various effects, including those, important for Italian firms, of further promoting competition in product markets and fostering a reallocation of production on a European scale. Lastly, the *technological revolution* born from the spread of information and communication technology (ICT) sustained these processes of integration by reducing transport and communication costs (OECD, 2007; WTO, 2008) and helped to create significant differences in performance between those able to grasp its potential and those lagging behind. The technological shock was especially important in the light of the considerable delay with which it spread in Europe, and in Italy in particular. This chapter outlines the general characteristics of these three shocks, taking the technological revolution first in view of its role in assisting the integration of the real and financial markets. In the subsequent chapters we shall consider the impact of the shocks on the Italian economy.

1.1. The technological revolution

The convergence of the European economies with the United States in terms of per capita output and labour productivity, which proceeded powerfully from the 1950s through the early 1970s, appears to have halted from the mid-1990s onwards.[1] Since then, output and labour productivity

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[1] A first structural break had already occurred by the mid-1970s: productivity continued to grow more rapidly in Europe than in the United States, but the per capita income gap had ceased to narrow. This development can be ascribed to a slowdown in labour input in Europe due to a rise in unemployment and a decline in labour market participation and in the number of hours worked (Timmer and van Ark, 2005).

growth rates in the United States have been much higher than in the past and far in excess of those recorded in the main European countries. This acceleration has been ascribed largely to the introduction of ICT (see Jorgenson and Stiroh, 2000; Oliner and Sichel, 2000; OECD, 2003a; Visco, 2004).

Timmer and van Ark (2005) classify the effects of the adoption of ICT under three headings. (1) *Production*: the rapid progress in the production of ICT generates a sharp acceleration in productivity in the sectors producing it, with a contribution to the growth in productivity across the whole economy that is directly proportional to the presence of ICT producers. (2) *Investment*: supposing a simple production function with labour and capital, it is possible to calculate the direct effect of the increase in physical capital on the growth of productivity. A distinction can be made between the effect deriving from ICT capital goods and other capital goods. The progressive reduction in the prices of ICT goods and improvement in their quality hasten adoption of them by firms, thereby sustaining labour productivity. In addition, the use of more sophisticated machinery requires higher-skilled labour, which has an additional positive effect on productivity growth. (3) *ICT-stimulated innovation*: as underscored by David (1990) and Basu and Fernald (2008), ICT is a general purpose technology, i.e. one that is pervasive and tends to spread with time. In order to exploit the possibilities offered by the new technological paradigm, firms are stimulated to adopt more efficient forms of organization and to invest in intangible capital. These adjustments are reflected in an increase in total factor productivity that, in turn, has a positive impact on labour productivity. According to Triplett and Bosworth (2004), the first two factors were the main drivers of the extraordinary economic growth of the United States in the late 1990s; the third factor, namely the increase in total factor productivity due to the intensive use of ICT, began to produce effects only later and especially in the service sector.

The studies referred to above provide a good basis for comparison but they require strong assumptions for the construction of the ICT capital stock and potentially suffer from aggregation bias. A complementary strand of research therefore analyzes the diffusion of ICT at the microeconomic level, examining the characteristics of the firms that were the first to adopt it and its effects on productivity. Nearly all of the studies based on firm-level data find a higher positive correlation between investment in ICT and productivity than emerges from the aggregate analyses of growth accounting. The latter do not explicitly consider the stock of human capital and the reorganization of production, which they treat as ancillary to the use of ICT (Bresnahan, Brynjolfsson and Hitt, 2002; Black and Lynch, 2001 and 2004). In a recent

study, Bloom, Sadun and Van Reenen (2007) find that the returns to investment in ICT vary widely across countries, sectors and firms; in particular, companies in the United States show much higher returns, especially in the sectors where use of ICT is highly intensive.

In summary, there is a consensus that the diffusion and optimal use of the new information and communication technologies have been an important factor of growth for the United States at both firm and national economic level.

Figure 1.1: ICT sector's share of value added, 1995 and 2006
(percentage share of the total value added of the private sector)
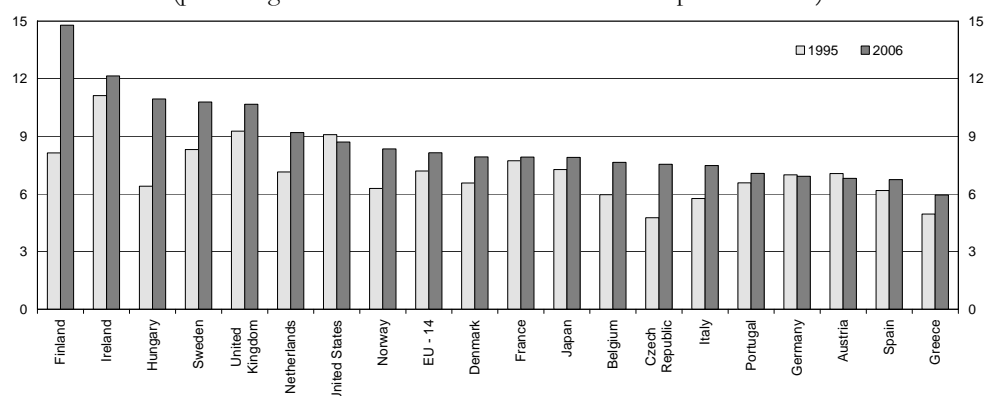
Source: OECD (2008a).

In the European countries, the ICT-producing sectors have increased productivity, but their relative importance remains limited; the ICT-using sectors have experienced a slowdown in productivity. In terms of value added, the ICT sector in the EU is smaller on average than in the United States (Figure 1.1), although large differences are found from country to country: alongside Finland and Ireland, where the sector accounted for more than 12 per cent of value added in 2006, there are countries where its share was around 7 per cent (7.5 in Italy). Despite catching up between countries, so far the convergence has been insufficient to close the gap with respect to the most advanced economies.

1.2. Globalization

In the last two decades the process of international economic integration, commonly called "globalization", has picked up pace. With varying degrees of intensity, it has affected product markets, the organization of production, the

labour market and the financial market. Together with the new technological paradigm, factors contributing to these developments have been the reduction in the barriers to the movements of goods and capital – both in multinational venues (the General Agreement on Tariffs and Trade and, subsequently, the World Trade Organization) and within regional blocs such as the European Union and the North American Free Trade Agreement – and the political changes and economic reforms that have brought the former Communist countries, China, India and other emerging economies into the circuit of international trade.

International trade in goods and services has grown faster than world demand. Between 1987 and 2007 the ratio of exports to world GDP rose from 18 to 31 per cent (Figure 1.2). The increase mainly involved goods, exports of which rose from 14 to 25 per cent of GDP. In contrast with the past, the emerging and developing countries have participated increasingly in the expansion of trade: their share of world exports of goods rose from 21 to 37 per cent in the same period. The scale of world trade in services remains more limited (6 per cent of world GDP) owing to the greater tariff and non-tariff barriers and the lesser "tradability" of many types of services, although ICT is expanding the scope for providing distance services (Blinder, 2005), thereby generating additional growth in trade in services in the most recent years.

The effects of the greater integration of goods markets on firms can be analyzed, in the first place, with the tools of classical theory of international trade. The structure of comparative advantages has been profoundly altered by the entry into the trade system of a sizable group of countries, such as China, India and the former Communist countries, endowed with an abundant supply of labour but a limited stock of capital. By a rough estimate, the labour force of the global market economy has been doubled (Freeman, 2006). According to factor proportions theory, this should determine greater competition for labour-intensive industries, particularly those that use unskilled labour; on the other hand, firms operating in sectors that make more intensive use of capital or other factors scarcest in the new global economy are likely to have greater market opportunities. Findings mainly regarding the United States indicate that the penetration of imports from low-wage countries has effectively been followed by a deep-going reallocation of production towards sectors less exposed to competition from these countries and towards more capital- and skilled-labour-intensive products (Bernard, Jensen and Schott, 2006a).

Figure 1.2: Exports and the stock of foreign direct investment in relation to world GDP
(percentages)
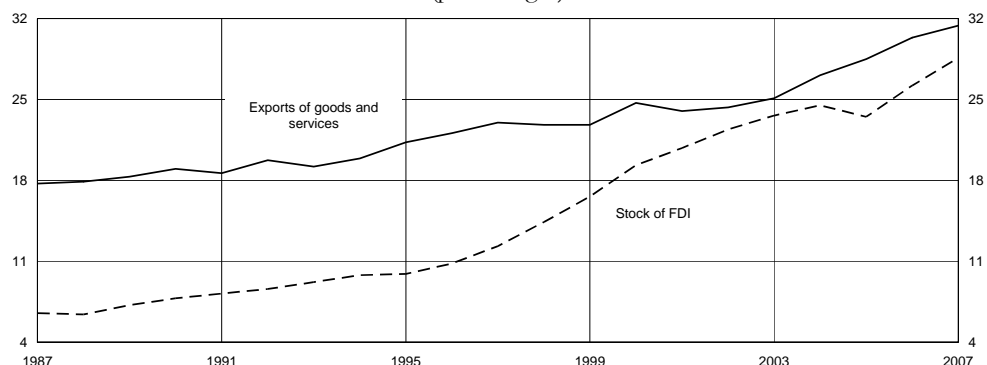
Source: based on IMF and Unctad data.

According to the recent developments of the theory of international trade with heterogeneous firms, lowering the barriers to trade also changes the productive structure within each sector: the most efficient firms win the market shares lost by the least efficient, which are forced to exit the market. The combined effect of the selection of firms and the reallocation of market shares is an increase in the sector's average productivity (Melitz, 2003; Bernard et al., 2003; Melitz and Ottaviano, 2008). This mechanism takes the form of an increment in overall efficiency triggered by stepped-up competition, in this case of foreign provenance. Alcalà and Ciccone (2004) identify a positive causal link between openness to trade and total factor productivity. Using data on the manufacturing sectors of seven European countries for the 1990s, Chen, Imbs and Scott (2007) find that the growth in imports is reflected in higher productivity and smaller mark-ups. For US industries as well, the greater the penetration of imports from the emerging countries, the smaller the increase in producer prices and the higher the growth in productivity (Auer and Fischer, 2008). According to Boulhol, Dobbelaere and Maioli (2006), the competitive pressure exerted by imports has reduced mark-ups and workers' bargaining power in British manufacturing.

Studies based on firm-level data make it possible to discern whether the increase in efficiency is at firm level or follows instead, as in the models mentioned above, from a reallocation of production shares towards the most efficient firms. Comparing the data before and after trade liberalization in Chile, Pavcnik (2002) reports significant sectoral productivity gains resulting from higher efficiency at firm level; Hay (2001) and Muendler (2004) draw similar conclusions for Brazil. Bernard, Jensen and Schott (2006a, b) show that in the United States a reduction in import trade costs is associated both with an increase in sectoral productivity and in exports and with a higher probability of

firms' failure. Heterogeneity of firms plays the expected role: failure is less probable for more productive and capital-intensive firms.

Over the past several decades globalization has involved not only the integration of markets but also the reorganization of production on an international basis. Thanks to lower transport and communication costs, many firms have located phases of production in different countries, on the basis of the relative costs of factors (Feenstra, 1998). In addition, there has been increasing recourse to cross-border mergers and acquisitions for the purpose of penetrating foreign markets or achieving economies of scale. This has resulted in a rapid expansion of foreign direct investment (FDI), the stock of which has grown from 7 to 29 per cent of world GDP (Figure 1.2). In this context, the role of multinational companies has become ever more important: their foreign affiliates are estimated to account for some 10 per cent of world GDP and a third of world exports (Unctad, 2007).

The reorganization of production on a worldwide scale allows firms to increase their competitiveness by reducing production costs or by strengthening their ability to sell in foreign markets. The latest developments in ICT make possible an even finer decomposition of the production process, in which the different tasks that make up the process are separated geographically, with strong repercussions on the professional qualifications demanded by firms in the domestic market, the organization of labour and productivity (Grossman and Rossi-Hansberg, 2006; Baldwin, 2006a). The internationalization of production permits firms to access new technologies, knowledge or specialized skills and thereby raise their productivity.

1.3. European integration

The creation of a single European market allowing free movement of productive factors was expected to sustain trade, promote competition and foster specialization in the areas of production marked by comparative advantage. The introduction of the euro in January 1999 represented the culmination of this process. The benefits connected with the adoption of a common currency – lower transaction costs, elimination of exchange rate risk within the area, greater transparency in prices and costs – were expected to act as a further stimulus to international trade and foreign direct investment. Adoption of the euro also precluded the possibility for individual countries to resort to devaluation in order to cope with losses of competitiveness. Macroeconomic stabilization, achieved earlier with the efforts of the EU countries to satisfy the criteria established in the Maastricht Treaty and then

with the conduct of common monetary policy, was expected to create a favourable climate for investment and for entry into new markets. According to a logic similar to that described in the preceding section, the progressive reduction of the barriers to trade in goods and services and to intra-European capital flows and the impossibility of "competitive devaluations" should have intensified competition and induced efficiency gains at both firm and sectoral level.

More than 15 years after the launch of the Single Market Programme and nearly 10 after the introduction of the euro, it is possible today to draw a first balance of the effects of European integration. The literature, referring mostly to the manufacturing sector, largely agrees that the adoption of the euro has had a positive though limited impact on the area's trade, but the estimates of this impact are based on different methods and they vary. Whereas the early estimates indicated an increase of between 5 and 15 per cent (Micco, Stein and Ordonez, 2003; Flam and Nordström, 2003; Baldwin, 2006b; de Nardis and Vicarelli, 2003), the more recent ones reduce this to a range of 2 to 5 per cent (Baldwin et al., 2008; de Nardis, De Santis and Vicarelli, 2008). The effect is also positive and smaller for trade flows from and to countries outside the area; this signals the absence of distortionary consequences for international trade, in contrast with the cases of preferential liberalization. The studies at sectoral level are limited and the picture they provide is not unambiguous, but they do suggest that the elimination of uncertainty about the exchange rate has favoured sectors with differentiated products and in which the costs of access to foreign markets are substantial (Baldwin, Skudelny and Taglioni, 2005) or production is fragmented internationally (Flam and Nordström, 2003).

Studies using firm-level data for some countries (France and Belgium) have found that the growth in trade is due mainly to the fact that firms that already produced and exported in the area have increased the number of their outlet markets and products sold (Baldwin et al., 2008); the presence of new exporters does not appear to play a significant role. The explanation for this is that the adoption of the euro has reduced firms' fixed costs for entering a new foreign market (for example, the costs of managing another currency), thus making it profitable for a larger number of firms to export their own products and in this way increasing the variety of goods exported in the area (extensive margin). The number of exporting firms has also increased as a consequence of the reduction in real interest rates, at least where firms had to borrow to meet the fixed costs of entering new markets (Mancini-Griffoli, 2006). Using firm- and product-level data for Belgium, France and Hungary, Fontagnè, Mayer and Ottaviano (2009) show that the introduction of the euro has favoured a

compression of export prices, owing in part to the disappearance of price discrimination strategies within the euro area.

The scale of intra-EU trade in services, though growing, is still limited. In 2004 exports of services between the EU-15 amounted to 4.5 per cent of GDP, up from 3.3 per cent in 1995 but not much greater than the share going to countries outside the EU-15 (CEPS, 2007). The expansion of trade in services is held back by differences in national regulations, which create entry barriers for foreign operators. Recent European and national legislative measures mark some progress towards promoting competition in these markets.[2]

With regard to foreign direct investment, the effect of the introduction of the euro appear to be positive and additional to that already deriving from membership of the single market (Petroulas, 2007; Schiavo, 2007; de Sousa and Lochard, 2006; Brouwer, Paap and Viaene, 2008; Flam and Nordström, 2007). Although it is difficult to draw precise estimates from a scanty literature, this effect could be on the order of 15 per cent for flows of FDI between the euro-area countries. Monetary union also appears to have sustained the flows of FDI to countries outside the area, albeit to a lesser extent.

Most FDI between advanced countries involves the acquisition of existing production units. Empirical analyses of cross-border mergers and acquisitions support the hypothesis of a positive impact of monetary union, but find that the impact is pronounced in manufacturing and marginal in services (Coeurdacier, De Santis and Aviat, 2008). This could be due to market regulation, in particular to the existence of barriers to the provision of cross-border services. Nevertheless, some service sectors, including banking, have registered numerous cross-border transactions of substantial size since the introduction of the single currency.

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[2] According to the estimates by de Bruijn, Kox and Lejour (2006), implementation of the European directive liberalizing services within the EU, approved by the European Commission in 2006, would increase trade in services by between 30 and 60 per cent.

2. MACROECONOMIC CONDITIONS IN ITALY

Since the start of the decade, Italian macroeconomic conditions have been characterized by weak output growth compared with both the second half of the 1990s and with the other leading industrial economies. Above all, there has been a slowdown in total factor productivity (TFP), a variable which indicates the development of innovative and organizational capabilities which in turn determine the efficiency of the production system, with adverse effects on export competitivity. The protracted weakness of these indicators is a sign of the serious structural defects in the production system. Against a generally negative backdrop, the labour market has performed well, mainly helped since the mid-1990s by reforms introducing greater flexibility.

Nevertheless, between 2005 and end-2007 when the effects of the financial crisis began to emerge, the state of health of the Italian economy was improving slightly. TFP stopped declining, with clearer signs of recovery in the services sector. There are also positive indications regarding export and GDP growth even if they are modest compared with Italy's main partners, and hard to consolidate in the face of the recent worsening of the outlook for the global economy.

The analysis of the aggregate data contained in this chapter confirms, in brief, the basic difficulties of the Italian production system – those on which the debate regarding the "decline" have focused (see also: Ciocca, 2003; Faini, 2003; Visco, 2003a and 2003b; Nardozzi, 2004; Onida, 2004; Rossi, 2004) – although they have eased slightly in light of the latest revisions of the national accounts.

2.1   Output performance

Since the start of the decade, despite the fact that the world economy continued to grow at a good pace (by an annual average of 4 per cent), the growth of Italy's GDP was only just over 1 per cent per year, almost half the growth rate recorded in the second half of the 1990s. After narrowing temporarily at the start of monetary union, the gap between Italy and the rest of the euro area began to widen again, reaching an average of 1.3 percentage points between 2005 and 2007. Over the whole period, the slowdown in growth was less marked in the services sector, where the value added at market

prices increased by almost 2 per cent annually, net of rentals for premises (2.9 per cent in the second half of the 1990s). Industrial output has more or less stalled, after an increase of almost 1 per cent on average in the second half of the 1990s.

This weakness in the manufacturing sector is a negative aspect of the country. Following the 2001-04 recession, the recovery in industrial output was both shorter and weaker than in the rest of the euro area, in particular Germany, although the results were not as bad on the basis of the real turnover data (see section 4.2). Between the fourth quarter of 2000, the peak of the cycle, and the first quarter of 2008, before the financial crisis became more intense, industrial production had fallen in Italy by 4 per cent overall, accumulating a growth lag of 19 percentage points compared with the rest of the euro area, 24 percentage points compared with Germany and 7 compared with France. In the following three quarters, Italian industrial output contracted by 11 per cent, 4 points more than in the euro area as a whole (2 and 1 percentage points more than Germany and France respectively).

For the first part of the decade, the disaggregated data by sector show a picture of generalized weakness, but the situation was much worse in the traditional manufacturing sectors where Italy has a comparative advantage (textiles and clothing, leather products and footwear, and furniture) and in the production of transport equipment, because of the difficulties experienced by Italy's leading manufacturer. By contrast, the most recent expansion was not widespread across sectors. Between 2005 and the end of 2006, many industrial sectors, accounting for about one third of industrial activity, were on a downward trend or in any case stagnating, similarly to what happened in France but not in Germany where almost all sectors recovered. In Italy expansion was less widespread than that seen in the last three expansionary phases of the 1990s, when only one tenth of industrial sectors did not take part in the recovery. This difference could reflect the persistent weakness of national demand in recent years, above all in household consumption, which has hindered the strengthening of supply in those sectors mainly oriented towards the domestic market;[3] the stimulus was probably also held back by the growing penetration of imports.

The different dynamics of the services and industrial output has led to a significant sectoral reallocation. In 2005 more than half of Italian value added

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[3] On the basis of national accounting data, the cumulative growth of domestic demand in the expansionary phases of the 1990s was between 5 and 6 per cent, almost double that recorded in the period 2005-06.

was generated by the private services sector (trade, hotels and restaurants, transport and communications, financial intermediation, real estate and business services), with an increase in share of more than 3 percentage points compared with 1995 (Tables 2.1 and 2.2). The telecommunications and business services sectors have a growing importance, in line with the trend in outsourcing tertiary activities, which is also taking place in the other industrialized countries. Industry's share has fallen from 22 to 18 per cent, declining more markedly in the last few years. Among the leading industrial nations, the only country where the manufacturing sector has a higher incidence than in Italy is Germany with a share of around 23 per cent for the last ten years. Most ground has been lost by the traditional "made in Italy" sectors, although these manufactures continue to represent a significant share of Italian industry (9.5 per cent compared with 12.7 per cent in 1995). Sectors with an increasing weight include the production of machinery and equipment, metal products and electrical equipment for communications.

Despite these changes, between 1998 and 2005, the specialization in manufacturing industry does not seem to have changed significantly in Italy or in the other EU-15 countries (Bugamelli, Schivardi and Zizza, 2008). Italy continues to be part of the group of Mediterranean economies which still broadly specialize in production with low value added. This is in contrast to the countries of continental Europe where the machinery and chemical industries are strong, and to the northern countries, where telecommunications products are dominant.

2.2   Productivity and profitability

Since the second half of the 1990s, employment in Italy has increased continuously despite the gradual slowdown of GDP growth. The labour supply has begun to increase again, driven by a rise in the activity rate and strong migration flows, and jobs are now more easily found on the market. As a result there has been rapid fall in the unemployment rate which, after peaking in the mid-1990s, has now returned to levels similar to those at the start of the 1980s.

As a result of this trend in employment and the simultaneous slowdown in activity, from the start of the decade, average labour productivity in the private sector has remained more or less unchanged, after an improvement of an average 1.1 per cent in the second half of the 1990s (Table 2.3; Bassanetti and Zollino, 2008). The result is influenced by a sharp fall in the period 2001-03 and by a recovery in more recent years. The TPF also suffered a contraction at the start of the decade; from 2004 it nevertheless recovered slightly, more so in

the services sector, especially following the recent revisions of national accounts (Table 2.4).[4] In addition to this, since 2004 labour productivity has also benefited from a rise in the quality of labour inputs, measured on the basis of the average educational level of workers. The trend towards greater capital intensity has continued at a similar rate for ten years, although only half that of the period 1990-95s. Since 2004 one third of overall GDP growth can be attributed to capital formation, concentrated in the construction and machinery and equipment sectors but still negligeable in the ICT sectors, as in the first half of the decade.

The situation is worse for industry, where labour productivity has fallen slightly since 2000, after increasing by 1.3 per cent annually in the previous five-year period. As in the rest of the economy, more recent signs of improvement are mainly due to an interruption in the sharp contraction in TFP, equal to 2 per cent on average in the period 2001-03.[5] TPF only seems to have reversed this negative trend in the private services sector, growing by almost half a percentage point a year since 2004 thus allowing labour productivity to more than offset the fall in the previous three-year period.

According to the most recent estimates from OECD, which do not incorporate the recent revisions of Italian national accounts and deflate ICT spending with an internationally harmonized index, in the present decade the productivity gap between Italy and the leading industrial economies has widened (OECD, 2008a). The worsening of TFP this decade, which has been more marked than estimated in this report, is to be compared with increases close to 1 per cent a year in Germany and France, equal to 1.2 per cent in the United Kingdom, and around 1.5 per cent in the United States and Japan.

The growth accounting calculations - on which the above-mentioned TFP measurements are based - presuppose conditions of perfect competition in the markets for goods and labour. If these assumptions are relaxed to take account of any changes in these conditions, different results are obtained (Bassanetti, Torrini and Zollino, 2008). In particular, starting in the early 1990s, there was a prolonged phase of wage moderation and an intense process of privatization,

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[4] Before the latest revisions, it was estimated that the TPF would undergo a prolonged fall from the mid-1990s (Bassanetti *et al.*, 2004; Daveri and Jona-Lasinio, 2005; Zollino, 2005). Recent estimates from Istat (2008a) show similar trends to those outlined here, although it measured labour input by hours worked rather than by labour units.

[5] In line with the findings of Daveri and Jona-Lasinio (2008), this could reflect the lagging effects of the intensification of the internationalization of the production processes in most manufacturing sectors.

mainly affecting the services sector, which determined a fall in the share of wages in value added which lasted until 2001. Taking account of these factors, there was much less of an increase in TFP in the private sector between the mid-1980s and the end of the 1990s; from 2000 to 2005, the last year covered by the research, the dynamics were less negative (Figure 2.1).[6] This finding was not matched in the other leading countries in the euro area, indicating that part of the delay in productivity growth in Italy was due to the competition structure of the markets and their development over time.

Figure 2.1: Total Factor Productivity
(annual percentage change, three-term moving averages)
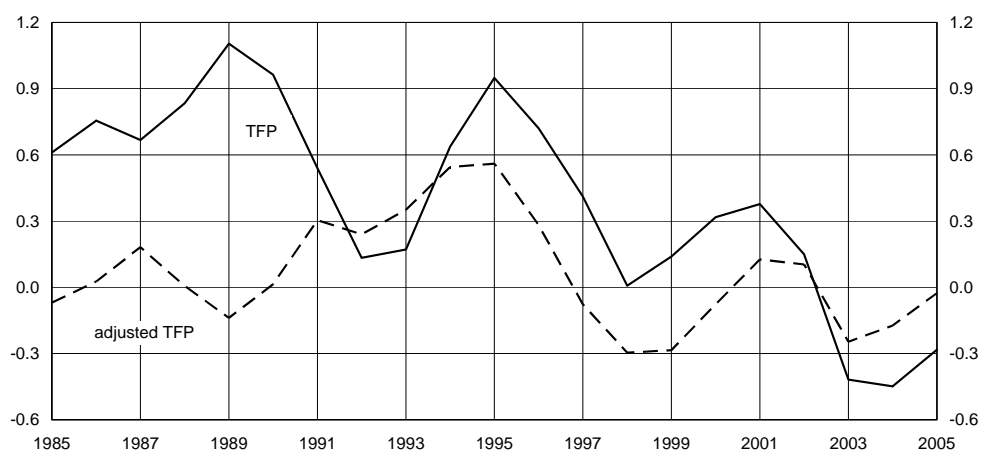
Source: Bassanetti, Torrini and Zollino (2008). Estimates are obtained on the basis of gross production, also including intermediate inputs and hours worked.. Estimates refer to the economy as a whole but exclude real estate business, rentals, IT, research and services for businesses, general government services and obligatory social insurance, other public, social and personal services, and production of private households.

The profitability indicators confirm the difficulties of the Italian production system. According to the national accounts, after the drop recorded during the recession of the first half of the 1990s, the share of gross profits, measured by the gross operating profits on value added, net of rentals for premises, returned to growth in the private sector of the economy reaching historically high levels in 2001 (Torrini, 2005a; 2009). Since then profitability has steadily declined: even though the increase in the real cost of the standard labour unit was modest, it dominated the stagnant trend of average labour productivity. The fall was particularly marked in the manufacturing sector, where the share of profits appears to have decreased by 7 percentage points,

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[6] Estimates are based on the EUKLEMS database which does not incorporate the recent revisions of Italian national accounts.

from 45 per cent in 2000 to 38 per cent in 2007, returning to the modest levels of the second half of the 1970s.[7]

2.3 Exports of goods and services

The performance of exported Italian products on the international markets has sounded the first alarm bell about the existence of a structural problem in the competitiveness of the production system overall. Since the mid-1990s, the share of Italian exports on the world market for goods has tended to decline, with an overall reduction of 23 per cent or 33 per cent according to whether we consider values at current or constant prices and exchange rates (Figure 2.2).[8] While recognizing that a similar trend was common to all the leading advanced countries, reflecting the entry into world markets of businesses located in the emerging economies, it is important to note that Italy's market share has fallen more than that of France, while Germany's share has risen, alone among the developed countries.

Apart from the periods following the 1992 currency devaluation and the 1995 depreciation, it was only in 2007 that the Italian share expressed in volume terms interrupted its decline and the proportion expressed in value terms even registered an increase, although the nominal appreciation of the euro should have influenced this in any case. This is therefore another sign – even it is a weak one - of a recent improvement in the performance of the Italian economy. However, the financial crisis, which broke out in the summer of 2007 and intensified from September 2008, has prevented any testing of the robustness or the capacity for consolidation of this improvement.

Italy's competitiveness on international markets in the last ten years has also shown signs of weakness in the services sector: the share of Italian exports confirms a downward trend, although less steep than that in France, while Germany's share remained more or less stationary and Spain's increased. In

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[7] The fall is the same if we consider the gross operating profits net of imputed income from self-employment (from 33.2 per cent to 26.3 per cent). However, the reduction seems greater if we consider it net of depreciation or if we relate it to capital stock (valued at replacement prices).

[8] Excluding the possible impact of fluctuations in exchange rates and raw materials prices, which add to possible distortions in the statistical measurement of average unit values (see Section 4.1), the smaller contraction in figures at current prices could suggest an improvement in the average quality of products and therefore an increase in their sales prices (Lanza and Quintieri, 2007).

Italy, this result was influenced by lower earnings from international travel, whose weight in terms of total exports of services still remains the highest but fell in ten years from around 50 per cent to 40 per cent, affected by the small size of accommodation facilities and shortcomings in the transport system.

Figure 2.2: Share of Italian goods in the world market
(percentage)
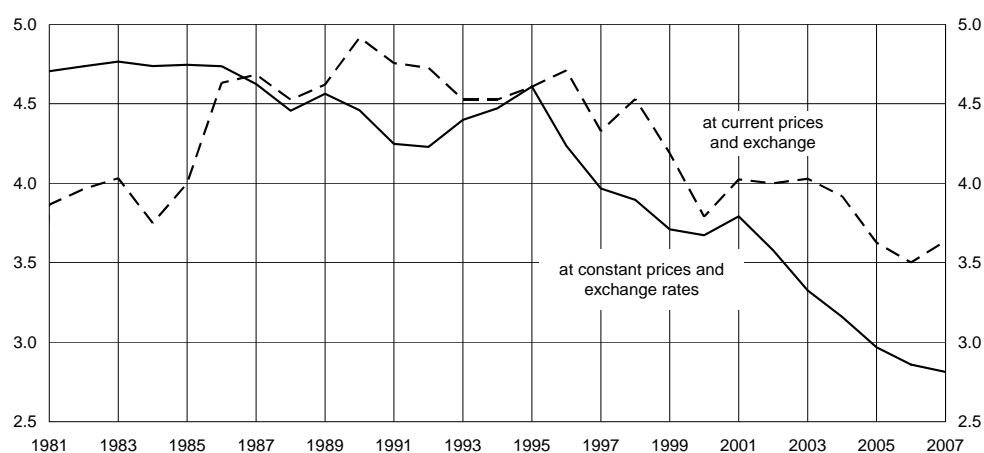
Source: based on IMF and Istat data.

So what are the structural reasons for the unsatisfactory trend of Italy's share of the world market? Shift-share statistical analyses in relation only to manufactured goods agree that the geographical specialization of exports is not a competitive disadvantage, one reason being it is very similar to that of the other leading countries of the euro area (Faini and Sapir, 2005; ICE, 2006).[9] It is rather Italy's sectoral specialization, oriented towards traditional products, which holds back export and therefore GDP growth. In these sectors, not only is world demand less dynamic, but competitive pressure from the emerging and developing countries, with their lower labour costs, is greater. This is only partly offset by the higher quality of the goods produced by Italian firms and by their resulting market power (de Nardis and Traù, 1999; Monti, 2005; Lanza and Quintieri, 2007).

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[9] Italy has a lower incidence of intra-EU trade, which also includes trade with some very dynamic new member countries, and one of the highest incidences of trade with oil-producing countries and the "BRIC" group (Brazil, Russia, India and China), among which the most important trading partner is Russia whereas China and above all India import a lesser share of Italian goods and services.

A limit to the competitive capacity of the Italian production system is seen in the low level of specialization in high-technology products, both cause and effect of low investment in research and development in Italy (see Chapter 5). Italy's share at current prices and exchange rates on world exports of ICT products has fallen in the last decade to the lowest levels among all the largest euro-area countries. The outlook, as is the case as regards the traditional sectors, for medium/high-technology products, such as machinery and means of transport, could suffer from the already high and growing competition from the emerging countries. (Felettigh *et al.*, 2006).

Nevertheless various factors suggest that the crisis of competitiveness in the Italian production system is not only a question of sectoral specialization (Allard *et al.*, 2005). Using a three-digit sectoral disaggregation, we can see how a sharp reduction in market share also affected those sectors less exposed to competition from countries with low labour costs and how the recent recovery has also concerned the traditional sectors (Barba Navaretti *et al.*, 2007).

3. MICROECONOMIC DATA

Productivity and exports trends, both unsatisfactory, show how Italy's lagging growth does not only reflect stagnating domestic demand, but also some supply-side structural weaknesses. The overall picture described so far does not, however, account for the highly heterogeneous nature of the productive system. Only by analysing the different characteristics and strategies of Italian firms, can we identify the factors underlying the competitiveness gap and look beyond the idea that sectoral specialization is the ultimate reason for the disappointing performance observed recently. Manufacturing industry and its traditional sectors have recorded the worst results in terms of production, productivity and exports, but in a generally negative context: a sector-based characterization can help us identify the origin and nature of the shocks and the most important positive or negative technological features, but does not fully explain the nature of the Italian crisis.

The microeconomic analysis in this chapter finds, albeit with a number of ambiguities, some evidence that the Italian productive system is being restructured. The data on business demography, the results from a large sample of business enterprises (Cerved) and those from the Bank of Italy's Survey of industrial and service firms (hereafter the "Invind Survey"), together with qualitative information from about forty in-depth interviews of Italian entrepreneurs carried out by Bank of Italy economists in the spring of 2007, all confirm growing performance differences between firms, even within sectors. The findings point more to a process of "creative destruction" (Schumpeter, 1942; Aghion and Howitt, 1992; Caballero, 2007), i.e. a reallocation of resources from "losing" to "winning" firms on which the future recovery can be based.

3.1   Business demography

Istat provides annual data on business demography, giving the number of business start-ups and closures and the associated birth and death rates (as a proportion of all active enterprises) and net of variations due to mergers, break-ups or other changes to existing units. Between 2000 and 2004 (the most recent data available) 1,448,000 firms were created and 1,415,000 ceased to exist with a net increase of 38,000 firms. The net turnover rate, defined as the difference between the birth rate and the death rate, was positive in 2000-01 (at

0.8 and 0.4 per cent respectively), negative in the following two-year period (-0.5 and -0.2 per cent) and positive once again in 2004 (0.8 per cent).

These trends reflect strong differences among sectors: the number of firms declined steadily in trade (73,000 units between 2000 and 2004) and in industry (33,000), while it increased in construction (39,000) and, in particular, in the other services (99,000). Within the industrial sector, net mortality was higher in traditional production: in the period 2000-04, the average annual net turnover rate was -3.4 per cent for the textiles and clothing industry, -2.8 per cent in leather and footwear and -2.5 per cent for the wood and wood products industry. By contrast, there was a very positive net turnover rate for postal and telecommunication services (6.2 per cent), energy (3.5 per cent), computers (3.7 per cent) and research and development (2.8 per cent).[10]

The demographic growth of manufacturing firms has changed during the current decade. According to InfoCamere data - more up-to-date than those provided by Istat since these do not correct for changes to existing firms - until 2003 entry and exit flows followed the typical anti-cyclical trend usually observed in the absence of exogenous shocks (Lotti, 2007). In the following years, the death rate remained stable and higher than the birth rate in the presence of marked fluctuations in the GDP growth rate (Figure 3.1). In 2007 the death rate increased, further reducing the net birth rate despite the growth of value added.

This last change in the business demography was apparently caused by growing competitive pressures on the international markets. By dividing the manufacturing sectors into two groups according to the size of their normalized trade balance (greater or less than the median value), it emerges that the net birth rate, which was fairly similar and close to zero until the start of the decade, subsequently declined in both groups, but the fall was slightly more marked in sectors that were more exposed to international trade, such as Italy's traditional sectors.

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[10] The gross turnover rate, defined as the sum of the birth rate and the death rate, is often used as an indicator of the internal dynamism of the sectors. It has remained more or less stable at around 15 per cent, with higher growth rates in construction (17-18 per cent) and in public, social and personal services (16-17 per cent) and lower rates for industry excluding construction (11 per cent).

Figure 3.1: Business demography and growth of value added in the manufacturing sector
(percentage)
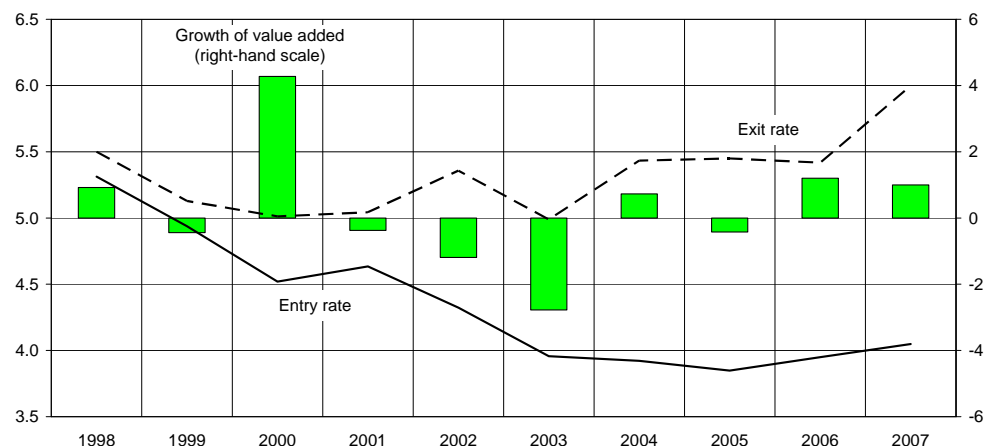
Source: Based on Istat and InfoCamere data.

3.2   Labour force flows and composition

Alongside firms entering and exiting the market, the restructuring of the productive system should also emerge from flows of workers between active firms, presumably from those which are less efficient and therefore downsizing to those that are more efficient and capable of increasing their scale of production. In the Invind Survey of firms with more than 50 employees, it is possible to calculate the job creation and job destruction rates, defined as the percentage change in employment in firms that, respectively, increase or reduce the number of employees (Davis, Haltiwanger and Schuh, 1996). The difference in the two rates indicates the increase in employment, while the sum of the two gives overall job reallocation.

Unlike business demography, the findings on flows of hirings and terminations do not seem to show any discontinuity. Job destruction peaked during the 1993 recession, when employment contracted by 3.2 per cent (Figure 3.2). Since then, the job creation and destruction rates have basically remained unchanged at around 6-7 per cent, as has the overall reallocation indicator. The rate of growth of employment has remained stable over the whole period, on average, and for each year since 2000. Therefore, the job reallocation measures do not show any signs of recent restructuring, in contrast with what happened in the 1993 recession.

Figure 3.2: Job creation and destruction
(manufacturing firms with at least 50 employees; percentages)
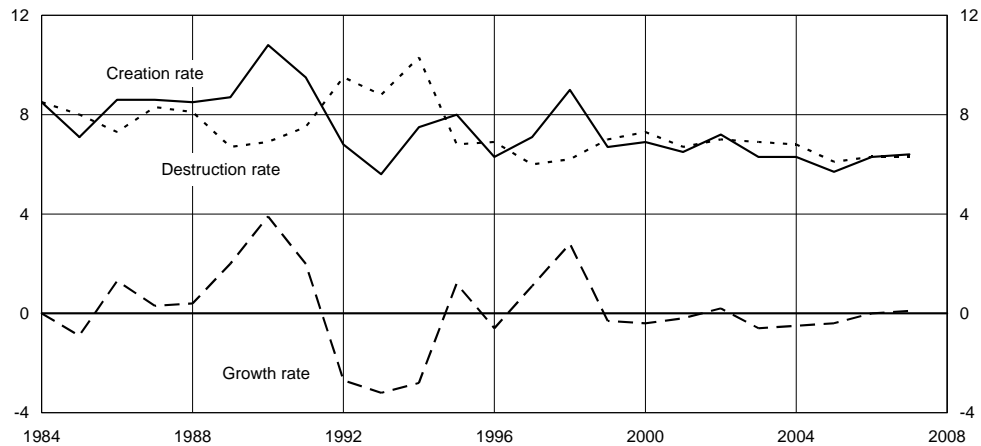
The restructuring of firms has instead implied the regrouping of the labour force at the expense of production workers. According to data from Istat's Labour Force Survey, in the industrial sector between 2004 and 2007 the share of artisans, production workers and unskilled workers fell from 65.9 per cent to 61.5 per cent; the share of clerical staff also fell, from 11.7 to 10.6 per cent. By contrast, the proportion of workers in the professions and more highly specialized jobs increased from 4.9 to 6.6 per cent, and the share of technical workers from 16.3 to 19.7 per cent. These figures are confirmed by the Invind Survey, according to which the share of production workers fell from 73 per cent in 1984 to 62 per cent in 2007 (Figure 3.3), reflecting a long-term trend common to all the leading industrial countries. The share fell in particular in 1998, after remaining constant for the previous seven years: this was associated with a sharp increase in the dispersion of production workers among firms, confirming the restructuring process (Bugamelli, Schivardi and Zizza, 2008).

3.3 Business diversity

On the basis of Cerved data manufacturing firms' average profitability, as measured by the ratio between gross operating profit (MOL) and added value (VA), fell in the period 2000-03 by around 5 percentage points compared with

the values prevalent in the second half of the 1990s (see section 4.5 for a comparison with national accounting data). The decline was accompanied by a steady increase in the dispersion of profitability among firms (Figure 3.4). The differences in the sectoral characteristics, geographical location and firm size (variance between groups) contributed only marginally to the increase in total dispersion as compared to the variance within the groups.

Figure 3.3: Share of production workers in the total labour force
(manufacturing firms with at least 50 employees; percentage)
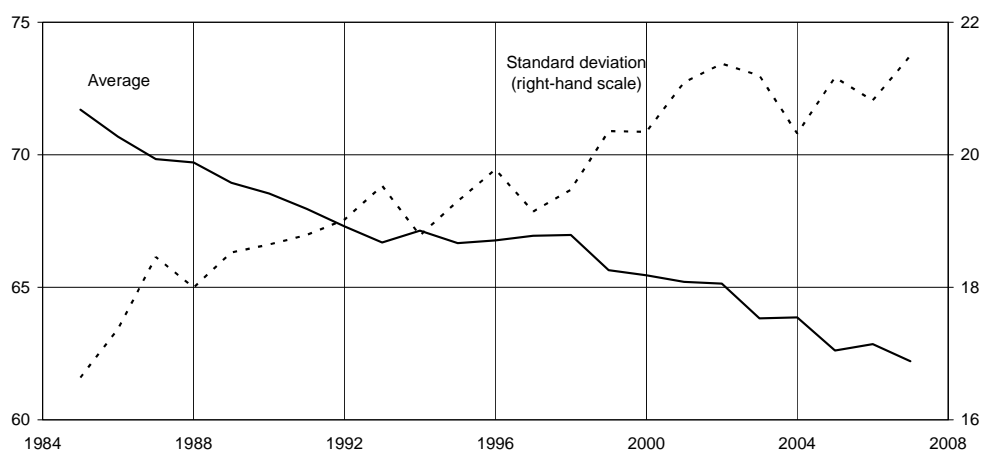
Source: based on data from the Bank of Italy's Survey of Industrial and Service Firms.

The adjustment of Italy's productive system is therefore characterized by a high level of individual diversity rather than by significant differences between the various groups: within each sector and size group, some firms have seen their return on capital steadily decline in favour of other firms ready to take the opportunity to expand. Between 2003 and 2006, this marked variability of individual responses was associated with a recovery in average profitability of more than two percentage points.[11]

The analysis based on the Invind Survey provides indications that are fairly similar as regards real turnover per employee in industry. In firms with at

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[11] The return on investment (ROI, calculated as the ratio between the gross operating margin and the invested capital stock), falling sharply since 2000, reached a low of 8.5 per cent in 2003 and later recovered to 9.2 per cent in 2006.

least 50 employees it increased on average by 4.2 per cent each year between 1984 and 2007; after sustained growth lasting until 2000, it fell back sharply in the three-year period 2001-03, then returned to growth of 3.7 per cent per year in the following four-year period (Figure 3.5). In the group of firms with 20-49 employees, for which data has only been available since 2001, the decline was more prolonged and the recovery less pronounced. The stagnation of productivity since the start of the decade seems to have mainly affected the smaller businesses which have not yet regained their 2001 levels. An analysis of the dispersion of real turnover per employee by category of technological intensity confirms greater turbulence within the medium/low-tech sectors.

Figure 3.4: Breakdown of the variance of the gross operating margin/VA ratio in business enterprises
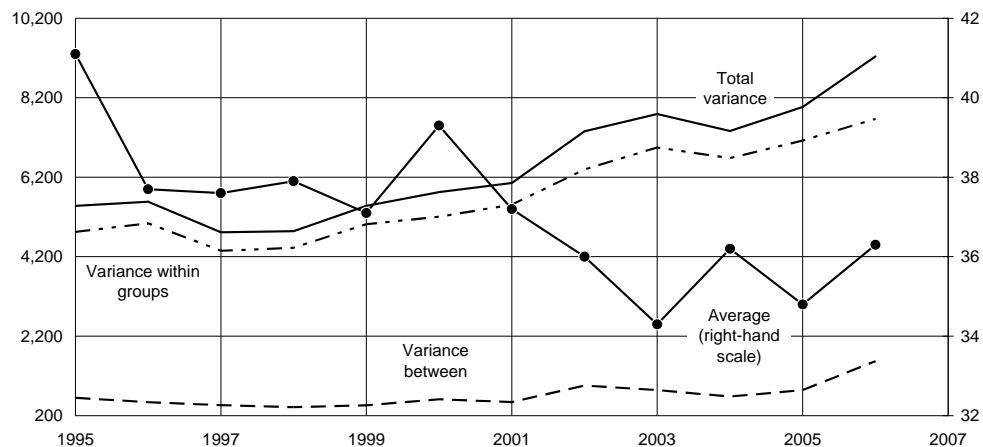
Source: based on Cerved data. The sum of the squared deviations (total variance) is subdivided in the deviation of each observation from the group average (variance within groups) and the deviation of the group average from the general average (variance between groups). The groups considered are 3-digit Nace Rev.1 sectors, 103 provinces and ten firm size classes calculated in terms of turnover. The average number of observations is about 80,000 per year.

Figure 3.5: Real turnover per hour worked, by firm size class
(manufacturing firms with at least 20 employees; percentage)
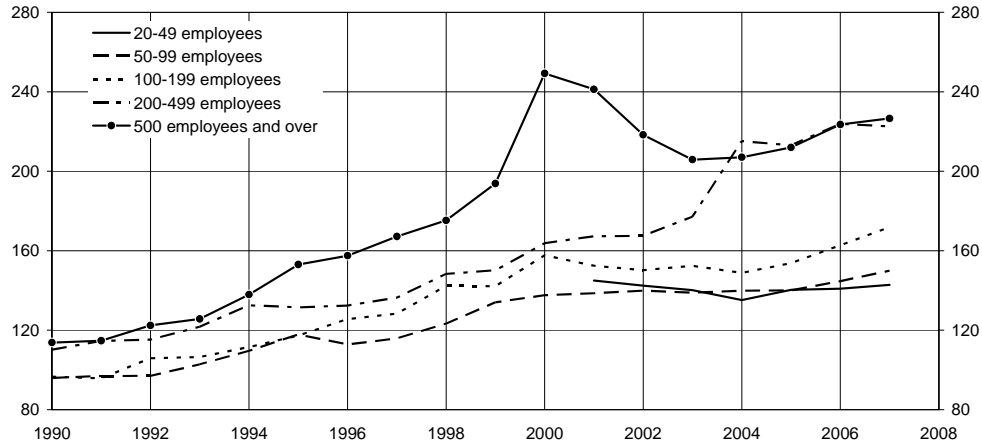
3.4   Interviews with the entrepreneurs[12]

In spring 2007 about 40 interviews were conducted with a sample of manufacturing entrepreneurs, with the aim of refining the interpretative hypotheses, identifying alternative explanations and indicating any previously neglected important questions, including statistical and econometric analyses (see Borenstein, Farrell and Jaffe, 1998).[13]

The entrepreneurs interviewed confirmed that the Italian productive system had gone through difficult years, mostly due to changes in foreign competition. This necessitated new, intensive restructuring, changes in strategy and a reorganization of production. These processes have not yet been completed, because the external competitive environment is constantly evolving and therefore requires manufacturers to update their strategies continuously and also because restructuring is not an instantaneous but a gradual process. This implies that in the empirical analysis it is not possible to identify a precise date that marks the start of the widespread restructuring of the productive system, and thus allows us to measure the effects accurately.

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[12] This section is based on a summary report prepared by Omiccioli and Schivardi (2007).

[13] Interviews of company executives had already been conducted in a previous research (Rossi, 2006). Then as now, the entrepreneurs interviewed cooperated fully and were happy to describe the characteristics of their firms and explain how they run their businesses.

The interviews suggest that the destiny of Italian firms is increasingly less dependent on decisions taken on the "shop floor". For an advanced economy, competition in highly competitive markets has become unsustainable: the manufacturing of standard and undifferentiated goods, whose success is determined purely by production cost, is now carried out in countries where the cost of labour is much lower. The latter countries' competitive advantage means that there are no process innovations that would allow firms in advanced countries to compete: with productivity gains in the order of a few percentage points, there are, however, enormous differences in unit labour costs. Most entrepreneurs are aware of this and the successful firms interviewed all enjoy a certain level of market power, which allows them to survive - and in many cases to prosper - in a global economy. The crucial point in a firm's strategy is how to capture this market power.

Although the firms interviewed differ in various ways - type of goods produced, size and age, ownership and managerial structure - they all have one thing in common: those which have been successful in restructuring have invested in activities upstream and downstream of production. Value added tends to be created less and less by actual production and more and more by the activities which precede, accompany and follow production, in many ways similar to services. These activities include purely technological aspects but there are others as well. Generally speaking, they can be subdivided into: *upstream activities:* creation of a product (R&D, design); creation of a brand (advertising, marketing); *auxiliary activities:* organization of production, which may involve various agents even outside the company (outsourcing, offshoring); extensive use of the new information and communication technologies with the adoption, in particular, of advanced management systems (ERP); *downstream activities:* marketing (sales network) and after-sales assistance.

The importance of each activity varies across sectors: in the traditional sectors, the creation of the brand, design and marketing predominate; in the investment goods sector (in particular, machinery and equipment), after-sales service is more important; in the high-tech sectors, greater consideration is given to the creation of the product through research activity. The interviews indicated that there are systematic differences across sectors also in the way they moved towards these activities. In recent years, these changes have been most pronounced in the traditional sectors which have been the ones most exposed to competition from the emerging economies and for whom the stability of the euro has made it impossible to gain price competitiveness through competitive devaluations. In general, high-tech firms do not appear to report any particular change of strategy: for a firm's competitiveness innovation is now still as important as it was in the past.

These changes of strategy have had important repercussions for the labour force. In the footwear and clothing sector, the successful firms interviewed indicated a marked transfer of workers from production, now only coordinated by the firm but conducted externally, often abroad, to activities of brand creation and product design.[14] Out of 800 employees in a firm producing tiles, only 70 are actually involved in manufacturing the product, the others are divided among design (about 200), marketing and administration.

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[14] This is not only true in Italy. In Japan, for example, Baldwin (2006a) observes that between 1985 and 1995 "the offshoring of some low-wage jobs made Japanese companies more competitive in the US and European markets and this helped maintain high-wage industrial jobs in Japan".

4. MEASUREMENT PROBLEMS IN THE OFFICIAL STATISTICAL FRAMEWORK

Measurement problems have possibly made the statistical depiction of the Italian economy more negative than the actual situation, although the verdict on the economy's structural weakness in the last decade remains unaffected. The problems concern, in particular, the export and import deflators, the indices of industrial production, the measurement of production inputs such as the capital stock and employment, and business profitability. Although there are some areas of overlap in data collection and processing procedures, the problems in question appear to be due to diverse causes that combine to produce a possible underestimation of the Italian economy's performance. More in general, they signal the difficulty encountered by national statistics – not only in Italy - in capturing the rapid change in the domestic and global economy.[15]

4.1 The export and import deflators

The discrepancy between the performance of exports in value and volume underscored in Section 1.5 stems, in accounting terms, from the prices used for deflating exports in value. The export and import deflators used in the national accounts derive from the foreign trade indices of the average unit values (AUVs) of exports and imports, calculated as the ratio of the value to the volume of the goods exported or imported. The greater are the variations in the composition of the basket of products traded, the less precise are average unit values as a proxy for prices.[16]

Before the latest revision, the indices of foreign trade signaled strong growth in export and import AUVs over the last decade; this growth was

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[15] Feenstra, Reinsdorf and Slaughter (2008) argue that productivity growth in the United States since 1995 may actually be lower than the sharp increase estimated in the official statistics, owing to an underestimation of the improvement in the terms of trade. This distortion supposedly stems from transfer pricing by US multinational corporations seeking to augment the increase in the prices of the goods they import.

[16] More analytically, average unit values are derived by aggregating indices calculated for each product category and each foreign country. The imprecision mentioned therefore refers to the change in composition within the product-country cell.

anomalous with respect to the pattern in the other main euro-area countries and not in line with the increase in the producer prices of Italian goods sold on the domestic market, which is often hard to reconcile with movements in the exchange rate. Doubts about the reliability of the available estimates of export AUVs were based both on direct information on the average prices of exported output, collected in the Bank of Italy's Survey of Industrial and Service Firms (Bugamelli, 2007), and on the alternative figures for export AUVs calculated by Eurostat by applying different estimation methods (in particular, in the treatment of outliers) to the same elementary data compiled by Istat. In both cases, in the period 1996-2005 the increase in the prices of goods sold abroad was about 2 percentage points lower per year. On the basis of the export prices of Italy's main trade competitors, the rate of growth in import AUVs was also found to have been overestimated by about the same amount (Cristadoro and Siviero, 2006).

These suppositions were confirmed with the publication of the new monthly indices of Italy's foreign trade for the period 1996-2007 (Istat, 2008b). The revision, reflecting a series of methodological changes,[17] reduced the growth in average unit values significantly and, consequently, increased that in the volumes of exports and imports: the cumulative growth in export AUVs between 1996 and 2007 was reduced from 61 to 32 per cent, equal to about 1.3 percentage points per year, and that in import AUVs from 61 to 40 per cent; by contrast, the cumulative volume growth in exports tripled from 13 to 38 per cent while that in imports rose from 40 to 62 per cent. Italy's share of the volume of world trade in 2006 is now estimated at 2.9 per cent, compared with the previous estimate of 2.5 per cent. The loss of market shares under way since 1996, a trend common to nearly all the industrial countries, came to a halt in 2007.

The effect of the revisions was not limited to foreign trade data. With the adjustment to the rate of growth in the volume of exports and imports in the national accounts, the growth rates of value added and productivity were also revised upwards in the sectors with a trade surplus, manufacturing above all. As a consequence of the release of the new foreign trade indices along with some other, less important adjustments, the growth rates of value added and

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[17] The level of detail in product classification was increased and is now the highest available; a new method was used to treat anomalous data and measurement errors, which are now eliminated from the tails of the distributions; for some goods, average unit values are now calculated using "supplemental units of measurement" (number, pair, carats, etc.) instead of weight in kilogrammes; and the base year was changed from 2000 to 2005. See Istat (2008b).

labour productivity in manufacturing were revised upwards by about 0.6 percentage points per year in the period 1996-2005.

Notwithstanding the significant improvement, the revision by Istat may not have completely eliminated the factors that render the use of average unit values as indicators of export and import prices problematic. The average increase in the new series of export AUVs in the period 2005-07 is sharply higher than that observed in France and Germany and is more than one percentage point higher than the figure simulated with an econometric relation that takes account of domestic producer prices in industry, demand in the outlet markets and the bilateral exchange rate (see Banca d'Italia, 2008b, p. 27; Bugamelli and Tedeschi, 2008). For the manufacturing sector alone, an analogous discrepancy also emerges from the comparison with the price data collected in the Survey of Industrial and Service Firms.[18]

The residual divergence between the new Istat data and other data on prices may depend on the well-known limitations of AUVs as price indicators. These weaknesses are magnified in the presence of intense improvements in the quality and increases in the variety of products exported. Such phenomena may have been particularly important in the last decade, when the flood of low-cost products entering the market from developing countries accelerated a process of selection among Italian exporters and compelled product innovation (Lanza and Quintieri, 2007). On the basis of the same price data at firm level used by Bugamelli (2007), Di Giacinto and Micucci (2008) show that in the period 2000-06 the prices applied by Italian firms partly reflected improvements in product quality, most notably in the traditional sectors of comparative advantage and in machinery and equipment.

The solution to these problems lies in the direct observation of export and import prices, which Istat recently began for the indices of producer prices of industrial products sold in foreign markets (Istat, 2008c).[19] The average annual increase in these indices is almost two percentage points lower than that in the new series of export AUVs for the period 2003-07 (2.5 points lower in the last

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[18] The discrepancy is even larger for some outlet markets. In 2006 the price of Italian products exported to the United States and China rose by about 4 per cent according to the Survey data, but by more than 7 per cent according to Istat. The latter seems difficult to reconcile with the slight appreciation of the euro against the dollar and the renminbi.

[19] Since by their construction these indices are limited to goods sold directly by producer firms, they exclude goods exported by middlemen and those sold by producers to a foreign firm belonging to the same multinational group (respectively 12 and 20 per cent of the total value of Italian exports in 2006).

three years); the discrepancy is particularly large for traditional goods.[20] The rate of growth in export producer prices is barely higher than that recorded in France and Germany, broadly in line with the EU15 average, and about two percentage points lower than that in the prices applied by Italian firms in the domestic market (Banca d'Italia, 2008c). Contrary to the conclusions reached by studies using the average unit values of exports, Italian exporters appear to have defended their export market shares and not to have maximized profit margins according to a dubious short-term strategy.

If the different rates of increase in the indices of export producer prices and average unit values were entirely ascribable to changes in the composition of exports, the former would come closer to the ideal deflator for the values at current prices. The result would be a higher rate of growth in the volume of Italian exports than that estimated on the basis of export AUVs. Italy's loss of world market share between 2002 and 2007 would be comparable to that recorded at current prices, from 4.0 to 3.7 per cent, and about half that calculated using export AUVs (from 3.6 to 2.8 per cent). In addition, assuming that the divergence between export AUVs and import producer prices (as yet unavailable) is similar to that recorded for exports (two percentage points per year), the growth rate of productivity in the manufacturing sector according to the national accounts could turn out to be underestimated by about 0.8 percentage points per year in the period.[21]

4.2 Production and turnover

The difficulty of measuring economic phenomena that are undergoing rapid and radical change extends to statistics used primarily for short-term analysis. The cyclical picture suggested by the indices of industrial production, turnover and foreign trade illustrate this nicely.

On the basis of production data, the most recent recovery for Italian industry, begun in 2005, was appreciably shorter and weaker than that in the rest of the euro area. Compared with industrial production in Germany, which

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[20] The export producer prices of textiles and clothing rose by just a few tenths of a percentage point per year, compared with an average increase of 2.8 per cent in export AUVs; in 2007 the level of export producer prices for leather and footwear was lower than that of 2002, compared with an increase of 25 per cent price on the basis of average unit values.

[21] Istat does not currently foresee revising the national accounts export deflators in the light of the new data, both because the time series of export producer prices is too short and because homogeneous prices for imports are lacking.

also stagnated in the first part of the decade, production in Italy accumulated a growth deficit of 14 percentage points between the first quarter of 2005 and the third quarter of 2007 (Figure 4.1); the gap widens to 22 points if we include both 2004, when Germany manufacturing had already picked up strongly, and the marked contraction of the most recent period. Considering the persistent weakness in both countries of the domestic components of demand, especially consumption, it comes as no surprise that the cumulative gap during the expansion reflects the weaker recovery of Italian exports, which grew in the same period by 11 per cent in volume, compared with 29 per cent for German exports (for the period 2004-08, the figures are 2 and 28 per cent respectively).

Figure 4.1: Industrial production, turnover and total exports
(indices: 2000=100; moving average of three terms)
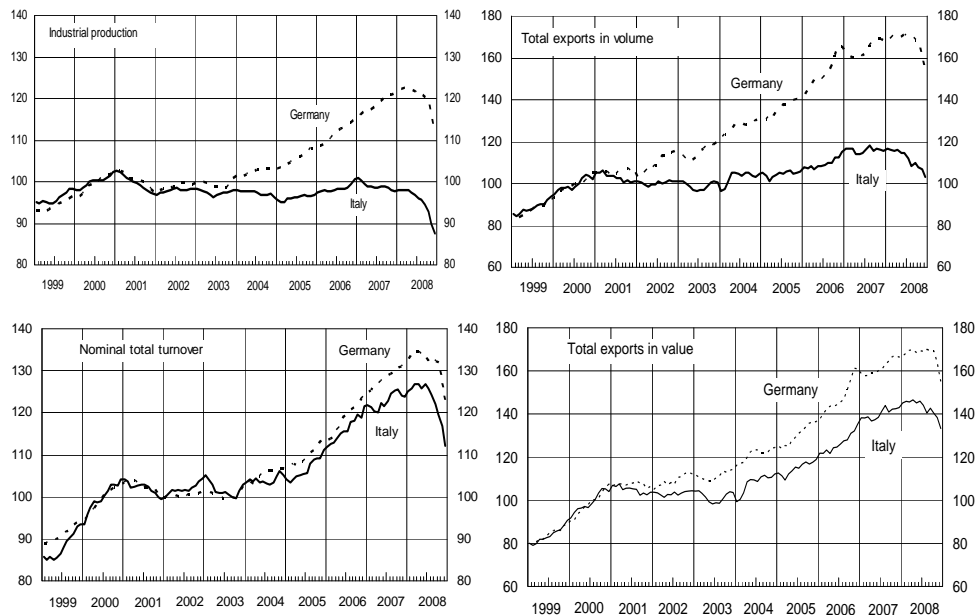
Source: based on Eurostat, Bundesbank and Istat data.

The assessment of Italy's recent performance in absolute terms and relative to Germany changes appreciably when nominal variables are examined. Between the start of 2005 and the third quarter of 2007 total turnover recorded cumulative growth of 20 per cent, as in Germany; for the period 2004-08, the growth gap between the indices of turnover is 5 percentage points, less than half as great as that calculated for industrial production. During the most recent expansion the increase in turnover in the two countries is less dissimilar not only for the domestic component but also for exports, thus confirming the

anomalous deviation between the performance of Italian exports in volume and value.

If we deflate nominal turnover with producer prices for the part sold on the domestic market and with average unit values for the part exported, thereby incorporating any distortion of the latter, we find that the performance of index of "real" turnover remains better than that of industrial production.

These findings may seem less contradictory if account is taken of some factors that are significant during a phase of production restructuring. In the first place, the gradual shift in the composition of the product range in favour of goods of higher quality and away from those more exposed to the competition of emerging economies could have a positive impact on turnover growth, albeit with a slower increase in production volumes. Second, the expansion of supply towards new kinds of goods assists the performance of turnover but is not picked up by the index of production, which is calculated on the basket of goods fixed for the base year.[22] On the other hand, the turnover index includes the value of goods that were produced to some extent through processing trade,[23] whereas the industrial production index refers to the physical manufacture of goods within Italy. An increase in recourse to international outsourcing in some phase of production can give rise to a discrepancy between the two indices. Even when these factors are taken into account, some doubts remain regarding the recent behaviour of some short-term statistics, especially when compared with the more consistent picture that emerges from other countries, such as Germany, that also went through a period of intense restructuring.

4.3   Production inputs: the capital stock and employment

It is difficult to square the behaviour of labour and capital inputs with the growth in output. To indulge in hyperbole, Italian firms seem to be prey to some form of economic irrationality that drives them to accumulate factors of

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[22] The base year for the indices of production and turnover is currently 2000; it should be updated to 2005 during 2009. Eleven per cent of the basket of industrial production is measured in value, not volume, and subsequently deflated with an index of producer prices; about 6 per cent is estimated on the basis of hours worked, by applying productivity coefficients derived from the national accounts.

[23] That is to say the temporary importation or exportation of goods and components that will be processed before being re-exported or re-imported under a regime of total or partial customs exemption.

production in the face of a persistent stagnation of output, even though the conditions for the utilization of factors ought to give firms more flexibility now than in the past.

Starting in the middle of the 1990s, increased flexibility in the utilization of labour, prolonged wage moderation and the rapid increase in migration made the employment of labour less costly with respect to capital. One consequence was a slowdown in the capital intensity of production, with obvious repercussions on the rate of growth in labour productivity: net of the improvement in the quality of production factors, in the private sector the contribution of the increase in capital intensity fell from 0.6 percentage points per year in the period 1986-95 to just over 0.3 points per year in the subsequent years (Table 2.3).

This consensus hypothesis, however, does not accord well with the accompanying large reduction in the apparent productivity of capital. In the private sector, net of rentals of buildings, the ratio of value added to the net capital stock at constant prices fell by 8.6 per cent between 2000 and 2007, after remaining practically constant in the previous five years; the decline was even sharper in the manufacturing sector. These developments contrast sharply with those in Germany, the United Kingdom and the United States, even bearing in mind that capital intensity is particularly high in Italy by international standards.

Firms' capital stock is not measured directly, but is estimated using the permanent inventory method and on the basis of complex assessments of the service life of capital goods (OECD, 2001). Although Istat's methods are in line with international standards, problems can arise if there is an acceleration in the decay of capital goods or an increase in their decommissioning, events that would imply a change in their average life. In a phase of business restructuring and internationalization, these operations may have led to an overestimation of the capital stock and a consequent reduction in its apparent productivity, causing an underestimation of the growth in total factor productivity.

The estimation of labour input is also probably not free of problems, and these may have increased in the past decade owing to immigration and the measures to regularize the status of illegal immigrants. The emersion of unreported labour already present in the Italian economy but captured imprecisely in the national accounts should automatically show up in an

unjustified slowdown in productivity (Codogno, 2008).[24] Furthermore, it is possible that the output of unreported labour is not measured correctly, i.e. that too small a share of value added is imputed to off-the-books work or workers whose status has been regularized. The regularization of non-EU workers in 2002 certainly created statistical problems, which also showed up initially in the national accounts (Banca d'Italia, 2005). Nevertheless, it does not seem capable of influencing the estimated trends in productivity over long time horizons. Labour productivity began to slow down well before the 2002 regularization: unless we suppose that the workers who were regularized were already present in 1995, their emergence should not influence the cumulative growth of productivity between 1995 and the period following the regularization. It is reasonable to hypothesize that the abundant inflow of illegal foreign workers in recent years has accentuated the intrinsic difficulties of measuring off-the-books work, but quantifying the distortions introduced in the national accounts remains arduous.

4.4   Estimation of the underground economy and productivity growth

The importance of the underground economy in Italy creates considerable problems for the correct measurement of economic activity. Plausibly, the uncertainty surrounding the estimate of the phenomenon alters not only the level of productivity, as is obvious, but also its rate of growth. On the basis of estimates performed by Istat (2000d), value added per labour unit under the standard definition can be compared with the figure obtained by subtracting from value added and labour input the components that Istat ascribes to the underground economy.

As Figure 4.2 shows, labour productivity net of the components attributed to the underground economy displays a decidedly more favourable trend in recent years than under the standard definition. Excluding the underground economy, the cumulative growth in productivity between 2000 and 2006 would be between 2 and 2.8 per cent, depending on the hypothesis adopted, against 0.4 per cent under the standard definition; the difference increases between

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[24] The technique for estimating the unreported work of persons legally present in Italy is based on a comparison between firm data and household survey data. If an off-the-books worker does not report that he is working in the household surveys, he cannot be counted among off-the-books workers. If he then found a formal job and began to declare that he was employed, he would figure as a new worker. In these circumstances the estimate of underground work would be unaltered and employment would be shown to be increasing even though the case would actually involve simply a regularization of employment status.

2003 and 2006, with growth rising from 2 to more than 4 per cent if underground activity is excluded. The size of the gap justifies further investigation in order to verify whether the negative overall impact of the adjustment for the underground economy on productivity growth does not depend on purely statistical factors.

Figure 4.2: Underground economy and productivity in the total economy
(value added at base prices per labour unit, chain-linked volumes; index, 2000=100)
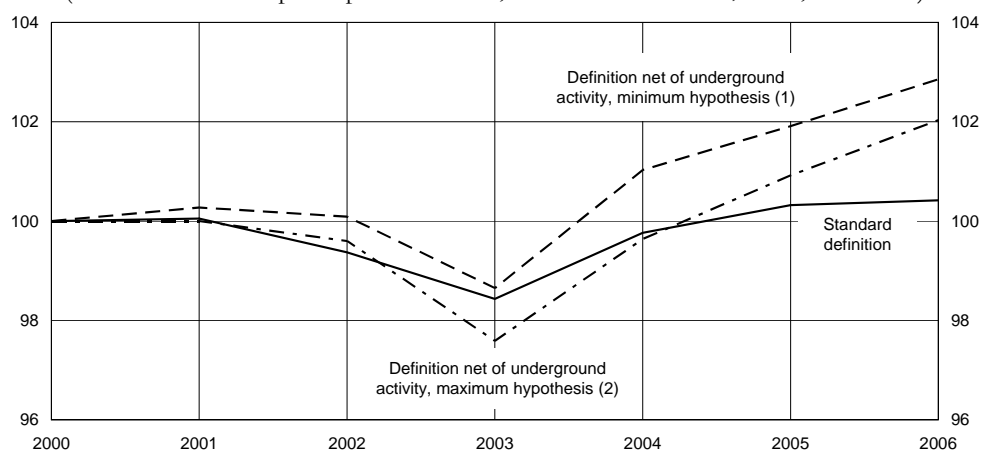
Source: based on Istat (2008d). (1) In the minimum hypothesis, the components ascribable to the adjustment of turnover and intermediate costs and to irregular labour are subtracted from value added; irregular labour units are subtracted from labour input. (2) In the maximum hypothesis, the components ascribable to the adjustment of turnover and intermediate costs, to irregular labour and to the reconciliation of the estimates of supply and demand are subtracted from value added; irregular labour units are subtracted from labour input.

4.5 Firms' profitability

A further way to bring out possible problems in the picture provided by the national accounts is to evaluate the economic plausibility of the behaviour of some measures at current prices, which do not depend on the calculation of deflators. The economic profitability of firms provides useful indications in this regard.

Istat's surveys of large and small businesses (SCI-PMI) and Cerved data provide a slightly different picture of firms' profitability than the one drawn from the national accounts and described in Section 2.2. According to the Istat surveys, the profitability of the manufacturing sector declined by four percentage points between 2000 and 2003, as in the national accounts, and then stabilized between 2003 and 2005, in contrast with the decline shown by the national accounts. Cerved data confirm the Istat surveys' indications for manufacturing industry, which excludes petroleum products: after falling by

five percentage points between 2000 and 2003, the ratio of gross operating profit to value added fluctuated upwards, recouping more than two points. The return on investment, calculated as the ratio of gross operating profit to the stock of capital invested, likewise fell from 10.2 per cent in 2003 to 8.5 per cent in 2003 and then rose back to 9.2 per cent in 2006. According to national accounts data, the return on capital, measured at replacement prices, declined up to 2006 and then rose slightly in 2007; however, the current level of profitability would not permit recovery of the cost of capital, if the self-employed workers were imputed the same labour compensation as the employees.

In short, the national accounts data on the profitability of manufacturing firms tend to paint a more negative picture than that derived from micro-economic sources, and in particular they fail to signal the recent recovery. On the hypothesis that the difference between the Cerved and national accounts data are not due to per capita labour costs but to the nominal growth in value added per employee, in manufacturing industry the national accounts possibly underestimates that growth by about one percentage point per year in the period 2004-06.

5. INNOVATION AND NEW TECHNOLOGIES

Product and process innovation and the adoption of advanced technologies, as in the case of ICT, are key to guaranteeing gains in efficiency at the firm level and consequently growth in the economy as a whole.

Several empirical studies concur that investment in R&D, the most frequently used indicator of innovation capacity—not least because it is easy to measure—has a positive effect on firms' productivity, even if the returns appear to be diminishing over time (Klette and Kortum, 2004).[25] Having said this, R&D expenditure does not cover all innovative activity undertaken by a firm, which instead can often pursue other, more informal, channels, such as scientific cooperation with other entities, the possibility of benefiting from spillovers, or of using knowledge management procedures. The underestimation of the innovative efforts of firms in the official statistics based only on R&D expenditure is particularly striking in small and medium-sized enterprises, which tend to invest less in R&D. This leads to the risk of underestimating the impact of innovation on productivity (Kleinknecht, 1987; Blundell, Griffith and Van Reenen, 1993; Crépon, Duguet and Mairesse, 1998), as the analyses based on the variables of output—rather than input—confirm, such as process and product innovation (Griliches, 1995), patent applications, and the share of turnover deriving from sales of innovative products.

The statistics suggest that Italian enterprises are lagging behind, both in terms of innovation and the adoption of new technologies. This reflects the bias of sectorial specialization towards traditional low-tech products and Italy's highly fragmented productive system. However, the share of firms engaging in innovative activities does not diverge significantly from that of the leading European countries, despite a significantly lower R&D intensity, raising the paradox of a country in which innovation occurs without research.

One way to stimulate the adoption of new technologies and, more generally, of innovation in enterprises, is to subsidize investment in R&D,

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[25] See Lichtenberg and Siegel (1991) for the United States; Hall and Mairesse (1995) for France; Harhoff (1998) and Bönte (2003) for Germany; Klette and Johansen (1996) for Norway; Janz, Lööf and Peters (2004) for a comparison of Switzerland and Germany; Lööf and Heshmati (2002) for Sweden; Lotti and Santarelli (2001), and Parisi, Schiantarelli and Sembenelli (2006) for Italy. Many of these analyses are based on the estimation of a production function, often patterned after Cobb-Douglas and adjusted to include investment in R&D (or an alternative measure of innovative activity) among the productive inputs.

directly and indirectly, bearing in mind the strength of its complementarity with other kinds of knowledge generation, such as scientific collaborations and technology transfers. Instruments that facilitate organizational change, a more skilled workforce and access to venture capital (see Chapter 12), can also have positive effects on the innovative capacity of firms.

5.1   The adoption of ICT

European countries, and Italy in particular, were much slower than the United States to reap the rewards of the new technological paradigm associated with ICT (OECD, 2003a; Rossi, 2003; Visco, 2004). According to the estimates by Bugamelli and Pagano (2004), based on data from the archives of the Company Accounts Data Service and the Mediocredito-Capitalia Survey for the period 1995-97, in 1997 Italian manufacturing enterprises trailed US enterprises in the adoption of ICT by an average of around seven years. This reflected not so much the bias of specialization towards traditional sectors, with a lower propensity to invest in ICT, as the lack of skilled workers and the high costs of adjustment that follow the necessary reorganization of an enterprise's activity (Bresnahan, Brynjolfsson and Hitt, 2002; Black and Lynch, 2001 and 2004). Similar conclusions were drawn by Fabiani, Schivardi and Trento (2005) who, based on the Bank of Italy's Invind Survey of firms in 2001, pointed to firm size and the availability of skilled personnel as being decisive factors in the adoption of ICT. The presence of large firms also appeared to have a positive influence on the odds of investing in ICT, probably because coordination among enterprises, which is favoured by the presence of a big player, helps dispel the uncertainty surrounding investment activity during a shift in the technological paradigm.[26]

This technological gap has been partly bridged during this decade. In January 2008, the diffusion of "basic" ICT (computers, e-mail and Internet connections) approached saturation levels, with computerized enterprises accounting for over 90 per cent of the total, irrespective of their size or location (Istat, 2008e). Equally widespread is the use of Internet for tasks with a low interactive content, such as accessing banking and financial services, using information services provided on-line by the Public Administration or to promote products and services on the enterprise's own web site.

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[26] Another factor that may have curtailed the adoption of ICT in the user sectors is the restrictions on the opening of new start-ups which, from a post-Schumpeterian perspective, should be technologically more advanced than the enterprises already in existence (Bassanini, Scarpetta and Visco, 2000; Bassanini and Scarpetta, 2002).

The availability of adequate technical skills continues to pose a significant barrier to the spread and use of ICT. Based on Istat data (2007), 45 per cent of firms interested in hiring ICT experts in 2006 had difficulties filling the vacancies. In 2007 just one computerized enterprise out of ten had in-house personnel with specialized IT knowledge; the result was a tendency to outsource highly specialized IT functions, including to dedicated foreign companies (offshoring), confirming the sector's low growth in Italy. The larger the firm, the greater the tendency to resort to outsourcing and offshoring: in particular, 4 per cent of computerized enterprises with less than 100 workers engaged in offshoring activities, 13 per cent of those with 100 to 249 workers and 21 per cent of those with 250 or more workers.

In the meantime the technological frontier has advanced, and despite the increasingly widespread diffusion of basic ICT, there continues to be an innovation gap in Italy in the use of the most advanced technologies and services. One example is broadband (Ciapanna and Sabbatini, 2008), where Italy lags behind both in terms of the penetration rate (17 residential or business lines for every 100 inhabitants, as against the 21 lines of the EU-15), and with respect to the average actual bandwidth allocated (an average download speed of 13 Mbps on a broadband connection compared with more than 44 Mbps in France and over 93 Mbps in Japan). The key contributory factors to this situation are cultural, stemming from low levels of computer literacy among the population; orological, made more acute by the lack of economic incentives to invest in areas that are difficult to access; and strategic, linked to Telecom Italia's last-mile monopoly.[27]

Data from the Bank of Italy's third survey on the dissemination of ITC in electronic payment systems and online activities point to an improvement in business confidence in online activities, but also highlight how the continued low diffusion of e-commerce strongly discourages individual enterprises from using this technology (Banca d'Italia, 2009). The main obstacle to e-commerce is the need for a direct link between the customer/supplier and uncertainty over the identity and reliability of counterparties.

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[27] Despite the demand for an ever greater transmission speed, Telecom Italia's last-mile monopoly has reduced the incentives to invest, especially in new generation networks, rendering supply increasingly inadequate and episodes of congestion more frequent; the result has been a slowing down of the transmission speed, deterioration in services and upwards pressure on prices.

5.2 Innovation

In 2006, R&D expenditure in Italy was below the European average, at 1.14 per of GDP (Table 5.1). By contrast, public funding was only slightly lower, while that of the private sector—which accounted for approximately half of total R&D expenditure—appeared insufficient considering that the objective set out in the Lisbon strategy stated this should amount to at least two-thirds. [28] On the other hand, based on data from the Community Innovation Survey, in 2002-04 the share of Italian enterprises that engaged in some form of innovative activity was 36.3 per cent; this was in line with the results for the UK and Germany and the EU-27 average of 39.5 per cent. Italian firms tend to favour process innovation, while in almost all European countries process and product innovation go hand in hand (Figure 5.1).

Fig. 5.1: Product and process innovation
(percentages for firms with innovation, 2002-2004)
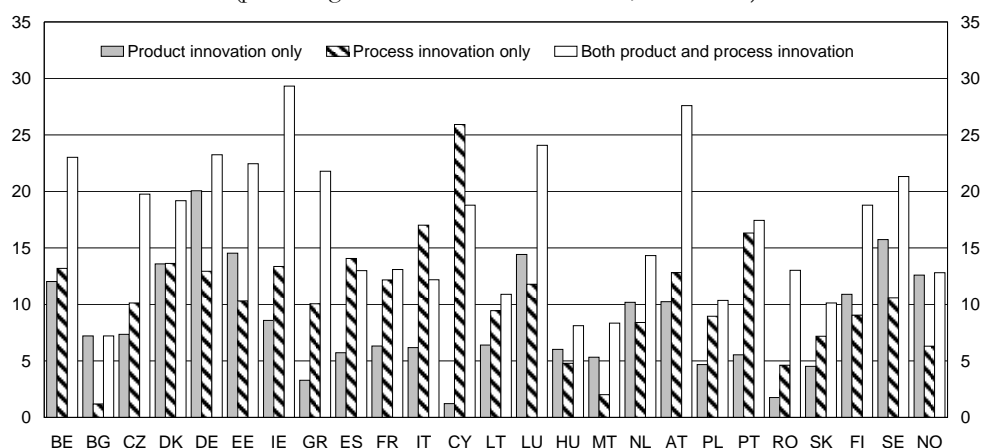
Source: Eurostat (2008a).

The lower level of innovative activity in Italy is affected by the bias of sector specialization towards traditional low-tech goods. Even in economies with the same sectoral composition, significant differences exist in respect of the other EU countries: this is due to the fragmentation of a productive system

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[28] Based on Istat data, in 2006 Italian firms reported a significant increase in personnel engaged in R&D activity (7.4 per cent; Istat, 2008f). This could imply a purely formal reallocation of personnel to in-house R&D activities in order to take advantage of the deductibility of R&D expenditure from the amount subject to Regional Business Tax; the increase has also led to greater statistical visibility of R&D activity in small and medium-sized enterprises.

dominated by small-sized enterprises for which it is more difficult to sustain the high fixed costs of innovative activity (Pagano and Schivardi, 2003).

Alternative indicators of output, such as the number of patent applications to the European Patents Office (EPO), confirm the existence of strong and persistent differences among countries' propensity to apply for patents, although there are indications that Italy is catching up (Table 5.2). These aggregated disparities can be explained both by the different levels of investment in R&D and by the effectiveness of these investments (Lotti and Schivardi, 2005). Sectoral composition does not appear to play a predominant role: countries with a low patenting propensity generally display limited innovative ability across all productive sectors, irrespective of that sector's technological content. Moreover, taking firms' characteristics into account, Lotti and Schivardi (2005) found that the likelihood of having at least one patent is strongly influenced by their location ("the country effect"); however, the most innovative enterprises, are less sensitive to local conditions, since their location has only a marginal influence on the number of patents per employee for those firms with at least one patent. The likelihood of filing a patent is also positively correlated to the size of the firm, but for enterprises with at least one patent the relationship between the size and number of patents is U-shaped, with a minimum probability towards the thirtieth percentile of the firms' size distribution, which corresponds to around 48 workers. The innovation deficit in Italy, where small-sized enterprises are dominant, is therefore largely ascribable to the extensive margin, or rather low number of enterprises that innovate.

The innovative capacity of enterprises, and of SMEs in particular, can benefit from scientific cooperation with other firms, universities and public or private research centres. Based on data from the Bank of Italy's economic survey, in the three years from 2005-07 almost one quarter of Italian firms with at least 20 workers cooperated with universities, almost double the average recorded in the period 2000-04 (Mori, 2008). The increase in collaborative projects reflects both the growing need for supplementary funds on the part of universities and the acknowledgment by enterprises of the role of universities in the dissemination of knowledge and technology transfer. Contacts with universities are much more likely for larger enterprises, for those operating in value-added sectors (chemicals, basic metal and engineering industries) or for those that are more open to alternative sources of innovation such as the acquisition of licenses, software, innovative machinery or the hiring of specialized human capital.

5.3 Innovation and productivity

Empirical studies based on various data sources confirm that in Italy too, process and product innovation have a positive effect on firms' productivity (Hall, Lotti and Mairesse, 2008a). Based on the Mediocredito-Capitalia Survey, Parisi, Schiantarelli and Sembenelli (2006) find that the effects are stronger in the case of process innovation; moreover, not only does investment in R&D tend to increase the likelihood of creating a new product, but it is also compatible with the accumulation of physical capital in promoting process innovation.[29] This "accelerator effect" is apparently explained by the fact that R&D does not only support the capacity for autonomous innovation, but also enhances enterprises' absorptive capacity, enabling them to exploit assimilated innovation in full (Cohen and Levinthal, 1989). Similarly, Pianta and Vaona (2007) argue that up to the end of the 1990s the growth in productivity of Italian firms benefited from the capital deepening associated with process innovation; with the advent of the new technological paradigm, however, this phase came to an end, in part because of the low level of investment in R&D and in human capital.

When it comes to product innovation, by contrast, based on the qualitative data gathered in the Bank of Italy's 2006 Invind Survey of firms, and taking account of the various characteristics of the enterprise (sector, geographic location and size), the growth in value added and of the productivity and unitary profit margins in the period 2000-06 appears higher for enterprises that succeeded in renewing their product range (Bugamelli, Schivardi and Zizza, 2008; Di Giacinto and Micucci, 2008).

With a view to further exploring the Italian paradox of innovation without research, particularly suited to describing the innovative activity of SMEs, Hall, Lotti and Mairesse (2008b) restrict the analysis to firms with less than 250 employees and estimate a behavioral model that aims at reconstructing the formal (R&D) and informal innovative efforts, including firms that did or did not report R&D expenditure. The picture that emerges of the intensity of R&D turns out to be a key factor in the likelihood of carrying out product, and

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[29] It is widely agreed in the literature that process innovation, normally associated with the purchase of new equipment or the development of new ways of organizing production, has a positive direct effect on output. Product innovation, instead, appears to have an indirect effect, observed after demand adjustment: increased demand for a new successful product can help the firm to exploit the learning effect in production and enhance its productivity (Harrison *et al.*, 2008).

to a lesser extent, process innovation, which in turn have a positive impact on labour productivity. The effect on productivity is on average greater for process innovation, but the opposite occurs for firms in high-tech sectors. The intensity of R&D is greater in firms that are more exposed to international competition, especially in the technological sectors.

To explain the low innovative propensity of Italian firms, Hall, Lotti and Mairesse (2008b) compare the parameters of the structural model estimated for Italy with those estimated for France, Germany, the United Kingdom and Spain, and conclude that for firms with some kind of innovative activity, the relationship between R&D, innovation and productivity in Italy is entirely comparable with that of other countries; the returns on R&D and innovative activity in general do not therefore appear dissimilar to those of the other main European countries. Less intensive expenditure on R&D must therefore reflect the net returns, in other words the direct and indirect costs of the innovative activity, which in Italy are higher, discouraging investment by enterprises. As Piva, Santarelli and Vivarelli (2005) point out, it is the organizational change within a firm, in tandem with the adoption of new organizational and managerial practices, that boosts demand for highly skilled workers and the ability of enterprises to innovate. It is worthwhile recalling the similar conclusion reached by Bugamelli and Pagano (2004): the adoption of ICT was delayed in Italy by the high adjustment costs associated with the reorganization of enterprises' activity.

To understand how managerial practices can give firms an advantage in generating knowledge and innovation it is first necessary to agree on standard definitions. To this end, the OECD defines knowledge management as "any intentional and systematic process or practice of acquiring, capturing, sharing and using productive knowledge, wherever it resides, to enhance learning and performance in organisations" (OECD, 2003b). The creation of this kind of organizational ability within the firm is predicated on the identification, documentation and circulation of cognitive resources, the ability to assimilate new knowledge and to spread the specific skills individuals develop and bring into play, even unconsciously, in the professional context. These procedures tend to be complementary to R&D expenditure and, more generally, to innovative activity; they also appear more widespread in larger enterprises, in those that carry out innovative activity at a formal level and in those operating in high-tech sectors they appear to have a positive impact on output (Lotti and Perani, 2008), in line with findings for France (Kremp and Mairesse, 2004).

5.4 Non-technological innovation

Interviews with entrepreneurs previously described, indicate how competitiveness depends not only on the introduction of new products and organizational and technological improvements, but also on the effectiveness of non-productive activities linked to the creation of the brand, design and marketing of the products, in addition to after-sales assistance. The last Community Innovation Survey (CIS) included these activities in the new category "non-technological innovations", which can be divided into innovative efforts in organization and marketing. The first consist in significant changes in enterprises' management procedures, in how the work is organized and in external relations; the second includes the new strategies and ways of marketing products and services, as well as changes in the aesthetic characteristics, design or packaging of products.

Based on the most recent data of the CIS (2002-04), the correlation between technological and non-technological innovation remains strong in Italy and in the other European countries (Eurostat, 2008a). In Italy, in industry excluding construction, 49.5 per cent of innovative enterprises declare they have also introduced organizational innovation, and 32.1 per cent say they have introduced marketing innovation. Including non-innovative firms, these shares fall to 20.6 per cent for organization and 11.5 per cent for marketing.

The importance of non-technological innovation also emerges from the 2006 Invind Survey, according to which the trend in value added and productivity over the period 2000-06 was higher—sector, geographical location and number of workers being equal—for enterprises who declared they had changed strategy by investing more in their own brand.

6. INTERNATIONALIZATION

Export flows are an important indicator of an economy's competitiveness, especially for a manufacturing country like Italy, and help to determine its ability to diversify against the risks of adverse trends in individual markets.

For decade the literature on international trade focused on the characteristics of countries and industries, developing the concepts of comparative advantage and economies of scale and scrutinizing intra-and inter-industry flows. More recent empirical studies (Bernard and Jensen, 1999, 2004a, 2004b) and theoretical works (Melitz, 2003; Bernard et al., 2003; Melitz and Ottaviano, 2008) have concentrated on firms and their high degree of heterogeneity, which is not captured in the traditional aggregate models. Consistently with this new, more microeconomic approach, this chapter dwells on the characteristics of Italy's exporting firms and the effects of export activity on their productivity.

In line with findings for other countries, Italian exporting firms are generally larger, more productive and more profitable than non-exporters. A self-selection effect is at work: it is "harder" to sell abroad than on domestic markets and only the "better" firms are able to do it. In the case of Italy, firms that begin to export subsequently improve their productivity further and grow in size ("learning-by-exporting").

Exports are not the only mode of internationalization available to firms. In recent decades the tendency to locate some or all production abroad (internationalization of production) has intensified, and Italian companies are no exception, despite the difficulties posed by their small size. The delocalization of production can help make the domestic productive structure evolve towards higher-value-added activities through the offshoring of the more unskilled-labour-intensive ones.

Policy measures in support of internationalization can be justified by the existence of significant fixed costs to begin exporting or producing abroad, information asymmetries regarding the manner of entering foreign markets or imperfect capital markets. The rationale for such measures would be even greater, of course, in the presence of learning-by-exporting. Italy has a multiplicity of instruments intended to support internationalization, but we unfortunately still lack sufficiently robust empirical studies of their effectiveness.

6.1 Exporting firms

As in the United States, in the main European countries exporting firms are few in relation to the total number of firms in business; they are generally larger, more productive, more profitable and more capital-intensive than non-exporters and they pay higher wages (Mayer and Ottaviano, 2007). The set of exporting firms is highly heterogeneous, comprising a legion of small exporters and a few "superstars" which alone account for the bulk of national exports.

According to data on the universe of Italian exporters in the ICE-Istat Yearbook, in 2006 exporters of goods numbered 190,000, or 4.2 per cent of all goods makers in business, and employed about 20 per cent of the total workforce. About 80 per cent of the exporters had fewer than 16 workers; they accounted for only 16 per cent of total exports, compared with 60 per cent for those with 100 or more workers. The propensity to export increases with firm size: the share of exporters rises from 3.5 per cent among firms with fewer than 20 workers to 41 per cent among those with 20-49 workers and exceeds 50 per cent for firms with 50 or more workers.

More than 75 per cent of Italian exporting firms sell some products in the EU market, which takes 60 per cent of total exports. By contrast, the percentage that has entered non-EU markets is very low (20 per cent in North America and East Asia). The size distribution of exporting firms by outlet market is more uneven, the farther away the outlet market. Some 75 per cent of exporting firms with fewer than 20 workers and nearly all those with 50 or more workers sell in the EU, while under 15 per cent of small exporting firms but 60 per cent of those with more than 100 workers reach the dynamic markets of East Asia.

Firm size is also positively correlated with the number of foreign markets in which firms sell their products. Overall, 43 per cent of exporting firms sell their products in a single market, 74 per cent in not more than five markets, and only 5 per cent in more than 25 different markets in a given year.

Taking sectoral and geographical characteristics into account, a number of econometric analyses have confirmed the advantage of Italian exporting firms over non-exporters in terms of productivity, size, capital intensity, wage levels and ability to innovate (Ferragina and Quintieri, 2000; Sterlacchini, 2001;

Basile, 2001; Castellani, 2002; Bugamelli and Infante, 2003; Serti and Tomasi, 2008).[30]

6.2 Selection or learning-by-exporting?

In order to understand the dynamics of export flows and to delimit the role of export-support policies, it is important to determine whether the fact that exporting firms are "above average" reflects an initial advantage (self-selection) or is instead the result of export activity itself (learning-by-exporting).

According to the self-selection idea, it is "harder" to export than to sell on domestic markets and so only the "better" firms are able to do it. The difficulty of exporting is ascribed to the presence of fixed costs specific to export activity, such as product transport, distribution and marketing costs or the costs of hiring qualified personnel to manage relations with international customers. The hypothesis of fixed export costs, which was first put forward by Baldwin (1988 and 1989), Baldwin and Krugman (1989), Dixit (1989) and Krugman (1989) and underlies theoretical models with heterogeneous firms à la Melitz, implicitly presupposes a barrier to entry in foreign markets that the less productive firms are unable to overcome. Starting with the work of Roberts and Tybout (1997), numerous empirical studies have corroborated this hypothesis;[31] for Italy, the presence of fixed export costs has been demonstrated by Castellani (2002) and by Bugamelli and Infante (2003). Learning-by-exporting can derive from the fact that the greater competitive pressure to which exporting firms are exposed drives them to achieve efficiency gains, or else from the possibility for exporters to pick up better technologies from foreign competitors or suggestions for the renewal or

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[30] A related, still relatively undeveloped strand of the literature examines the characteristics of importing companies. For Italy, Castellani, Serti and Tomasi (2008) show that: imports, at firm level, are much more concentrated than exports; firms that export and import are the most productive, followed, in order, by those that only import, those that only export, and those that neither import nor export. The great potential of this line of inquiry can be appreciated when one considers that importing can enable firms to acquire new technologies and know-how and improve the quality of their inputs (Ethier, 1982; Grossman and Helpman, 1991; Eaton and Kortum, 2001).

[31] See Bernard and Wagner (1997) for Germany, Bernard and Jensen (2004b) for the United States, Campa (2004) for Spain, Poddar (2004) for India, and Girma, Greenaway and Kneller (2004) for the United Kingdom.

improvement of their product range from foreign customers (Clerides, Lach and Tybout, 1998; Bernard and Wagner, 1997).

Since the mid-1990s, in part with the growing availability of firm-level data, a stream of works has tested these two hypotheses. Reviewing 45 studies on 33 countries published between 1995 and 2006, Wagner (2007) concludes that exporting firms are definitely more productive than average owing to a self-selection effect, whereas entering foreign markets does not necessarily lead to an increase in efficiency at firm level. These results have been confirmed by an international comparative research project launched by (ISGEP, 2008).[32]

There are appreciable differences across countries in the productivity differential between exporters and non-exporters. The "productivity premium" is greater in the countries with a lower proportion of exporting firms; the countries in question are those with more restrictive trade policies, lower per capita output and inferior school systems. In Italy, exporters' productivity premium is estimated at 3.6 per cent, similar to the figure in the United Kingdom (3.9 per cent) but far lower than the premium in Germany, France or Spain (7.2, 7.6 and 8.1 per cent respectively).

An interesting result of the project is that Italy is the sole exception to the generalized finding of no learning-by-exporting. Serti and Tomasi (2008) show that Italian firms that start to export subsequently are able to improve their productivity further and to grow in size. In the absence of ad hoc empirical work, an explanation can be ventured on the basis of a recent study by Lileeva and Trefler (2007). Using a sample of Canadian firms that benefited from tariff reduction under the Canada-US Free Trade Agreement, Lileeva and Trefler find that the productivity gains following the start of export activity are sizable but limited to the less productive firms; the explanation would be that only for those firms do exports, by increasing the volume of sales, make it economical to sustain the fixed costs of the investments needed to raise efficiency. In Italy the learning-by-exporting effect could therefore derive from the presence of a vast number of small firms with low productivity, including some former

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[32] The project sought to study the relationship between exports and productivity by reducing methodological and statistical differences. Some 40 researchers took part, conducting analyses of firm-level data from 14 countries (Austria, Belgium, Chile, China, Colombia, Denmark, France, Germany, Ireland, Italy, Slovenia, Spain, Sweden and the United Kingdom). Davide Castellani of the University of Perugia, Francesco Serti and Chiara Tomasi of the Scuola Superiore Sant'Anna in Pisa participated for Italy.

exporters[33] and others that gained entry to foreign markets following the sharp depreciation of the lira in the 1990s,[34] the period studied by Serti and Tomasi (2008).

6.3   The internationalization of production

Italian firms have significantly increased the internationalization of their production in the last decade. If until the 1980s the expansion of production abroad mainly involved Italian industrial groups, in the early 1990s small and medium-sized enterprises began to follow suit (Mariotti and Mutinelli, 2008). According to a recent Istat survey on international sourcing (Istat, 2008g), about 13.4 per cent of firms with 50 or more workers began to internationalize their activities between 2001 and 2006; the proportion rises to 20.1 per cent among manufacturing firms and to 48.1 per cent for manufacturing firms with 250 or more workers.[35] The phenomenon is still limited in Italy, however, compared with the other main European countries. According to Eurostat data, in 2007 the stock of direct investment abroad amounted to 23 per cent of GDP in Italy, against 35 per cent in Germany, 38.1 per cent in Spain and 52.5 per cent in France.

Theory has identified two main motives for the decision to internationalize production (Markusen and Maskus, 2001; Barba Navaretti and Venables, 2004). First, firms may seek to tap production factors that are unavailable or more costly in the domestic markets. This is called "vertical" foreign direct investment (FDI) since it results in an international fragmentation of production, whose various phases are carried out in different countries. Second, they may invest abroad to be closer to the markets for their

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[33] This could also explain why exporters' productivity premium is lower in Italy than in the other main European countries.

[34] De Nardis, Pappalardo and Vicarelli (2008), who analyze the ISAE sample of Italian manufacturing firms for the period 1997-2001, find that the introduction of the euro stimulated an increase in the number of exporting firms by lowering trade costs within the euro area. The estimated impact is modest, however, owing to the small average size of firms, which, together with the prevalence of traditional sectors, probably prevents full exploitation of the lower incidence of fixed costs.

[35] Internationalization has consisted both in investment in new activities and in the transfer abroad of activities or functions previously performed in Italy. The latter has primarily concerned core production, although Italian firms also frequently internationalize production-support functions such as marketing, sales, after-sales services, distribution and logistics.

products ("horizontal" FDI), a plausible strategy when the costs associated with exporting - costs due to transport or to tariff or non-tariff barriers – are relatively high.

Studies of Italian firms, based on several surveys (Banca d'Italia, 2007; Istat, 2008g), agree in attaching similar importance to both motives, but find differences in conduct according to firm size. Smaller firms internationalize their activity primarily in order to hold down labour costs, while proximity to outlet markets counts more for large companies. A lesser consideration is the regulatory and tax environment or, in line with the Italian firms' scant specialization in knowledge-intensive sectors, access to new technological skills.

Bugamelli, Cipollone and Infante (2000) underscored the importance of firm size as a condition for operating on foreign markets. The role of size becomes increasingly important with the degree of sophistication of international activity, starting from exports, the simplest form, to commercial agreements, technical and production agreements and, finally, direct investment. More recent works have shown that not only size but also productivity is greater on average among the firms that adopt more complex and costly forms of internationalization (Castellani and Zanfei, 2007; Casaburi, Gattai and Minerva, 2008; Benfratello and Razzolini, 2008; Federico, 2008). Companies with production facilities abroad are also more likely to engage in product and process innovation and R&D, have a higher proportion of administrative, supervisory and technical employees and high-school and university graduates among their staff, and are more propense to carry out organizational innovation.[36] All these results are consistent with the theoretical models with heterogeneous firms according to which FDI involves higher fixed costs than exporting (Helpman, Melitz and Yeaple, 2004).

The characteristics of the sector to which a firm belongs can also influence the decision to internationalize production. Horizontal FDI tends to be more frequent in industries with greater "firm-level economies of scale" (technology, R&D, marketing, managerial skills), which are necessary to offset the costs of duplicating production units abroad (Markusen, 1984; Brainard, 1997; Markusen and Venables, 1998). Instead, vertical FDI characterizes industries in which the production process can be broken down into phases of different factor intensity and in which competition is primarily in terms of cost (Helpman, 1984; Helpman, 1985; Feenstra and Hanson, 1996). For Italy,

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[36] Controlling for those characteristics, the productivity differentials tend to diminish but remain significant (Castellani 2007; Castellani and Giovannetti, 2008).

Federico (2004) shows that the probability of making direct foreign investment in less industrialized countries is higher in the sectors where Italy's loss of world market shares has been greater; presumably, this indicates an attempt to respond to the pressure of competition by reducing costs.

Sectoral characteristics also affect the manner of internationalization. Production abroad can be kept within the firm through FDI or it can be outsourced to independent subcontractors. Federico (2008) observes that recourse to FDI is more frequent in Italy in the more physical and human capital-intensive sectors, in line with the theoretical models positing that control on the production inputs should be exercised by the customer firm if it contributes significantly to the final product by supplying capital or advanced know-how (Antràs, 2003; Antràs and Helpman, 2004). But it is more common for Italian firms to internationalize production by outsourcing.[37] According to the Bank of Italy's latest survey of firms, for manufacturing firms with 50 or more workers purchases abroad rose from 34.7 to 37.3 per cent of the total value of purchases of goods from subcontractors between 2004 and 2007; about one quarter of the increase came from new production agreements with firms located in China and India.[38]

6.4   The effects of the internationalization of production

While it recognizes the importance of self-selection, the theoretical and empirical literature on the internationalization of production is in agreement on the existence of significant effects on firms and the surrounding economic fabric.

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[37] A contiguous strand of studies (Feenstra and Hanson, 1996; Feenstra, 1998; Campa and Goldberg, 1997; for Italy, Bracci, 2006; Falzoni and Tajoli, 2007; Breda, Cappariello and Zizza, 2008; Breda and Cappariello, 2008; Daveri and Jona-Lasinio, 2008) uses the input-output tables on imports by type of use to construct an indicator of imports of intermediate goods in relation to domestic production (or, alternatively, in relation to domestic production of intermediate goods only or to exports). These indicators, which are an approximate gauge of offshoring, reach very high values in Italy in the chemicals, electronics and precision instruments sectors.

[38] Federico (2006) asserts that the specialization of industrial districts in traditional sectors explains why district firms resort more frequently to forms of internationalization other than FDI, such as subcontracting agreements and technical cooperation. Mariotti, Mutinelli and Piscitello (2006) ascribe the pronounced heterogeneity across industrial districts in terms of the internationalization of production to the presence of large leading firms or foreign companies.

According to a survey of business opinion by Istat (2008g), the transfer of activity abroad reflects the need for firms to raise their competitiveness both by cutting production costs and by expanding their ability to sell in foreign markets. Only 15 per cent of respondent firms declared they had had access to new knowledge or specialized technical skills (Fosfuri and Motta, 1999). Respondents also reported a change in the composition of employment, with the elimination mainly, though not exclusively, of unskilled jobs.

Empirical studies comparing firms that have invested abroad for the first time with a control sample composed of firms with similar characteristics that have not invested abroad report findings for Italy in line with those for other countries: employment developments are similar or, in some cases, better for the firms that have invested abroad than for the control sample (Barba Navaretti and Castellani, 2004; Barba Navaretti, Castellani and Disdier, 2006; Hijzen, Inui and Todo, 2007; Bronzini, 2008); in addition, the companies that have invested abroad tend to record stronger growth in turnover, value added and productivity in the years following the investment. Castellani, Mariotti and Piscitello (2008), who confirm the results in terms of overall employment, show that Italian firms investing in central and eastern Europe record an increase in the proportion of administrative, supervisory and technical personnel. Productivity gains following investment abroad are also found at aggregate level by studies that use imports of intermediate goods as a proxy for off-shoring. Daveri and Jona-Lasinio (2008) estimate that in the period 1995-2003 the purchase abroad of intermediate goods accounted for between 8 and 16 per cent of the growth in labour productivity in Italian manufacturing.

The impact of internationalization can reach beyond the multinational company, whose network of contractors and subcontractors can be crowded out. Given the small average size of firms and their extensive recourse to subcontracting, this crowding-out effect could be particularly important in Italy. Some factors may act as a brake on it, however: the propensity to change suppliers increases with distance and is lower for firms in industrial districts.

On the basis of the survey by Istat (2008g), the companies that transferred activities abroad reckon that this had led to a reduction in activity levels for some three quarters of their subcontractors, although in most cases the reduction was judged to be small. ISAE data (Costa 2007) also indicate that the crowding-out effect may not have been negligible, considering that nearly 40 per cent of firms that offshored activity changed suppliers, mainly in favour of foreign firms. Unfortunately, there are few econometric analyses of the subject. Federico and Minerva (2008) study the relationship between FDI flows by province of origin and sector and the change in employment in the same area and sector between 1996 and 2001: controlling for the local industrial structure

and fixed province and sector effects, higher levels of outward FDI, particularly towards the advanced economies, are associated with a more favourable trend in local employment. By contrast, using ISAE data at regional and sectoral level, Costa and Ferri (2007) find a negative relation. Owing to data availability, both studies take a short-term perspective, whereas it is possible that the full effects of internationalization on the local productive structure only develop in the longer term.[39]

Lastly, internationalization can contribute to a change in the productive structure: Mariotti, Mutinelli and Piscitello (2003) show that labour intensity in the region and sector of origin of FDI decreases following an increase in vertical FDI; an opposite effect prevails in the case of horizontal FDI, in connection with the greater use of labour in supervisory and coordination activities, R&D and marketing.[40]

6.5 Policies to support internationalization

Policy measures in support of internationalization can be justified by the existence of significant fixed costs to begin exporting or producing abroad, information asymmetries regarding the manner of entering foreign markets or imperfect capital markets. The rationale for such measures would be even greater, of course, in the presence of learning-by-exporting.

Italy has a number of public instruments to support internationalization, managed by various entities: the Institute for Foreign Trade (ICE), the Export Credit Insurance Agency (SACE), Simest, Finest, chambers of commerce and embassies. Initially, the instruments consisted mainly in export credit and loans for commercial penetration programmes. In the early 1990s support was extended to the sphere of production through shareholdings in joint ventures

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[39] In the theoretical model of Basevi and Ottaviano (2002), which assumes that the innovative ability of a district firm is a function of the innovations that are developed and implemented in the production units of the district, investment abroad, by reducing the number of production units within the district, ultimately weakens the positive externalities and thus diminishes the benefits of locating in the district.

[40] Descriptive evidence on the sectors producing traditional "made in Italy" goods suggest that the internationalization of production can lead to a shift in the composition of employment in favour of the upstream (higher-value-added) phases of the production chain and also to the benefit of some branches of services, particularly business services (Savona and Schiattarella, 2004; Corò and Volpe, 2006).

abroad. The past decade has brought a reform of the entities involved and a revision of the types of intervention; stress has been placed on specific promotional initiatives and the creation of new types of incentives for the internationalization of production. In this changing context, moreover, devolution of powers to the regions has increased the number of actors and levels involved, making it necessary to devise coordinating mechanisms (D'Intinosante and Maizza, 2006).

Unfortunately, we still lack sufficiently robust analyses of the effectiveness of Italy's policies in support of internationalization, although evidence from other countries suggests that the activities of national or regional promotional agencies, embassies and governmental missions abroad have positive effects on exports (Lederman, Olarreaga and Payton, 2006; Gil, Llorca and Serrano, 2008; Rose, 2007; Nitsch, 2007). In the case of Italy, a study focusing on financial services for internationalization suggests that small and medium-sized firms are unfamiliar with the more complex instruments and finds limited support offered by the network of public agencies and organizations abroad (Onida, 2006). The latter finding is consistent with the data of the Mediobanca-Capitalia survey, according to which only 9 per cent of Italian exporting firms received assistance abroad from Italian entities or operators in the three year 2001-03.

7. CORPORATE GOVERNANCE

From the theoretical standpoint, a corporate governance system can be defined as the complex set of constraints that shape ex post bargaining over the rents produced within the firm (Zingales, 1998). In reality, that set is described by firms' ownership structures, by the ways in which control is exercised and by the constraints, determined essentially by the institutional framework, on the exercise of such control. A recent strand of theoretical and empirical economic studies underscores a nexus between an adequate governance structure and the performance of firms and of the economy as a whole (La Porta et al., 1997 and 1998). In general, a good governance system should ensure that firms are controlled by the most suitable persons, that they have access to the external financing required for growth, and that the controlling agents have sufficient incentives to invest in firm-specific capital. In other words, efficient allocation and stability of control and the ability to provide sufficient guarantees to financiers are the conditions, sometimes conflicting, that should guarantee an efficient governance structure and more robust growth of firms.

Although a vast body of studies in the last decade considers the "Anglo-Saxon" systems better than the others (Djankov et al., 2008), implicitly because of their ability to ensure a large stock market and the dispersion of ownership, there is not full agreement on how to evaluate the overall superiority of a governance system (Pacces, 2008). In theory, this superiority should be ascribable to a legal and institutional framework that offers better protection to financiers. In the light of the problems now besetting the Italian economy, it is useful first to analyze the characteristics and the evolution of ownership and control structures and then to evaluate their role with respect to the growth, productivity and competitiveness of the productive system

Although the legislative and institutional framework has undergone far-reaching change in Italy and is now similar to that prevailing in most developed countries, ownership and control structures have changed to a limited extent, especially among unlisted companies, the great majority of which are still family-owned. This can be the source of some of the system's weaknesses and its insufficient ability to restructure when necessary. The still high private benefits of control may have helped preserve such a structure.

7.1 Governance and ownership structures in the 1990s

In the first half of the 1990s the concentration of ownership of unlisted firms in Italy was relatively high, a situation not unlike that in other countries: the largest shareholder owned, on average, 66.3 per cent. Substantial shares were held both by individuals (41 per cent) and by holding other non-financial companies (35 per cent), the latter figure reflecting the importance of groups as organizational and control structures. Financial companies and banks did not hold shares in unlisted firms. Among listed firms, the largest shareholder again held, on average, the absolute majority, 54.7 per cent (47.9 per cent if the shares are weighted by the company's market capitalization). The concentration of ownership of banks was higher than average because of the major role played by the state; the main shareholders of non-financial companies included other companies (as well as individuals and the state), evidence that pyramidal structures were widespread.

Essentially, the prevailing structures were family and state companies, with a high concentration of ownership ensured also through pyramidal structures. Research, including comparative studies, pointed to inadequate investor protection as the main inefficiency of the prevailing governance system of the time (Barca et al., 1994; Associazione Disiano Preite, 1997); the large private benefits of control deterred potential minority shareholders from investing and meant that controlling shareholders had little incentive to dilute their interests unless they were paid a large premium.

This configuration had various adverse consequences, including an underdeveloped stock market, owing to the scant "demand" for listing, and ownership arrangements characterized by pyramids and interlocking directorships. In unlisted companies, large private benefits of control - both "expropriative" (to the detriment of minority shareholders) and not – reduced the willingness of controlling agents to give up control even when they had become inadequate to the job of managing the company. These factors are particularly penalizing during the phases when a firm is growing in size and when changes in the external context call for changes in the firm's optimal response strategies.

Since then, partly as a consequence of the vast privatization programme carried out since in 1992, an extensive programme of reforms has been implemented, focusing on listed companies but also involving company law, aimed at increasing investor protection in listed firms and allowing for more flexible governance structures in unlisted firms. The most important measures include the Consolidated Law on Finance, the introduction of a corporate

governance code, the reform of company law, and the law on savings (Enriques and Volpin, 2006).

7.2 Signs of change?

Unlisted firms

The ownership and control structures of unlisted Italian companies have changed very little since the 1990s (Bianchi et al., 2005). Family firms still make up the vast majority of Italian companies, and ownership concentration remains high: in 2007 the largest shareholder still owned 67.7 per cent, while the median number of shareholders was three.

The ownership structure has changed only marginally. The average ownership share of individuals has diminished slightly, standing at 38 per cent in 2007. The share held by foreign companies (mainly present in large firms), rose from 8 per cent in 1993 to 13 per cent in 2007, while the state reduced its presence, especially in large companies. Pyramidal chains of control appear to have become "flatter": this is suggested by the increase in the ownership share held by holding companies and the reduction in that held by non-financial companies, which constitute the intermediate levels. The share owned by independent financial companies rose from 0.1 to 2.5 per cent; these companies are present in 5 per cent of unlisted firms, in some cases holding 40 per cent or more.

The instruments for ensuring or enhancing control have evolved. While pyramidal structures have become less common (the proportion of firms belonging to a group fell from 56 per cent in 1993 to 47 per cent in 2007), shareholder coalitions aimed at stabilizing control are now more common. They are formalized in a shareholder agreement in about 12 per cent of companies, with an increasing trend in recent years. Taking other firm characteristics into account, their presence is negatively correlated with the stake owned by the largest shareholder (but not with the number of shareholders) and positively correlated with firm size; they are more frequent if the shareholders include a financial company or a foreign firm. Shareholder agreements thus appear to serve to stabilize an ownership structure that is more dispersed, especially when the shareholders include financial companies or foreign firms which might perform a monitoring role.

Clauses in company bylaws that limit the transferability of shares are another means of stabilizing control. Such clauses are found in 47 per cent of unlisted companies (42 per cent in 2003). They ensure that shareholders that

have potentially provided specific skills or knowledge to the company cannot sell their shares without the consent of the others. As with coalitions, these clauses are more frequent, the smaller the stake held by the largest shareholder and when the shareholders include a financial company.

In the last ten years an average of 3 per cent of Italian manufacturing firms changed control every year. Half of these transfers took place within the owner family, typically between generations. Changes of control have intensified in recent years, particularly in 2004 and 2005, with the average age of the controlling shareholder falling from 61 to 57.6 years. In 2007, 65 per cent of family-owned firms were still controlled by the founder.

Listed companies

The ownership and control structure of listed Italian companies have changed to a limited extent in the past few years. The share held by the largest shareholder is generally stable for listed companies (declining only for large companies). Ownership concentration in non-financial companies remains high by comparison with the leading countries. The share held by foreign investors rose from 1 per cent in 2003 to 6 per cent in 2007, while that held by individuals or other non-financial firms declined; the percentage held by the state is still high by international standards. The role of pyramidal groups has gradually diminished; dual class shares have become less common; the importance of shareholder coalitions and agreements has increased (Bianchi and Bianco, 2006), while that of interlocking directorships is waning slightly (Santella, Drago and Polo, 2007).

The improved institutional framework created by the above-mentioned reforms does appear to have strengthened the degree of investor protection, however. Indirect evidence of this comes from the reduction in the estimated control premium for Italian companies, the growing presence and activism of foreign institutional investors, and the greater compliance by companies with governance codes. In particular, Ivaschenko and Koeva Brooks (2008) find that in the period 1992-2007 the control premium, measured by the percentage difference between the value of voting and non-voting shares, fell significantly, from 46 per cent (among the highest figures in Europe) to about 20 per cent. This is even larger than the very substantial reduction recorded in France and Germany and appears to be associated with the reforms introduced. The latest report on the compliance with the corporate governance code for listed companies (Assonime, 2008) finds greater attention being paid to these aspects: in 2007 the reports of companies were more complete and transparent both among those compliant and among those that did not comply.

7.3   Family firms and performance

Considering their very substantial weight in the Italian economy, it is relevant to investigate what role is being played by family firms in the transformation of the economic structure. A vast literature on the performance of family firms, mostly referring to the United States, does not arrive at entirely conclusive results (Bertrand and Schoar, 2006): some studies find that family firms, especially if controlled by the founder, turn in better performances, while others contend that family control induces greater inefficiencies. For Europe, Barontini and Caprio (2006) find that, taking into account the use of control-enhancing mechanisms, (listed) family firms have better performance and higher valuation.

There are several channels through which family control can affect firms' ability to grow. Michelacci and Schivardi (2008) use the share of family firms to proxy diversification opportunities in a country. They find where these opportunities are lower, the sectors characterized by higher "specific" risk (measured by the industry- and firm-specific component of the volatility of annual returns) have lower productivity and investment growth and a lower business birth rate. The large share of family firms in Italy could explain recent poor performance, especially in the sectors more exposed to international competition. Cucculelli (2007) suggests that family firms may be more oriented towards maintaining control in the long run than in strengthening profitability and growth. This could make them less responsive to demand and thus less able to exploit market opportunities. In the period 1995-2004 the sales of family firms were less sensitive than non-family firms to variations in demand for their sector's products, especially if they were financially constrained. Partially in line with these results but with a more precise identification of family firms, Bianco, Golinelli and Parigi (2008) analyze the investment decisions of Italian firms in the period 1996-2007 and find that investment in family firms are relatively more sensitive to uncertainty. This is partly due to a lower wealth diversification of the owners of family firms and a corresponding higher risk aversion, since the effect diminishes as the interest held in the firm decreases. Barba Navaretti, Faini and Tucci (2008) show that for the same reason, *ceteris paribus*, family firms export less than others. A negative effect on investment by family firms could also come from laws that impose strict rules on intergenerational transfers by strongly protecting all the heirs even if not directly involved in management (Ellul, Pagano and Panunzi, 2008).

Lastly, a recent strand in the literature, based on ad hoc surveys, identifies a wide variety of managerial practices across firms and countries (Bloom and Van Reenen, 2007). The best practices in terms of operations, incentives,

supervision and management's objectives are positively correlated with productivity and more common among companies exposed to competition, non-family companies or family companies that do not follow the rule of primogeniture. Bandiera et al. (2008) confirm these results for Italy, analyzing the ways in which managers are hired, their incentive structures and their characteristics. They identify two "models": the first, adopted mainly by multinationals and non-financial companies, is aimed at rewarding performance; the second, used mainly by family firms and companies not active in foreign markets, assigns greater importance to "proximity" and "loyalty" to the owners. This second model is associated with lower firm growth and lower profitability.

8. REGULATION AND COMPETITION

The competitiveness and growth of an economy depend on a legislative framework and an enforcement system that promote competition, effectively regulate situations in which monopolies prevail, and foster efficient conditions of market entry and exit for firms. A multiplicity of factors are in play: the scale of the administrative costs placed on firms in every phase of their life; the quality of the rules governing the constitution and organization of firms, crisis situations and possible market exit; the regulation of product markets and services, with the attendant impact on competition. The need to promote competition in the internal market in order to foster correct resource allocation is one of the principles underlying the European Union, recently reaffirmed in the Lisbon Agenda as an instrument for relaunching productivity and growth.

At the end of the 1990s Italy was one of the developed countries with the highest barriers to competition. The situation has changed in the past decade under the impetus of stepped-up competition from emerging countries, European integration and the liberalization of services. The initial evidence indicates that greater openness has had significant economic impact, and it suggests the need for further efforts to liberalize markets that still enjoy higher levels of protection than the average for the industrial countries, especially in services. Better functioning of the markets would also help to make the legislative framework more stable and cohesive and the administration of justice swifter and more efficient.

In order to realize the efficiency gains deriving from the reallocation of resources from less to more productive firms, marginal firms must not remain too long on the market, adversely affecting the performance of the others. Bankruptcy law must make the machinery for the market exit of firms smoother. The recent reform of bankruptcy procedures goes in this direction, but it would be desirable to extend the new procedures to small businesses, those probably suffering most in the new international competitive context.

8.1   The legal framework

Overabundant, unstable legislation increases the costs of learning and complying with the rules, makes the consequences of future actions less predictable, thereby impeding proper planning, and fosters litigiousness. Italy produces more legislation than the other main European countries and its

legislation is subject to frequent, uncoordinated modifications. At the end of 2007 there were 21,691 normative acts having the force of law in effect in Italy, compared with 9,728 in France (end-2006) and 4,547 in Germany; in the last ten years Italy has produced nearly twice as many legislative measures as France and three times as many as Spain. An analysis of the twelve consolidated laws approved in Italy in the period 1990-2005 shows that, on average, more than 10 per cent of their articles have been amended every year. The recent measures of legislative simplification demonstrate that a substantial number of the measures in force have de facto exhausted their effects: the simplification law for 2005 led to the abrogation of 3,574 acts of law that were no longer applicable because they had been superseded by subsequent measures or were tailored to specific situations or one-off actions.

Empirical studies have amply demonstrated that excessive and onerous regulation of business activity impedes market entry and discourages investment (Klapper, Laeven and Rajan, 2006; Ciccone and Papainannou, 2007; Scarpetta et al., 2002) and depresses productivity by allowing inefficient firms to survive (Barseghyan, 2008). Djankov, McLiesh and Ramalo (2006) have estimated that an improvement in the quality of regulation, as measured by the World Bank's indicators, large enough to move a country from the worst to the best quartile would increase the annual growth rate of GDP by more than two percentage points. By international standards, the burden of administrative and bureaucratic costs on Italian firms is heavy. According to the latest World Bank report on the extent and quality of economic regulation, Italy ranked 75th among 181 countries, considerably behind the main advanced countries (World Bank, 2008). However, Italy's position has improved appreciably in the last year as regards business start up, thanks mainly to the shortening of the time required as a result of the new "single notification" procedure.[41]

Company law and bankruptcy law play an important role in regulating the different phases of the life of a company: formation, organization and relations among shareholders, crises and possible market exit. In the last ten years both bodies of law have been modernized extensively and are now more or less in line with the legislation of the main industrial countries.

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[41] This allows the entrepreneur to apply for registration with the Registry of Firms, the Revenue Agency, the National Social Security Institute (INPS) and the National Industrial Accidents Insurance Institute (INAIL) with a single electronic notification to the local chamber of commerce. Law 40/2007 envisages a trial period (from 19 February 2008 to 20 February 2009) involving nearly half of Italy's chambers of commerce.

The new provisions of company law have further emphasized the entrepreneurial nature of companies, simplified the rules, expanded the range of matters governed autonomously by corporate bylaws and extended the channels and forms of financing, while the Consolidated Law on Finance and the Law on Saving have made investor protections consistent with the prevailing international standards. The recent reform of bankruptcy law marks an important step by fostering a swift and less onerous reallocation of resources through the market exit of firms that are no longer profitable. In particular, the new provisions have introduced incentives for early declaration of a state of crisis, created better tools for rapid restructuring of activities in temporary difficulty, streamlined bankruptcy procedures and reduced their costs. The positive effects of the reform have been partly diminished by the decision to limit their scope to businesses exceeding certain size thresholds. Because of the bias of Italy's firms towards smallness, access to the procedures is excluded for a large number of firms.[42]

Laws are effective only if they are backed by an adequate system of enforcement. Various country-specific or cross-country studies confirm the adverse impact on the economy of inefficient judicial systems (Kumar, Rajan and Zingales, 2001; Laeven and Woodruff, 2007). In Italy, the quality of enforcement is heavily compromised by the lengthiness of trials. In 2006 the average first-level civil action took 966 days to complete, according to estimates based on Justice Ministry data. By international standards, civil trials in Italy are among the longest. According to World Bank estimates, in 2008 it took 1,210 days to complete a procedure for the recovery of trade credit in Italy, compared with 463 days on average in the OECD countries (World Bank, 2008). This situation affects the performance of the Italian economy: comparisons across provinces have shown that less efficient application of the law goes together with a reduction in the birth rate and size of firms (Bianco and Giacomelli, 2004), in the availability of credit (Jappelli, Pagano and Bianco, 2005) and in recourse to bank debt as opposed to trade credit (Carmignani, 2005). The numerous reforms of the civil justice system in recent years have for the most part been uncoordinated and fragmentary and proven to be inefficacious.[43]

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[42] All firms that engage in agricultural activities are also excluded.

[43] Commendable systemic measures, such as the reform of the judicial order under Law 111/2007 have not been followed by organizational measures, despite the persistence of serious inefficiencies in the allocation and management of resources, the organization of work within the judicial offices and the application of information technology.

8.2   The empirical evidence on regulation and growth

Economic studies are virtually unanimous in considering the competitive structure superior to the other forms of market in terms of static efficiency (both allocative and productive). More controversial is the role of competition with respect to dynamic efficiency and the need to stimulate investment in research and innovation, factors that drive economic growth. In the Schumpterian tradition, some degree of market power – rents and extra profits that repay the cost of research activity – is a necessary condition for the promotion of innovation and economic efficiency (Teece, 1986; Dosi, Nelson and Winter, 2000). By contrast, the contestable market theory holds that the opening up of the market and the lessening of the constraints on the working of competitive mechanisms, through the entry or threat of entry of new firms, provide the private incentives to innovate and the consequent positive effects on total factor productivity (Griffiths, Harrison and Simpson, 2006; Aghion et al., 2005). Aghion and Griffith (2005) distinguish between sectors operating on the technological frontier, for which a high degree of liberalization and competition is beneficial for total factor productivity, and sectors distant from the technological frontier, for which excessive competition can alter the incentives to invest in research and innovation.

Overall, the empirical evidence shows that in advanced countries an excess of regulation that limits competition ("anti-competitive" for short) tends to have adverse effects on economic performance; restrictions on international trade and the introduction, in potentially competitive markets, of entry barriers or measures to protect the market shares of incumbents firms are anti-competitive.

In the OECD countries anti-competitive regulation significantly reduces the growth of total factor productivity, particularly in the countries and sectors farthest from the efficient technological frontier (Bassanini, Scarpetta and Visco, 2000; OECD, 2003a; Nicoletti and Scarpetta, 2003 and 2005); this may reflect a negative relation between regulation and investment. For the OECD countries as a whole, Alesina et al. (2005) show that in traditionally heavily regulated sectors such as public utilities, transport and communications, deregulation and the lowering of entry barriers have stimulated capital accumulation. Faini et al. (2006) add that a surfeit of rules on the functioning of markets alters the price and quality of the goods or services provided and thus reduces capital and direct investment inflows.

Over-regulation can have indirect effects on the downstream sectors along the value chain. There is ample evidence of a positive relation between the

degree of development of financial markets and the performance of manufacturing sectors, especially those most dependent on external financing (Rajan and Zingales, 1998). On the basis of data for 15 industrial sectors in 17 OECD countries for the period 1996-2002, Barone and Cingano (2008) show that for other types of business services as well, such as energy provision, transport, communications and professional services, regulation of the contestable segments of the markets has negative effects on the growth of value added, labour productivity and exports of the manufacturing sector. These effects derive mainly from the lack of competition in professional activities (notaries, lawyers, engineers, accountants, etc.) and in the energy sector (production and distribution of electricity and gas), for which a reduction in regulation would lead to increments in the growth rates of the user sectors comparable in size to those that the literature estimates would come from the development of the financial markets. Symeonidis (2008) finds an acceleration in labour productivity in the United Kingdom following the approval in 1956 of a law that banned the collusive accords that firms habitually concluded in certain sectors.

8.3   The level of competition and regulation

Insufficiently intense competition is generally viewed as a cause of the slow growth of the Italian economy and especially of the sectors that make greatest use of goods produced in non-competitive sectors (Allegra et al. 2004). Towards the end of the last decade, although the need to stimulate competition in the service sector in order to improve the country's macroperformance was already evident (Barca and Visco, 1993), Italy was one of the developed countries with the highest level of anti-competitive regulation as gauged by the OECD's composite indicators, which consider entry barriers, restrictions on foreign trade and the public sector's role in the economy (Figure 8.1).

Figure 8.1: Regulation in the OECD countries
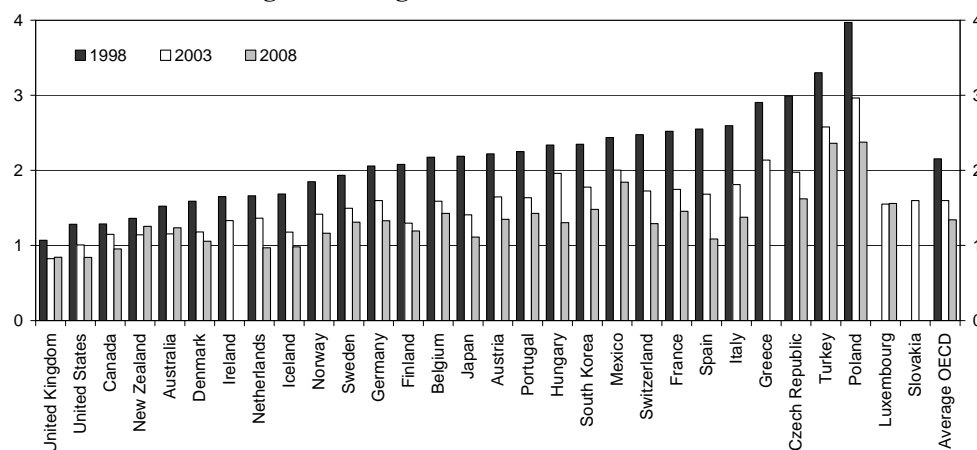
Italy was one of the three OECD countries with the largest public presence in the economy, both direct (number and market shares of publicly owned or controlled companies) and indirect (price controls, etc.) and one of the four with the greatest administrative and bureaucratic constraints on entrepreneurial activity or impediments to competition. In both cases the indicator of regulation was about three times higher than that of the respective best practices (United States and Canada). For some specific services (energy supply, transport, communications and professional services), Italy had the highest level of regulation.

In the last ten years the intensified competition of the emerging countries on international markets and the liberalization of services have altered the competitive context in almost every sector of the economy, albeit in varying degree. This emerges both from the updates of the OECD composite indicators, which show that in 2008 the level of regulation in Italy had fallen to the average for the developed countries (Figure 8.1), and from the behaviour of the three composite indicators of market power between 1995 and 2006, calculated using the Cerved database on the universe of Italian corporations.

The Hirschman-Herfindahl index of concentration (HHI), the measure most commonly used in investigations by antitrust authorities, defines the degree of competition in terms of the number of firms and the inequality of their market shares, on the assumption that the smaller the share of demand satisfied by each firm, the more competitive the market structure (see the Appendix). In the event that the increase in competitive pressure comes from foreign firms, the HHI would have to be calculated taking into account those

firms' market share, but this is impossible with the available statistics. Consequently, the higher the level of imports by individual sector, the more the index will be overestimated. According to the OECD estimates available up to 2003, the average rate of import penetration was about 11 per cent for the total Italian economy. In manufacturing it stood at 19.7 per cent, down from 25.1 per cent in 1995. It was lower in the traditional "made in Italy" industries (16.8 per cent in foods products, 28.3 per cent in textiles and footwear, 15.9 per cent in wood products), while it reached very high levels in chemicals (48-50 per cent) and in precision machinery and aerospace, where it touched peaks of 90 per cent. Accordingly, in the last-mentioned cases, in particular, indices based on profit margins, such as those proposed by Lerner and Boone, are more informative.

The Lerner index or price-cost margin (PCM) is given by the ratio of the mark-up – the difference between the final selling price and the marginal cost - to the final selling price. It therefore takes a value of zero under perfect competition and coincides with the reciprocal, with a negative sign, of the elasticity of demand to the price set by a profit-maximizing firm. If the elasticity is infinite, the mark-up is zero and the price is equal to the marginal cost (perfect competition). The more elastic is demand, the more consumers will be sensitive to the price and the less the firm will be able to impose a mark-up on marginal costs. The coefficient proposed by Boone (Boone, van der Wiel and van Ours, 2007) is based on the idea that a market is more competitive, the more severe the punishment, in terms of lower profits, meted out to inefficient firms, an indication obtained by estimating the elasticity of profit margins to marginal costs (proxied by mean variable costs). This has the advantage of reflecting increases in competition due not only to changes in the number of firms in a market, but also to greater competitive pressure or to more aggressive conduct on the part of incumbents. In addition, it accounts for the changes in the degree of substitutability of products (often due to an increase in competition) and is not affected by variations in the number of firms operating in the market due to reallocation effects (as instead happens for the HHI and the PCM).

According to the indicators calculated at sectoral level, at the end of the 1990s the level of competition was higher in manufacturing than services, as expected. In 1997 the Lerner index averaged close to 13 per cent in services, compared with 10 per cent in industry (Figure 8.2; Table 8.1). In manufacturing industries the estimates of the elasticity of demand to prices range between 1.7 and 1.8, implying a reduction in margins of 70-80 cents for each euro of increment in mean variable costs, values in line with those calculated for other advanced countries (Gisser, 1989). In construction and

services the estimates of elasticity are generally lower, most notably in the financial sector. The available evidence for the main sectors in terms of degree of competition and effects on productivity is reviewed below.

Figure 8.2: Lerner indices for the sectors of the Italian economy, 1997-99 and 2004-06
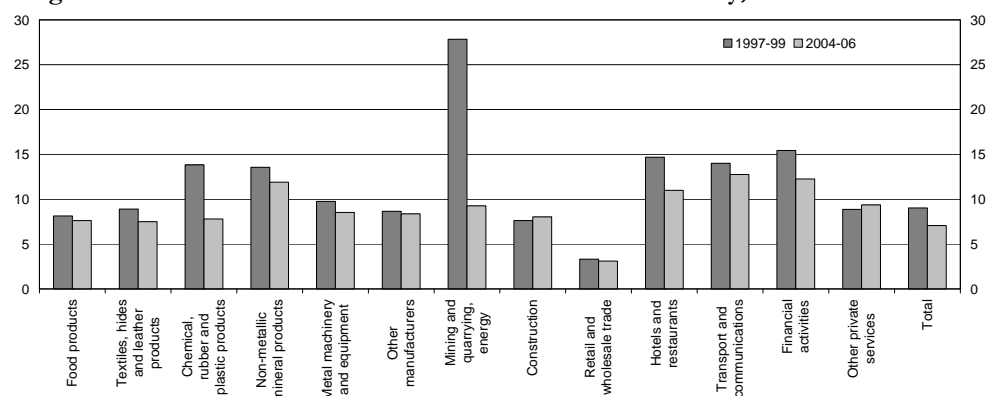
Source: Based on Cerved data.

Manufacturing

Competitive pressure has increased significantly in the last ten years in manufacturing, especially in the traditional sectors more exposed to the competition of products from emerging countries. As a result, profit margins have been slashed. In the typical "made in Italy" industries, particularly textiles and leather goods, the Lerner index fell from close to 12 per cent in the mid-1990s to 7.8 per cent in 2006. The trend is confirmed by the behaviour of the HHI, which refers only to Italian firms: in the footwear industry, the concentration of market shares decreased by more than 7 percentage points between 2000 and 2006, falling from 8 to 1 per cent.

The food products industry displays a more stable market structure. The Lerner index fluctuates around 8 per cent, while the HHI is stable at 1 per cent, indicating a high degree of dispersion of market shares among Italian producers. In the metal machinery and equipment industry, which in 2001 employed more than 20 per cent of the total workforce of manufacturing corporations, the ratio of the profit margin to costs diminished continually up to 2002 and subsequently recovered by more than two percentage points. The distribution of market shares remained stable at around 4 per cent, albeit with appreciable intra-sectoral variability. In the chemical industry, too, the concentration of shares held relatively stable (around 2.6 per cent), while the Lerner index dropped from around 20 per cent in 2000 to 8.2 per cent in 2006.

The greater competitive pressure generated by the global and European integration of goods markets has stimulated Italian industry to improve its production efficiency and squeezed its profit margins.

The positive effect of the increase in the less advanced countries' market shares on average labour productivity in Italian manufacturing in the period 1982-2002 is shown by Bugamelli and Rosolia (2006). The absence of a significant impact on capital intensity suggests that the result can be ascribed to an improvement in total factor productivity, which derived from an increase in the minimum efficiency threshold for remaining in the market; as a consequence, in the more exposed sectors the least efficient firms left the market and their place was taken by new business initiatives with higher productivity. Altomonte, Barattieri and Rungi (2008) also estimate a positive effect of the degree of import penetration on productivity; the effect is stronger when the competitive pressure concerns the sector upstream of the firm's principal activity. Using Eurostat's business demography statistics for eight European countries, including Italy, Colantone and Sleuwaegen (2008) find a higher failure rate and lower birth rate in the industries and countries in which foreign competition has increased the most.[44] By reducing the effect of the uncertainty that firms face, heightened competition also impacts positively on investment (Guiso and Parigi, 1999; Bontempi, Golinelli and Parigi, 2007).

The consequences for profit margins are studied by Bugamelli, Fabiani and Sette (2008), who use the share of Italian imports coming from China as an indicator of competitive pressure. Controlling for changes in wages, demand and import penetration and for other sector-specific factors, they find that the growth of China's market shares curbed the rise in the producer prices applied by Italian manufacturing firms in the period 1990-2004; the effect is stronger in the traditional sectors, where competition is based mainly on prices and less on such variables as product quality and differentiation. Controlling for the components of cost makes it possible to conclude that the compression of prices also affected profit margins. Altomonte and Barattieri (2007) confirm these results by showing that the negative relation between the mark-up, calculated directly from financial statement data with the method proposed by Konings,[45] and import penetration is stronger in the sectors with less product

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[44] Through this process of selection and of reallocation of production among firms, the degree of openness to foreign trade also determines a reduction in the dispersion of cost levels among the firms belonging to the same sector (Del Gatto, Ottaviano and Pagnini, 2008).

[45] Konings and Vandenbussche (2005); Konings, Van Cayseele and Warzinsky (2005).

differentiation; a high level of product differentiation can even lead to a positive correlation between imports and profit margins.

European integration has had similar consequences. The launch of the single market at the start of the 1990s had already compressed the mark-up of Italian manufacturers operating in the industries in which the reduction in trade barriers was greatest (Bottasso and Sembenelli, 2001). The subsequent introduction of the euro precluded competitive devaluations and thus fostered a reorganization of the manufacturing sector (Bugamelli, Schivardi and Zizza, 2008); all else being equal, this sustained the growth in labour productivity in the euro-area countries that in the past had been prone to take the route of competitive devaluation and in the sectors that use lower-skilled labour and less advanced technologies (and which have a greater need of currency depreciation in order to recoup price competitiveness in foreign markets). In the case of Italy, this conclusion implies that in the traditional sectors of comparative advantage (leather and footwear, textiles and clothing, wood products and furniture) the growth rate of labour productivity would have been even lower than the already unsatisfactory one actually observed. In the same countries and sectors, the gain in efficiency does not appear to have been accompanied by a greater-than-average reduction in employment (calculated in terms of hours worked). A recent study by the National Institute for Economic Research (Barrell et al., 2008) also identifies a positive effect of the common currency on labour productivity in five large euro-area countries (Germany, France, Italy, the Netherlands and Belgium) without detriment to employment levels. Calibrating and simulating a general economic equilibrium model à la Melitz and Ottaviano (2008), Di Mauro, Ottaviano and Taglioni (2008) conclude that the competitiveness gains attributable to the lowering of trade barriers following the introduction of the euro have been significant, particularly for smaller countries and those located in the centre of Europe and for the sectors where the competitive pressures are greatest and the entry barriers lowest.

The consequences of the adoption of the euro also unfold indirectly through the competition-generated impetus to structural reforms. According to Alesina, Ardagna and Galasso (2008), a political consensus was created for reform in product markets, above all by means of liberalizations in the energy and telecommunication sectors, but not in the labour market. Bertola (2008) is of a different view, finding a clearer positive correlation between adoption of the single currency and progress in terms of higher equilibrium employment and lower equilibrium unemployment.

Services

According to available indicators, the level of competition has also increased significantly in some services affected by deregulation and privatization. In the last ten years, the Lerner index has fallen by more than twenty points in energy services and has also declined in transport and communications. On the basis of available studies, a more precise assessment can be made of the effects of some of these reforms, the progress made and the remaining weaknesses.

The energy market

Legislative Decree 79/1999 (known as the Bersani decree, transposing Directive 96/92/EC) began the transition from Enel's integrated monopoly in the electricity market by unbundling the former monopolist's distribution network, requiring a progressive reduction of Enel's market share in generation, creating a regulated wholesale energy market (the "energy exchange") and initiating the gradual opening up of the final market. The reforms have had significant effects on the market's structure: according to Eurostat (2008b), the former monopolist's share of generation fell from 71.1 per cent in 1999 to 34.6 per cent in 2006. The liberalization of the gas sector was begun with Decree Law 164/2000 (known as the Letta decree, transposing Directive 98/30/EC). That measure provides for the unbundling of ownership of (a) transmission, importing and sale to wholesale customers, (b) transport and storage, and (c) distribution and sale to retail customers.

Despite the progress made, there is still scope to improve competition in both markets. Given the technological characteristics of the electricity industry, it is the degree of concentration according to form of generation (thermoelectric, hydroelectric, etc.) that influences the selling price. As shown by a recent fact-finding investigation by the Antitrust Authority and by the Electricity and Gas Authority (AEEG), in 2004 Enel had a large share of capacity in power stations with high marginal costs (those activated during the day at times of peak demand), determining prices considerably above competitive levels in all the macro-regions in which the wholesale market is divided (except Sardinia). More recent data, for 2007, confirm that a single operator in each macro-region is able to set the market price, though with a slight improvement in the competitive situation compared with the previous year. Owing in part to this configuration, in 2007 the average price on the Italian electricity exchange (IPEX) was higher than those recorded in the main European exchanges (Figure 8.3). Consequently, Italian firms pay more for electricity than the prevailing price in the main European countries, and this gap remains even when the comparison is limited to countries which, like Italy,

do not have nuclear power plants (Austria, Denmark, Greece, Ireland, Norway and Portugal). Moreover, the uneven territorial distribution of generation capacity and the capacity limits of the high-voltage grid create zonal price differences to the detriment of the central and southern parts of the country

Figure 8.3: European electricity exchange prices, 2007
(euros per MWh)
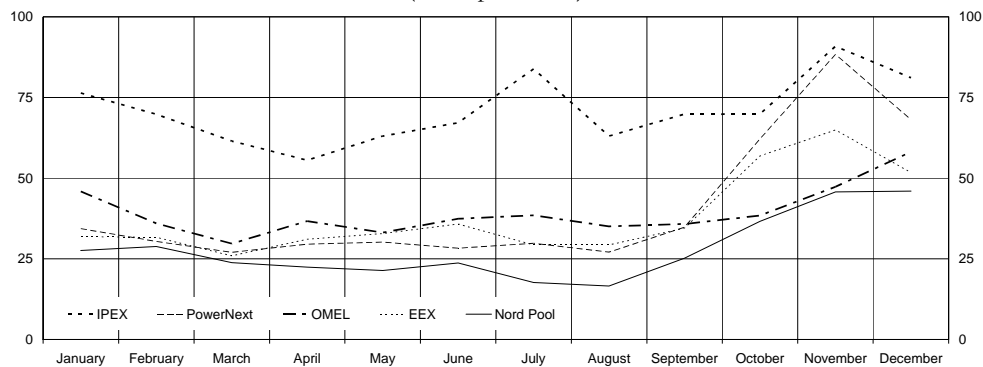
Source: AEEG (2008). The initials or names refer to the electricity exchanges of Italy (IPEX), Germany (EEX), the Scandinavian countries (Nord Pool), Spain (OMEL) and France (PowerNext).

Even further away from a competitive structure is the situation in the gas market, a sector whose transition is hindered above all by the high degree of vertical integration of Eni, which holds a dominant position in all phases, and by the shortage of infrastructure. The latter factor, due in part to the failure to develop new regasification terminals, limits the supply of gas, which is considered inadequate to meet the growing national requirement, and threatens the security of supply.

Against this background, the Electricity and Gas Authority, taking its cue from the European Commission, has recently insisted on the need to separate ownership of the monopoly phases (transport, storage) from the contestable phases (supply, trading, sale), as has already happened for electricity with the creation of Terna S.p.A. and, at least in part, for telecommunications with the functional separation of Open Access from Telecom Italia. Currently, Eni owns more than 50 per cent of Snam Rete Gas (distribution) and 100 per cent of Stogit (storage). This solution is already envisaged by Law 290/2003, which led to the unbundling of ownership in the electricity sector. Taking account, among other things, of the experiences of the six EU countries where it has already been realized, unbundling is considered the best way to promote competition and the development of infrastructure, maintain control of strategic networks and promote a gas exchange that would help to make trades and prices more transparent. The independence and neutrality of the operators in gas transport and storage services are also prerequisites for greater

integration with the other European markets. [46] The Electricity and Gas Authority is also critical of the delay in strengthening the infrastructure for importing gas, which is essential in order to combine a more competitive market structure with security of supply.

Over-regulation in the energy sector is a significant braking factor on the growth of value added and productivity of the user sectors, particularly those most exposed to international competition. According to the estimates by Barone and Cingano (2008), the growth differential between an energy-intensive manufacturing industry and one that is not energy intensive (defined, respectively, as the 75th and 25th percentile of the distribution of industries by dependence on energy inputs) is more than one percentage point per year greater in a country with a lightly regulated energy sector, such as Finland, than in a country with a heavily regulated one, such as Austria.

Retailing and the professions

Several sectors of services have been the object of regulatory reforms, mostly contained in the legislative measures known as the Bersani laws (Decree Law 114/1998 and Laws 248/2006 and 40/2007). The initial evidence suggests that these provisions have had significant economic impact.

Exploiting the geographical differences in the elimination of restrictions on entry into the retail sector, a 1998 measure whose implementation was delegated to the individual regions, Viviano (2008) shows that in the areas where the restrictions on the number of businesses or on the selling floorspace have been eased, the ratio of workers employed in the sector to the total population has increased by nearly one percentage point. This derives from the growth of employment in large-scale outlets, in contrast with stable employment in small stores. In line with the contestable market theory, the lowering of barriers has apparently led to an increase in incumbents' productivity and a reduction in their profit margins, thereby spurring the use of ICT and helping to contain the rise in the prices of food products (Schivardi and Viviano, 2007).

The recent reforms of the professions have also affected the structure of their respective markets. According to preliminary estimates, in 2007 the

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[46] Eni objects that vertical separation would weaken it in negotiations with gas-producing countries, with negative consequences also for final customers. The Electricity and Gas Authority argues that the transfer of the network would be remunerated, that turnover from transport and storage services is a marginal part of Eni's overall turnover, and that the main international competitors do not control their respective networks.

OECD indicator of regulation in professional services should show Italy advancing from last place, where it stood in 2003, towards the average of the developed countries (Figure 8.1). Although quantitative analyses of the specific reforms are not available, removal of the restrictions on competition among members of the professions is likely to have a positive effect both on investment and the productivity of the sectors involved (Alesina et al, 2005) and, indirectly, on the performance of the industrial firms that use these services (Barone and Cingano, 2008).

Local public services

The liberalization of local public services initiated in the 1990s with a view to fostering consolidation, ensuring separation between service operators and regulators and achieving cost coverage with tariffs has encountered many obstacles. These have significantly blunted its effectiveness, albeit to a varying extent from sector to sector (Bianco and Sestito, 2008).[47] The pace of reform has been slowed by uncertainty regarding the legislative framework and the objectives of the various measures. In addition, there was an underestimation of the technical difficulties of competitive tendering and those of regulation, an area presenting economies of scale and requiring significant expertise and independence vis-à-vis service operators and local governmental authorities.

8.4   Antitrust activity

Complementary to ex ante regulation of economic activities is ex post antitrust intervention.[48] Italy did not enact an antitrust law until 1990 (Law 287/1990), considerably after the other main European countries.[49]

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[47] Bianco and Sestito (2008) summarize and discuss the results of a Bank of Italy research project on local public services. The individual project papers were published in the Bank's Occasional Papers series, nos. 19-30.

[48] On a sample of 101 countries, Krakowski (2005) finds a positive relation between the effectiveness of antitrust policy and the intensity of competition in the markets. Voigt (2006) constructs indicators at country level of the instruments and objectives of antitrust policy, the type of approach used (economic versus legal), and the degree of independence of the antitrust authority; the indicators are significant in explaining differences across countries in the growth in total factor productivity, although their statistical significance vanishes when measures of institutional quality are taken into account.

[49] In accordance with Community law, Italy forbids understandings and abuses of dominant position and concentrations that restrict competition in the market enduringly and substantially. Law 287/1990 assigns the Antitrust Authority the task of enforcement,

Over the years the supervisory activity of the Antitrust Authority has concentrated on two groups of sectors (Grillo, 2006). For network public utilities (electricity, gas, transport, communications), historically characterized by the presence of institutional monopolies and involved in a liberalization process that is still incomplete, attention has focused on controlling the abuse of market power. For financial and insurance services, professional services and distribution, characterized by the presence of many firms, efforts have centred on identifying collusive behaviour in the form of oligopolistic coordination. In the most recent years, interventions have concentrated on collusive understandings in the petroleum and pharmaceutical sectors.

Reports to Parliament and the Government have primarily concerned the service sectors (telecommunications, transport, electricity, professional services) where distortions to competition remain greatest and, in the most recent years, water supply, waste collection and educational services; these reports have inspired two legislative measures (Laws 248/2006 and 40/2007) liberalizing a great many activities. The Antitrust Authority has also intervened by issuing opinions and conducting fact-finding inquiries on liberalizations, administrative simplification and consumer protection. In this activity it has upheld the need for a reduction of the state's role in the economy and pointed out that the Authority's ex-post intervention must increasingly be accompanied by a commitment to more efficient, non-pervasive regulation.

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empowers it to submit reports to Parliament and the Government concerning statutory, regulatory or administrative provisions that distort competition, and enable it to issue opinions on legislative or parliamentary initiatives. Law 262/2005 (the Law on Saving) gave it sole competence over competition in the credit market. The instruments available to the Authority were recently expanded and brought into line with those in the leading countries. In particular, under Law 248/2006 the Antitrust Authority may: (a) issue injunctive measures to avert harm to competition while an antitrust proceeding is in course; (b) accept commitments submitted by firms that effectively end the alleged anti-competitive conduct for which the proceeding was opened and accordingly terminate the proceeding without ascertaining the infraction; (c) decide not to apply sanctions or to reduce them in the case of "qualified" cooperation by firms in ascertaining violations of the rules of competition.

9. INDUSTRIAL POLICY

According to Rodrik (2004 and 2007), the task of industrial policy is twofold: on the one hand, it must stimulate certain economic activities (such as innovation, investment and internationalization) by modifying the underlying incentives scheme; on the other hand, it must promote structural change in an economy, for example by diversifying production and increasing the size of firms. The need for an industrial policy stems from the recognition of market failures, in other words the inability of the market to allocate resources effectively.

According to data from the Ministry of Economic Development, while limited by public finance constraints, the resources for incentives to firms in Italy are nonetheless abundant. However, it does not appear that the objectives set out in the various industrial policy measures have been met, in part owing to flaws in their formulation and the lack of continuity of the interventions.

At the end of 2006 a number of proposals to reform industrial policy were introduced, focusing on both specific sectors and the general rules. The objective of the reform package, known as "Industry 2015", was to simplify and rationalize industrial policy provisions as a whole and, at the same time, to enhance the competitiveness of Italy's productive system by adopting measures in line with the recent trends in the European Community and at international level. The planned restructuring emphasized the importance of the assessment and monitoring phases of the policies. While its launch was welcomed as a positive development, it is too early to pass any definitive judgment due to the piecemeal implementation of the individual initiatives and the lack of administrative continuity.

At a time when the impact of the financial crisis risks compounding the structural problems of Italy's productive system, demand for aid to firms is growing. To avoid further distortions of market mechanisms and the poor use of valuable resources, it is necessary to focus on the formulation of incentives to be assigned based on a decision-making process that prioritizes transparency and accountability, and follows the best practices recognized at international level (OECD, 1998; Lotti, 2008).

9.1 The Italian experience

Italy boasts a rather long tradition of state intervention in the working of the economy, although it is not the only country to do so. The United States and the other main European countries, which historically have been more interventionist, also pursue an active industrial policy, albeit with different objectives and instruments. From a legal standpoint, the European Union provides a reference framework on the legislation safeguarding the single market through the EU Treaty (Article 87), leaving the choice of industrial policy strategies and instruments to the discretion of individual member countries, provided this does not adversely affect competition. The resulting strong similarity of the aims and approaches to implementation in the various European countries has made it possible to identify a common denominator in the last ten years in the desire to channel productive specialization towards high-tech and skill-intensive sectors, to promote a generalized increase in employment, and to further the objectives set by the Lisbon agenda.

In Italy, the majority of industrial policy measures that have been adopted in the past have failed to meet the stated objectives, owing to problems of a conceptual or methodological nature, and especially due to a lack of continuity. In fact, the notion that the objective of industrial policy can be fixed ex ante and imposed by administrative means on firms, without thinking about changing the underlying incentive structure, appears implausible.

Data from the Ministry for Economic Development confirm that although limited by the constraints imposed by public finance there are substantial resources for incentives to firms. In Italy alone, in the period from 2000 to 2007, incentives amounting to almost €53 billion were approved, divided among some 88 provisions. Around one third of these funds were utilized for promoting investment in depressed areas (Law no. 488/1992 and Law no. 388/2000).

The two laws differ in that the first assigns aid in the form of non-returnable funds in accordance with a selection process that relies on a set of previously defined parameters; the second law, instead, allocates aid to all firms that invest in certain areas through automatic tax breaks, as a percentage of net capital expenditure. Using econometric matching techniques and data from a direct survey of the beneficiary firms, D'Aurizio and de Blasio (2008) conclude that Law no. 488 proved only modestly effective in stimulating additional investment, insofar as on the whole the incentives had led only to the intertemporal replacement of firms' investment decisions. By contrast, Law no. 388 appears to have been more effective, probably owing to the different procedures for granting incentives; however, since it assigns tax credits

automatically to eligible firms that request them it may not be possible to predict in advance the amount in lost revenue from the public purse.

A large share of the resources earmarked to support productive activities is for investment in R&D. Although in the last decade the legal framework of reference in this field has changed on a number of occasions, an assessment conducted by Merito, Giannangeli and Bonaccorsi (2008) based on the Special Fund for Applied Research (which until 2000 was the key policy instrument for industrial research and innovation in Italy) suggests that public contributions have proved incapable of producing lasting effects on the performance of the subsidized firms: with the exception of smaller firms, for which there is evidence of skill upgrading and increased employment, the authors found that the innovative activity of firms improve only temporarily after the allocation of public funds. Moreover, there do not appear to be significant differences between subsidized and non-subsidized firms in terms of their labor productivity or growth of turnover.

Turning to incentives for entrepreneurship, understood both as instruments to change the productive system as well as, not always correctly, to promote employment, Piergiovanni, Santarelli and Vivarelli (2008) emphasize that despite the existence of econometric analyses linking the characteristics of a firm and those of its founder with the likelihood of survival and growth, it is not easy to identify ex ante those beneficiaries who thanks to the subsidy alone are capable of weathering the initial phases of the business's life cycle. This is why the most likely outcome of incentives for creating new enterprises is that of modifying the correct functioning of market mechanisms and learning processes.

In addition to these "traditional" objectives for supporting investment, R&D and entrepreneurship, the early 1990s saw the introduction of a "decentralized" industrial policy aimed at promoting the local aspect of development. According to this approach Regions act as government bodies and play an active role in development, with the aim of increasing cooperation between local economic agents. Accetturo and de Blasio (2008) propose an assessment of the territorial pacts, which are one of the main instruments of negotiated planning for local development; after comparing, for the period from 1996 to 2004, several performance indicators of municipalities belonging to a territorial pact with others that had similar socioeconomic characteristics to begin with but had opted not to participate, they suggest that adherence to a pact had no effect either on employment or on the growth of the local businesses already present on the ground.

9.2 The most recent provisions

Most European countries adopted the recommendations of the Commission and the European Council aimed at moving the incentives towards horizontal objectives at the expense of policies in support of "national flagships" and sectors in decline. The horizontal objectives are pursued for the most part using automatic instruments, which based on the indications of the European Commission and the OECD, are preferable to selective help due to their greater ex post verifiability and lower vulnerability to fraud and opportunistic behaviour. In Italy these prescriptions were taken into account in the reform planned in the "Industry 2015" project, which was partially implemented by the Finance Law of 2007.

The first planned intervention consists in formulating a series of automatic aids, in the form of tax incentives, with the aim of lowering production costs, boosting investment, promoting the growth of firms and smoothing territorial disparities. The Finance Law of 2008 reconfirmed and strengthened this category of intervention: one noteworthy development was the increase in tax credits for firms that invest in R&D, from 15 to 40 per cent if the research is conducted in conjunction with universities or public bodies. The second provision concerns selective sectoral aid and is carried out via what are called the Industrial Innovation Projects, which aim to stimulate certain productive-technological areas: energy efficiency, sustainability mobility, new life technologies, cultural heritage and traditional Italian products, all aimed at upgrading and repositioning the Italian industrial system towards higher value-added products.

"Industry 2015" also envisages the definition of monitoring and assessment mechanisms: this constitutes an important novelty aimed at promoting greater transparency in line with the best practices recalled above. This, however, must not concern only the correct ongoing conduct of projects or the ability to use up the funds allocated, but above all more progress must be made towards carrying out actual ex post analyses based on scientific criteria, where possible by external parties in order to avoid potential conflicts of interest.

Testifying to the resurgence of interest in industrial policy as an instrument of economic support and development, on 4 November 2009 the Chamber of Deputies finalized the draft "Development" Law (A.C. 1441 *ter*). Awaiting approval by the Senate and adoption in special implementing decrees, the draft law aims to relaunch the competitiveness and growth of Italy's productive system. It contains several proposals for intervention along the lines of "Industry 2015", with others more generically aimed at "re-

industrialization" and "research, development and innovation, with the priority assigned to the Mezzogiorno." The crux of the proposed law is the planned return to nuclear energy and a series of measures to improve the efficiency of the energy sector. In February 2009, measures were taken to support the industrial sectors worst hit by the crisis. The declared aims of the provision are: to deal with the crisis through urgent interventions in a number of sectors to support demand; to bring about the convergence of national policies with the indications of the European Commission and with the measures already adopted or being adopted by the other European countries; to guide consumer choices towards products with a low environmental impact that go some way to meeting the Kyoto objectives.

10. FIRMS AND TAXATION

Economic theory claims that taxation influences many of the decisions taken by firms, such as the choice of sources of financing, production factors and real and financial investment sectors. Taxation affects the profitability of new investments, influencing their realization, size and location. The inefficiencies of tax systems influence the decision to start up a new business and also determine the size of the firm. However empirical studies tend to reduce the importance of any causal links between taxation and business decisions even if outcomes are affected by the difficulties involved in separating, in the econometric analysis, the tax elements from other factors characterizing the external context in which the business is working.

In Italy, firms are taxed on profits according to the legal form of their enterprise,[50] on the value of net output (net of depreciation) they produce (IRAP), and they also pay social security contributions for their employees. Following the significant tax increases of the early 1990s, in the last decade several tax relief measures have been taken including reductions in the tax rate on profits, employers' social security contributions, and IRAP on the cost of labour. The positive effects on production resulting from this trend to reduce taxes, common to other European countries, may have been overshadowed by the many general legislative changes that have taken place. Italy's fiscal policy for firms has wavered between measures to prevent, as far as possible, taxation distorting the free working of the market and others which, by contrast, openly aimed at fiscal non-neutrality. This led to an extraordinary amount of legislative activity which meant that in a very short period of time three reforms were passed, all with different aims, which produced a climate of legislative uncertainty with adverse effects on investment (Ceriani, 2006).

In the period under consideration, some selective, temporary fiscal relief was also granted to give immediate support to aggregate demand in the short

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[50] Companies are subject to taxation in proportion to their income (IRES – corporate income tax) and to a further tax only on dividends to shareholders (IRPEF – personal income tax – or a flat-rate withholding dividend tax, according to the kind of shareholding); overall the tax burden is of around 40 per cent. Sole proprietorships and partnerships are subject to personal income tax on all profits made. Data for 2001 from the Ministry for the Economy and Finance show that companies (760,000 or 19 per cent of the total) declared 82 per cent of Italian firms' turnover, partnerships (912,000 or 23 per cent) declared 10 per cent and sole proprietorships (2,340,000 or 58 per cent) the remaining 8 per cent.

term, allowing investments that would have been made at some point, to be made sooner. However, despite a sometimes significant anticyclical role, these instruments cannot be the only kind of tax policy for firms.

The main principle that should inspire tax policy is that taxation must be as neutral as possible in relation to a firm's decisions. In Italy today, neutrality can be concretely sought by reducing the tax burden, which has reached historically high levels, simplifying formalities, increasing the efficiency of the administration, and establishing a legislative framework to reduce uncertainty for firms. This stability is all the more important when, departing from the neutrality principle, tax policy is used as an instrument to incentivate some of firms' economic activities, such as investment and spending on R&D.

10.1 Discontinuities in the legislative framework

The 1997-98 reform reduced taxation on profits by abolishing the local income tax (ILOR), introducing the dual income tax (DIT).[51] It also introduced IRAP (Maurizi and Monacelli, 2002). The reform proposed increasing firms' own capital by reducing, with the DIT, the tax disadvantage of this source of finance and, with IRAP, the relative advantage of funding with debt (Bordignon, Giannini and Panteghini, 1999).

The call for a corporate tax that distorts firms' financial choices to a lesser degree emerged in 1990s as part of the debate on tax policy at the international level (IFS, 1991)[52] and led to some concrete applications in the northern countries (Sorensen, 1994, 1998). These reforms, proposed or actually implemented, were based on the idea that taxes can influence the financial behaviour of firms.[53] Empirical analyses, albeit not very numerous given the difficulty of finding a tax variable with sufficient variability in terms of space and time, confirmed that taxes have a significant impact on financial choices in

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[51] The DIT provided for a lower tax rate for the corporate income tax due on that part of income attributable to increases in capital made from 1996 on. In this way, the average tax rate for the corporate income tax could be lower than the ordinary tax rate (37 per cent in 1998).

[52] A report by the Institute for Fiscal Studies, for example, proposed a tax called "Allowances for Corporate Equity", which would allow dividends to be deducted in the same way as interest on debt (IFS, 1991).

[53] The first theoretical analyses showed that the introduction of a proportional tax in a Modigliano and Miller-type model made it possible for a firm to explain its funding only with debt or only with equity. The following literature tried to explain how both sources of funding could co-exist in the real world (for a review, see Edwards, 1987).

the United States (MacKie-Mason, 1990; Gordon and Lee, 1999), in Canada (Shum, 1996) and in Italy (Alworth and Arachi, 2001; Staderini, 2001).

It is above all large firms, with tax planning capabilities, that find their financial structure most influenced by the incentives implicit in the tax system. The financial choices of small firms are more inspired by the "pecking order" theory of sources of funding, than by taxation. In the presence of an asymmetric distribution of information benefiting the owners and managers of small companies – the only ones who really know the true value of the firm — investors could react to the issue of new shares by undervaluing the price which explains why the owners and managers of small firms prefer, first of all, internal sources of finance; second, debt financing, and lastly, issuing new shares (see Chapter 12). According to more recent developments in the literature, imperfections in the market and asymmetric information reduce the role of taxation in firm's financing choices (Di Majo, Pazienza and Triberti, 2005; Bontempi, Giannini and Golinelli, 2003).

The 2004 reform aimed at reducing and simplifying taxation for firms, harmonizing the Italian tax system with those of the rest of Europe, and making cross-border investments simpler in a context of integrated financial markets. In particular, this reform reduced the corporate income tax rate (IRES) from 34 to 33 per cent, abolished the tax credit in the personal taxation of dividends, introduced the tax consolidation regime on a national or global scale, and changed the definition of the tax base.[54] An important aspect, in that it signals a change in the use of the fiscal lever, is the abolition of the DIT, whose effectiveness was significantly reduced in 2001, and the concurrent introduction of thin capitalization which increased the cost of debt financing by not allowing the deduction of interest payments on financing, satisfying certain requirements, on the part of qualified shareholders (Ziliotti and Benedetti, 2007).

While some measures were successful in simplifying the system and harmonizing it with the practices adopted in the other European countries,[55]

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[54] Various adjustments were required by the tax law for computing the tax base (both those increasing and those reducing the balance-sheet gross profit) such as participation exemption (exemption of capital gains/losses stemming from the transfer of participations satisfying certain requirements) or thin capitalization.

[55] For example, the abolition of the tax credit and the concurrent introduction of a partial exemption of dividends simplified the Italian system; the adoption of an exemptions system for capital gains from participation has brought Italian tax law in line with that of other

the actual effectiveness of these measures in reducing the fiscal burden on firms was questioned by some analyses according to which it was also necessary to reduce IRAP (see Lorenzini and Petretto, 2004 for some estimates for firms in Tuscany). In 2007, with the aim of reducing workers' tax wedge, IRAP referring to labour costs was reduced.

In 2008, a new reform came into force establishing a significant reduction in the tax rates for IRES (from 33 to 27.5 per cent) and IRAP (from 4.25 to 3.9 per cent), accompanied by a widening of the tax bases. The tax base for IRES was widened mainly by introducing a new limit to the deductibility of interest payments (and repealing the thin capitalization regime) and by abolishing accelerated depreciation. The tax base for IRAP can now be computed directly from a firm's balance sheet without any of the corrections foreseen for the corporate income tax base. This simplified the obligations and gave greater certainty to firms, by reducing the room for any new disputes.

10.2 Taxation and the size of firms

The tax regulations in Italy do not impose size thresholds on firms above which taxation increases. However this is in contrast with entrepreneurs' perceptions which indicate that among the obstacles to increasing the size of the firm, taxation is in second place, after insufficient demand (ISAE, 2003). This can only be because entrepreneurs are aware that increasing the size of the firm reduces the possibility of evading taxes. The existence of an inverse relationship between the size of the firm and tax evasion has been shown by Di Nicola and Santoro (2000) who used a representative sample of companies operating in Italy and therefore a sample biased towards medium and large enterprises, and by Ercoli (2005), analysing data from 85,853 official tax audits made between 1991 and 1996.

Smaller firms can evade taxes more easily firstly because they benefit from tax regimes that allow for simplified accounting procedures[56] which leave room for less transparency (Bagella, 1997 and 1998). Moreover, there is a further incentive in the lower probability of smaller firms being checked by the tax authorities given that the latter aim at maximizing tax revenues and therefore they concentrate on larger firms (Ercoli, 2005). Taxation can be used to

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countries; symmetrical treatment of capital gains and losses is consistent with European Community guidelines.

[56] More than half sole proprietorships and partnerships use the simplified accounting regime.

encourage firms to increase in size by providing tax relief on company restructuring operations. In the last ten years, tax provisions of this kind have undergone significant changes. Tax relief was provided for the banking sector first (under the 1990 Amato-Carli law, later followed by the 1998 Ciampi-Pinza law): some analyses have highlighted how helpful these tax incentives have been in the restructuring of the banking system (De Bonis, 2003). Moreover, it should be recalled that some of this kind of tax relief was later judged incompatible with European regulations on State aid. In 1997, tax relief was introduced for restructuring operations undertaken by all types of firm, based on an optional regime of taxation of capital gains due to extraordinary company operations. This kind of tax relief was repealed in 2004. In 2008 a new form of taxation for company reorganization (mergers, demergers, and transfers) was introduced and there were further temporary relief measures proposed under a decree law enacted by the government at the beginning of 2009.

Other measures in support of increasing firm size include tax incentives for listing on the stock exchange and for investment funds investing in small and medium-sized firms. With regard to listings, some temporary incentives have been tried in Italy but their effectiveness remains uncertain[57] (Gandullia and Paelari, 2001). With reference to incentives connected with private equity, the 2004 budget provided tax relief for investment funds specializing in listed small and medium-sized firms with market capitalization not exceeding €800 million (a tax rate of 5 per cent instead of 12.5 per cent), but this was later declared incompatible with European regulations concerning State aid.

10.3 Taxation and competitiveness

The reduction of tax rates on corporate income is a common trend in most European countries and was accelerated by the entry of new member countries into the EU. Although the process that began at the end of the 1990s has gradually reduced the tax rate from the 53.3 per cent of 1996 (IRPEG and ILOR) to today's 31.4 per cent (IRES and IRAP), internationally Italy is among

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[57] The measures include a reduction of the corporate income tax rate by 16 points (the standard tax rate was 53.2 per cent in 1997), in the period 1994-97 (known as the Tremonti incentive); a tax rate of 7 per cent instead of 19 per cent on the part of profits attributable to increases in capital in the years 1998-2003 (known as the Visco incentive or the Super DIT); deductibility of the cost of listings from 2 October 2003 to 31 December 2004 (known as the second Tremoni incentive), which was later repealed because it did not comply with European regulations.

the group of countries with the highest taxes: the tax rate for company profits in Italy is still more than eight points higher than the EU average. Even if the tax rate does not totally represent actual tax paid, which also depends on provisions determining the tax base, it is a valuable indicator for choosing where to locate productive activities (Ceriani, 2006).

The reduction in tax rates did not lead to a corresponding decline in tax revenue; in particular in the period 2006-07 tax revenue recorded a very healthy growth rate, reaching historically high levels (Locarno and Staderini, 2008).

In the last decade, there have been reductions in the tax on profits via temporary investment incentives,[58] such as those for investments financed with own capital in 2000 or the tax relief on reinvested profits – in line with the 1994 Tremonti law – in the two-year period 2001-02. Empirical analyses have shown that this type of tax measure had a significant effect on investments in 1994 (the year the Tremonti law was introduced) and in 1997 (reduction of the tax rate on profits with the abolition of ILOR and the introduction of the DIT), but little effect in 2000 (Gennari, Maurizi and Staderini, 2005). There were also incentives for investment in underdeveloped areas (see Chapter 9).

It is also important to note that taxation can be used to encourage investment in sectors with higher technological content by arranging specific tax relief for R&D activities. However, the measures enacted to date in Italy have been fragmentary, with limited scope and of a temporary nature only. At present, there is a tax credit, introduced with the 2007 Finance Law for a three-year period and strengthened with the 2008 Finance Law, in favour of firms investing in R&D. There have been similar measures in the past, for example with the tax relief introduced with the 2004 budget (known as the Tecno-Tremonti research provision).

Besides taxation, Italian firms are also burdened with the inefficiency of the tax collection system which can be quantified, for example, by the number of hours it takes a firm to pay its taxes: according to a World Bank survey, with 334 hours a year devoted to paying taxes, Italy is among those OECD countries with the highest number of hours per year (World Bank, 2008). The inefficiency of the public administration contributes, together with the level of

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[58] Taxation of profits in itself constitutes a disincentive to invest. In a neoclassical model of partial equilibrium, the reduction of future investment earnings due to taxation in turn reduces the size of the investment compared with a situation in which there is no taxation. See Monacelli, Staderini and Zotteri (2001) and Gennari, Maurizi and Staderini (2005).

taxation, to making Italy less attractive to foreign multinationals (see Chapter 6).[59]

Taxation also affects the competitiveness of firms through the tax wedge on the cost of labour, which is among the highest in the world (Marino and Staderini, 2009). In 2007 the fiscal wedge for an employee with no dependents and a gross salary equal to the industry average was 45.9 per cent of his/her labour cost compared with an average of 42.3 per cent in EU countries. If we also include IRAP, the fiscal wedge rose to 47.9 per cent; considering the case of an employee with a dependent spouse and two children, the wedge was 33.8 per cent (38.2 per cent including IRAP) compared with 31.8 per cent in EU countries. As in most European countries, there have been numerous attempts since the end of the 1990s to reverse the trend towards increasing taxation observed during the previous two decades. Between 1999 and 2007, the fiscal wedge paid by the employer was reduced by almost 2.5 percentage points of the labour cost; the fall was less clear as regards the employee's contribution, which varies according to number of dependents and place of residence, which determines the tax rate paid for the regional and local personal income tax surcharges.[60]

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[59] According to the Confindustria (2005), one Italian region attracts 40 per cent less direct foreign investment than another European region with similar characteristics because of structural factors such as the (in)efficiency of the public administration. On the effects of taxation on decisions taken by the multinationals, see also Gastaldi and Pazienza (2003).

[60] For a worker resident in the municipality of Rome, the fiscal wedge was only reduced if he/she had dependents (from 18.5 to 16 per cent of the gross earnings); with no dependents, the wedge remained basically the same (reduced from 29.2 to 29.1 per cent of gross earnings), since the tax cuts were offset by the effects of fiscal drag and the increase in the regional and local personal income tax surcharges and social security contributions. The increase in tax due to the regional and local personal income tax surcharges varies according to region and municipality between a minimum of 0.4 and a maximum of 1.5 percentage points of gross earnings.

11. THE LABOUR MARKET

Recent trends of the labour market display a sharp discontinuity with respect to the previous decades, reflecting far-reaching changes in the institutions that directly or indirectly govern its functioning. Partly in response to the deep crisis of the early 1990s, a reform process was launched that involved product markets (in particular with large-scale privatizations), the pension system and the labour market, where it has led to a progressive increase in flexibility, the adoption of wage-setting mechanisms more attentive to macroeconomic compatibilities, and an increase in the labour supply. These processes were not limited to Italy; they fell in the context of measures, recommended by the international organizations (see the OECD job strategy; OECD, 1996), intended to enhance the efficiency of the markets and reduce Europe's chronic problem of unemployment (Bassanini and Duval, 2006; ECB, 2008).

In Italy the results were highly favourable in terms of employment, which grew by 15 per cent between 1995 and 2007, and labour market participation, especially among women, in contrast with the trend in productivity. One factor in the unsatisfactory productivity performance was the slow growth in labour costs, which held down that in capital intensity. In addition, the new labour market arrangements themselves may have had a negative impact on the efficiency of Italian firms' production and organization. Among the many channels connecting firms' productivity to the functioning of the labour market, two warrant special attention: the spread of fixed-term employment contracts and the role of decentralized bargaining. The available evidence suggests that the use of fixed-term contracts is negatively correlated with labour productivity, probably owing to lower human capital formation in respect of workers employed for a limited period, while the adoption of company-level pay policies, particularly if they include variable bonuses, is associated with higher productivity growth.

The goal of boosting efficiency by restricting the use of fixed-term labour to temporary employment needs can be pursued through a reduction in the implied cost of stabilizing employment relations, not with a tightening of the rules, which would probably adversely affect the demand for labour. A gradual strengthening of the protection of open-ended employment depending on the length of time with the company, together with a reduction in the variety of atypical contracts and grounds for their use, could reconcile the need to stabilize employment with that of maintaining flexibility in the use of labour.

The likely consequent increase in employment flexibility cannot be divorced from a reform of unemployment support programmes and employment services, which today are unable to give workers adequate assistance in job transitions.

11.1 The evolution of labour market institutions

Among the factors that have most strongly affected recent labour market trends is the reform of the collective bargaining system under the agreements of 1992-93. The protocol, signed at the time Italy left the European exchange-rate mechanism, was intended to stabilize the macroeconomic framework by ending automatic wage indexation and making a clear distinction between the roles of national, industry-wide bargaining and company-level bargaining (Casadio, 2003; Brandolini et al, 2007). The former was supposed to guarantee the purchasing power of wages through wage increases every two years pegged to the Government's target inflation rate, with ex-post recoveries in the event of inflation overshoots (net of imported inflation), the latter to permit distribution of efficiency gains at company level. Overall, this system favoured the progressive decline in inflation by reducing the inflationary effects of exogenous shocks (from exchange rates, commodity prices and changes in indirect taxes) and assisting Italy's entry into the European monetary union (Fabiani et al., 1998). The outcome was a moderate growth rate in real wages, lower than that in productivity until the start of this decade, with a consequent decline in labour's share of output. This trend reversed itself after 2002, with the stagnation of productivity (Torrini, 2009).

Over time, however, this model exhibited several intrinsic limits and some problems connected with the evolution of the economic context. On the one hand, with the adoption of the single currency, target inflation became a steadily less significant anchor of nominal wage growth. On the other, second-level bargaining developed to a very limited extent, both because of the modest size of Italian companies and the consequent scant presence of trade union representatives able to initiate decentralized bargaining, and owing to the stagnation of labour productivity, which, absent the possibility of negotiating agreements in derogation of the national contract, effectively reduced the resources to distribute at company level (Marino and Torrini, 2008).

After an initial phase of growth, the spread of company-level contracts remained quite limited, involving only larger companies, mainly in manufacturing industry, and delivering generally modest pay increments (Casadio, 2009). In 2001-02 about half of all private-sector workers employed

in firms with 20 or more workers and nearly all those employed in firms smaller than that were not covered by supplementary contracts. On the basis of partial data, the share of workers covered by company-level contracts appears to have fallen since then in industry and to have risen slightly in banking and distribution (thanks to the expansion in large-scale retailers' market share).

Performance-linked bonuses, whether envisaged by company-level agreements or granted on an individual basis, are more common, although they essentially replicates the territorial, sectoral and firm-size distribution of company-level contracts. In recent years the incidence of payments determined at company level has diminished, presumably owing in part to the stagnation of the economy (Figure 11.1). In the period 2002-06, in firms with 20 or more workers the pay components set at company level amounted on average to 15 per cent of total compensation. The share was higher in the larger firms (17 per cent) and lower in those with between 20 and 49 workers (7 per cent); it was equal to 8 per cent in the South and Islands and 18 per cent in the North-West (Table 9.1). At least 20 per cent of the employees of firms with 20 or more workers received only the minimum compensation fixed by national contracts; in firms with between 20 and 49 workers, the share rose to 50 per cent (Table 11.2).

Although the coverage of company-level contracts remained circumscribed, the climate of cooperation created with the accords of the early 1990s led to a progressive easing of the constraints on the management of labour, facilitated by negotiations between unions and employers (Casadio, 1999; Casadio and D'Aurizio, 2000 and 2001). Legislative and contractual changes gradually extended marginal flexibility by expanding the types of contract used for new hiring, a tendency foreshadowed in the second half of the 1980s by the introduction of mixed work and training contracts. The main stages in this reform process can be summarized as follows. In 1995 the pension reform instituted an INPS fund for workers on coordinated, continuous collaboration contracts, thereby fostering greater use of these contracts. Law 196/1997 (the "Treu package") eased the restrictions on part-time employment and introduced training internships, labour exchanges and temporary employment agencies, thereby legitimating the activity of private employment services. Legislative Decree 368/2001 regulated the use of fixed-term contracts. Lastly, Law 30/2003 (the "Biagi Law") extended the variety of atypical contracts, expanded the scope for using temporary employment services, revamped apprentice contracts and increased the flexibility of part-time contracts.

**Figure 11.1: Coverage of pay increases additional to the national contract
by firm size class**
(percentage of workers)
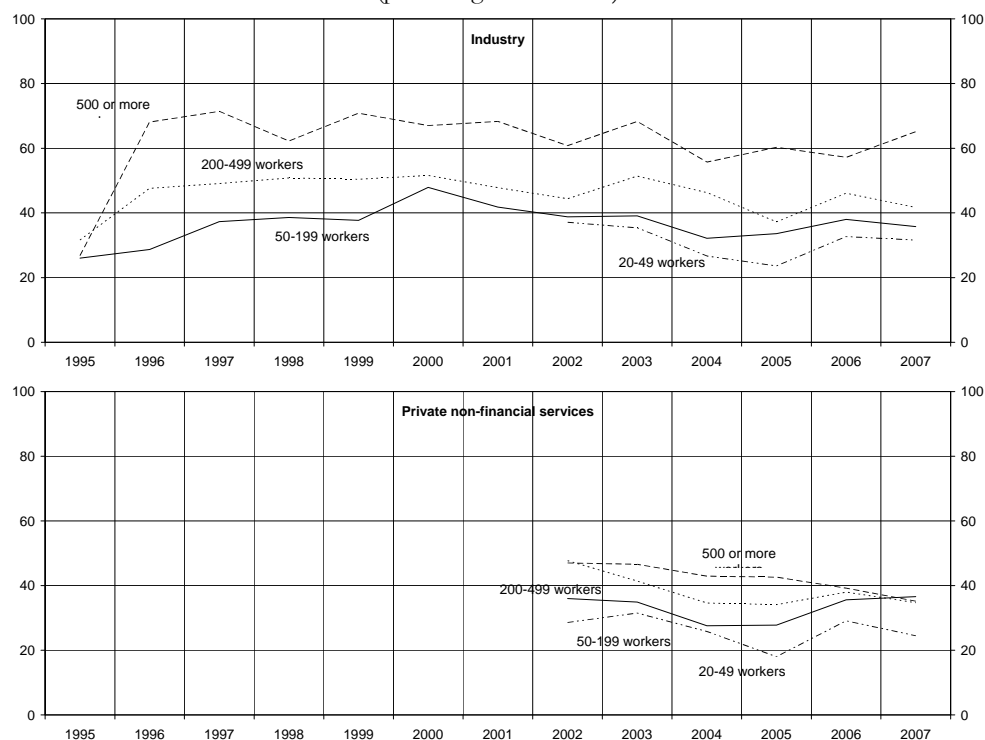
Source: based on Banca d'Italia, *Survey of Industrial and Service Firms*.

These innovations gradually widened the spectrum of possible exceptions to standard, open-ended employment, which, however, still remains the typical form of employment (Sestito, 2002). In particular, the rules on firing are essentially still those established in the 1991 Charter of Labour Rights (Law 300/1970), except for the changes introduced by the 1991 reform, which increased the protection of workers in firms with fewer than 15 employees and formalized the collective redundancy procedures in firms with 15 or more workers (Schivardi and Torrini, 2007). The latter provision, which according to OECD indicators rigidifies the regulation of the Italian labour market, made the legal framework more certain and appears to have facilitated work-force reductions in company crises (Bertola and Ichino, 1995).

The legislative changes and the growing importance of the service sector created the conditions for widespread use of "atypical" forms of contract. Of the total number of payroll workers in 2007, 13.2 per cent were on fixed-term

contracts (2.9 per cent part-time), an increase of more than 3 percentage points compared with 1993 (Figure 11.2).[61] Part-time employees with open-ended contracts accounted for 11.2 per cent of total payroll employees in 2007; the number of all part-time employees rose from 7 to 14 per cent of total employment between 1993 and 2007. Although these figures are not higher than the European average, the expansion of atypical contracts has been accompanied by a growing sense of job insecurity (Boeri et al., 2008).[62] Introduced mainly through hiring procedures, the enhanced flexibility has mostly concerned younger workers entering the labour market: despite a higher level of educational attainment, since the early 1990s they have suffered a relative loss in entry wages by comparison with the preceding generations, not compensated for by swifter promotion (Rosolia and Torrini, 2007).

Figure 11.2: Fixed-term and part-time employees
(percentages of total employees)
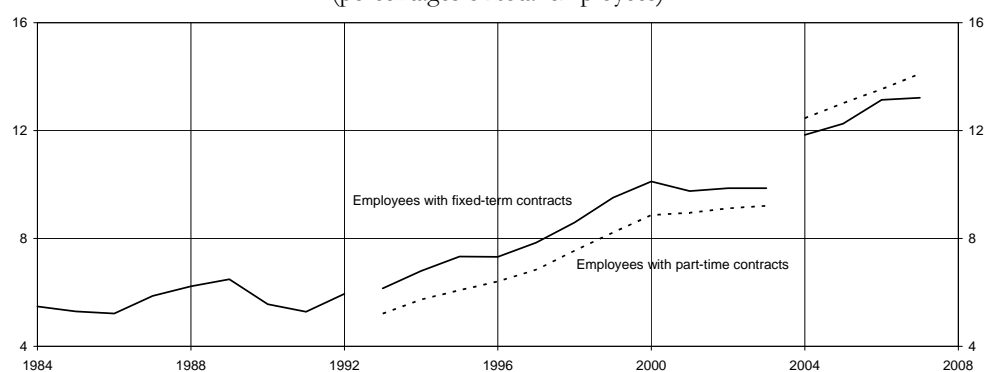
Source: Based on Istat, *Rilevazione sulle forze di lavoro*. The breaks in the series are due to methodological revisions to the labour force survey in 2003 and 2004.

The growth in unstable jobs among employees falls in a context in which the share of self-employment in total employment is very high by international standards (Torrini, 2005b): 26.1 per cent in 2007, compared with less than 10 per cent in most of the advanced countries. Although diminishing slightly, the

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[61] The frequency of these contracts diminished at the beginning of the current decade because of incentives for their stabilization (Cipollone, Di Maria and Guelfi, 2004) and the regularization in 2002 of the status of previously undocumented foreign workers.

[62] This may be due in part to the fact that the number of persons with a fixed-term contract is actually a multiple of the number of fixed-term positions. Anastasia (2008) estimates that the ratio of fixed-term positions to persons filling them in the region of Veneto is about 1 to 2. An analogous line of reasoning applies to the roughly 500,000 positions covered by coordinated and continuous collaboration contracts, project contracts or occasional work agreements (Berton, Pacelli and Segre, 2005).

high proportion of self-employment, together with the increase in atypical contracts, has reduced permanent payroll employment's share of total employment to less than two thirds, only a part of which – estimated at 40 per cent of total employment – enjoys the greater safeguards established for public-sector workers and for employees of companies with 15 or more workers. In addition, despite wage moderation and the increase in contractual flexibility, off-the-books workers continue to account for a very large share of employment, (Zizza, 2002; Cappariello and Zizza, 2008).

More flexibility in the use of labour and generally low wage growth have made it more advantageous to utilize labour in production, thereby helping to raise the demand for labour and lower the unemployment rate (Brandolini et al., 2007). The increase in flexibility appears to have reduced the implicit costs due to constraints in the organization of work, including the constraints on firing, justifying a larger increase in employment than that explained by the growth in explicitly measurable labour costs.[63]

11.2   Flexibility, social shock-absorbers and employment services

More flexible employment increase workers' mobility, especially in the early years of their working life, increasing the need for adequate unemployment income support programmes and efficient employment services that facilitate job-to-job transition. The present array of instruments insuring workers against the risk of unemployment (ordinary and special wage supplementation, mobility lists, regular and reduced unemployment benefits) is heterogeneous as regards the amount of benefits and entitlement and does not protect the weakest segments of the labour market; in addition, reduced unemployment benefits can be diverted to improper uses such as income support for specific categories of workers, which conflicts with the social-insurance nature of these benefits (Sestito, 2002; Rosolia and Sestito, 2008; Sestito, 2008; Boeri et al, 2008). Despite the long-standing need for a comprehensive reform, in the last decade the various legislative mandates given to a succession of governments for revision of the system of social shock-absorbers were allowed to expire because a consensus solution could not be reached and because of the constraints placed on expenditure by the state of

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[63] The possibility of fixed-term hiring reduces firms' expected costs. Cipollone and Guelfi (2006) calculate that each additional percentage point in the share of fixed-term workers corresponds to a reduction of about 2 per cent in labour costs. With regard to firing costs only, Rota (2004a) estimates with an econometric model that they amount to about 15 months pay in a medium-sized firm.

the public finances. Ten years after the reform that entrusted the organization of employment services to the country's provinces, these services have yet to develop the capacity for integrated management of active labour policies and income supports, as found instead in the benchmark experiences in Europe (Pirrone and Sestito, 2006). These weaknesses of active and passive employment policies are a serious obstacle to the efficient functioning of the Italian labour market.

11.3 Fixed-term contracts and productivity

From a theoretical perspective, the effects on labour productivity of recourse to flexible forms of employment are ambiguous. On the one hand, it enables firms to adjust their use of labour more rapidly to the fluctuations in demand, especially during recessions, thus reducing labour hoarding. On the other, fixed-term contracts lessen the incentives for firms to invest in training their temporary workers and for the latter to acquire firm-specific knowledge, with an overall negative effect on human capital and labour productivity. According to Dew-Becker and Gordon (2008), the reforms that made European labour markets more flexible in the 1990s fostered a rapid expansion of employment, but were accompanied by a broad-based slowdown in the growth not only of labour productivity but also of total factor productivity.

The regulation of employment influences firms' organizational choices, workers' behaviour and the respective incentives to invest in human capital. Empirical evidence for Italy shows that the different degree of protection of open-ended employment in firms above and below the threshold of 15 employees has a marginal effect on firms' decisions whether or not to grow but spurs those with more than 15 employees to make more use of fixed-term contracts (Garibaldi, Pacelli and Borgarello, 2004; Schivardi and Torrini, 2007); also, the increase in the safeguards for workers in the smallest firms after 1990 appears to have caused a reduction in workforce turnover (Kugler and Pica, 2008). According to analyses for the United States (Autor et al., 2007) and the OECD countries (Bassanini, Nunziata and Venn, 2008), tighter restrictions on the possibility of dismissing workers are accompanied empirically by lower growth in total factor productivity, although the theoretical link is not made explicit.

Bassanini, Nunziata and Venn (2008) find no link or a negative one between total factory productivity growth and expanded use of fixed-term contracts, which thus would not be equivalent to an easing of the rules on firing. Michie and Sheehan (2003), on a sample of 200 UK firms, observe a

negative correlation between the use of temporary labour and productivity growth. For the Netherlands, Kleinknecht et al. (2006) conclude that the rapid rise in employment between the 1980s and 1990s, sustained by use of flexible labour, depressed labour productivity growth. For Italy, Lucidi (2006), using the Mediocredito-Capitalia survey (IMC) supplemented by financial statement data, finds that greater use of temporary labour corresponded to slower growth labour productivity growth in the period 2001-03. Boeri and Garibaldi (2007) confirm those results, but, on the basis of theoretical model, interpret them as a temporary effect: the use of fixed-term contracts increased expanding firms' demand for labour and did not affect the possibility for struggling firms to reduce their staffing levels; however, the increase in employment and the consequent reduction in productivity will both eventually diminish once natural attrition enables all firms to situate themselves at the employment levels deemed optimal.

There is an intrinsic difficulty in identifying the direction of causality: the negative effect on productivity of the use of fixed-term labour could be due to the fact that it is the firms with worse prospects of productivity growth that have greatest recourse to it in order to reduce firing costs. Using the Bank of Italy's Survey of Industrial and Service Firms together with data from the Cerved archive and taking these endogeneity problems into account, Lotti and Viviano (2008) estimate that in the period 1999-2006 recourse to temporary labour had a negative effect on labour productivity that was statistically significant in the long term: an increase of one percentage point in the share of fixed-term employees reduced productivity by 0.15 per cent on average and by 0.25 per cent in firms in high-tech sectors. These negative consequences for productivity do not seem to be offset by savings in overall labour costs beyond the short term: in the long term, for each additional percentage point in the share of fixed-term employees, the firm's profits (defined as gross operating profit) diminish on average by 0.2-0.3 per cent (by 0.4 per cent in the high-tech sectors).

11.4 Decentralized bargaining and productivity

The second-level bargaining envisaged by the 1993 accords has not spread widely, owing in part to the unsatisfactory performance of the Italian economy and the scantiness of the productivity gains that second-level agreements were meant to redistribute. Recently, studies have insisted on the opposite causal link, positing that decentralized negotiations may stimulate company-level efficiency and labour productivity as well as aligning wage dynamics with company performance and local labour market conditions. This approach

justifies the demands of unions and employers for more tax incentives in favour of the component of pay determined in second-level bargaining.

Decentralized bargaining can improve the allocative role of wages, fostering greater consistency between employee compensation and company performance, facilitating the mobility of workers towards the more productive firms that offer higher pay, and increasing the dispersion of wages across companies and, indirectly, among geographical areas at different levels of development. It can affect firms' efficiency both by facilitating organizational innovation with bonuses linked to the outcome of restructuring plans and by stimulating employee effort with individual and collective performance-linked bonuses.

On the theoretical plane, pay policies aimed at encouraging individual effort have to reconcile the interests of the worker and the employer, on the assumption that labour productivity depends on effort and that effort is only imperfectly observable and measurable by the company. The incentive schemes can take a considerable variety of forms, including direct employee shareholding and variable bonuses linked to results (assessed both objectively and subjectively). Indirect incentive systems include promotions and the payment of higher-than-equilibrium efficiency wages, in order to make dismissal on grounds of poor performance more costly for the worker. There is broad consensus on the effectiveness of well-designed incentives in increasing workers' productivity (Bandiera, Barankay and Rasul, 2007; Kruse, Freeman and Blasi, 2008; Lazear, 2000; Lazear and Oyer, 2007; Shearer, 2004) and the positive consequences for innovation (Harden, Kruse and Blasi, 2008).

The effectiveness of individual incentives depends on the correlation between the worker's effort and results. Variable pay schemes are ineffective when results are strongly influenced by factors beyond the worker's control, or when free-riding is possible within team production in which it is hard to identify individual contributions (Prendergast, 1999; Grund and Westergaard-Nielsen, 2008). For these reasons, individual incentives can be used primarily for higher job grades, particularly managerial positions. In a study of managers of service firms operating in Italy, Bandiera et al. (2008) show that multinational companies use formal selection systems and adopt incentivizing compensation policies based on assessment of results, whereas family-owned firms and companies that operate mainly in the domestic market tend to hire managers on the basis of informal relations and do not provide for any kind of objective assessment; the relation between the use of management-evaluation systems, firms' profitability and their growth is positive. In general, however, the advantageousness of increasing internal pay differentials by dispensing individual bonuses can conflict with collective company-level bargaining when

the latter tends to compress the company-level distribution of wages, as found in several studies (Checchi and Pagani, 2005; Dell'Aringa and Pagani, 2007).

The relation of productivity and variable pay with company performance also appears to be positive, although the direction of causality is harder to determine (Biagioli, 1999; Damiani and Ricci, 2008). Analyzing a sample of Italian metalworking firms, Origo (2009) estimates that the use of flexible pay policies, introduced by the 1993 accords, increased labour productivity by 7-8 per cent and permitted wage increases of 2-3 per cent; in the more highly unionized firms the effect on productivity was smaller and that on wages greater. Here again, however, the link may represent a spurious correlation, despite the precautions taken to attenuate endogeneity bias. Moreover, the positive relation could reflect organizational innovations that are positively correlated with both the pay policy and company productivity, as shown by Cristini, Bazzana and Leoni (2005).

More in general, it is difficult to separate the effects of pay policies from those of other organizational and management practices that influence technological innovation, most frequently cited as a driver of production efficiency (Black and Lynch, 2001; Kruse, Freeman and Blasi 2008). In particular, performance-linked pay is more frequently found in firms in which workers enjoy more independence and are called on to participate directly in formulating company strategies. The empirical studies conducted for the United States and the United Kingdom show that the positive effect of these practices is greater when they are implemented jointly. For Italy, Cainelli, Fabbri and Pini (2002), Pini (2005) and Cristini et al. (2003) document the positive correlation between innovative organizational practices and firm performance, also emphasizing that the adoption of these practices is favoured by cooperative industrial relations. In particular, according to Cristini et al. (2003), organizational delayering is a prerequisite for a series of practices, such as flexible pay, training, team-based production and management-union interaction to become tools for improving company performance. From this perspective, company-level contracts, whose presence is positively correlated with that of variable pay components (Damiani and Ricci, 2008), appear to boost productivity growth insofar as they assist organizational innovation and foster a cooperative attitude on the part of the workers.

12. PRIVATE EQUITY FUNDS

The literature on the relationship between finance and economic development has shown that growth is higher where there is greater availability of outside finance (Levine, 2005) and that the size of financial markets has a significant effect on business formation and expansion (Aghion, Fally and Scarpetta, 2007) in all industries, not just the most technologically intensive (Philippon e Veron, 2008). Well developed financial markets make it possible to increase the exports of industries that have less internal resource availability and need more capital (Manova, 2006 and 2008) and to ease the liquidity constraints that could impede exports (Campa and Shaver, 2002; Bellone et al., 2008), although it has also been argued that this latter causal nexus runs the other way (Greenaway, Guariglia and Kneller, 2007).

The financial constraints on growth may be more severe for certain categories of enterprise. Younger and smaller firms and those in sectors with a high proportion of intangible assets may face special obstacles in procuring the finance necessary to expansion, owing to the lack of collateral against bank credit and poor visibility to foreign investors. Further, though it is mainly viewed in terms of support for business creation and expansion, finance can also play an important role in fostering corporate restructuring and generational succession. Ailing firms need finance in order to renovate their product line, to invest in better quality and to rebalance their financial structure. Generational turnover may require the entry of new shareholders or additional resources to buy out the stakes of family members not interested in the business.

After a brief examination of the financial structure of Italian firms and of the empirical literature on the importance of finance to growth, this chapter focuses on private equity funding. Still relatively uncommon in Italy, this form of venture capital investment is seen in the literature as a mode of finance that can foster firms' capital strengthening and growth while favouring generational turnover. The Bank of Italy, together with Associazione Italiana del Private Equity e Venture Capital, has inquired into the characteristics of the industry in a series of interviews with firms that have received private equity financing and with the intermediaries. Although there is quite considerable variability in contract terms and in the results achieved by the firms financed, it can be concluded that in Italy as elsewhere private equity investment represents a form of intermediation that amplifies the financial resources at a firm's disposal and offers a significant contribution in terms of consulting. The main

obstacles to further expansion of the sector are the limited development of pension funds, the bankruptcy law and tax treatment.

12.1.   The financial structure of Italian firms

In the last decade both bank lending and recourse to the share and bond markets increased greatly in all the leading industrial countries. In Italy too the total flow of resources to businesses expanded, and its composition shifted more towards market instruments, such as shares and bonds. The global financial crisis suddenly cut these trends short, and their future development cannot yet be foreseen.

Even before the crisis, however, the relative importance of these instruments in company balance sheets differed from country to country. Until 2000 there was a very fast drop in corporate leverage, the ratio of debt to own capital falling fast in all the main industrial countries except the U.K. This was a time of high profits, increasing resort to the stock market and, in the second half of the 1990s, rapidly increasing shareholders' equity thanks to the performance of share prices. Subsequently, leverage began to rise again in all the countries considered. The latest data available show that Italian firms' leverage stood at 38 per cent in 2006, slightly higher than in the euro area (36 per cent) or the U.S. (32 per cent) and lower than in the U.K. (43 per cent).

Overall, the average indebtedness of Italian companies is substantially in line with that found in the other leading industrial economies. However, there are broad internal differences depending on company size and product specialty. For the 40,000 firms reporting to the Company Accounts Data Service, average leverage in 2006 was 54 per cent for small firms (fewer than 250 workers) and 48 per cent for the largest (more than 1,000 workers), following the pattern that emerged in the 1990s. The smaller firms are also characterized by a higher proportion of short-term debt, which is less suitable to financing the sort of longer-term investment projects needed for corporate expansion owing to the greater risk of its being cut off (Bergemann and Hege, 1998). Focusing on manufacturing alone and classifying firms by technological intensity, leverage decreases as technological intensity increases (Table 12.2), a finding consistent with Hall (2002). According to Brown, Fazzari and Petersen (2008), the high-tech firms have fewer borrowed resources because of greater volatility of the returns on their projects, greater information asymmetry, and shortage of collateral. The portion of total financial resources consisting in the flow of new bank debt confirms that on average, the higher-technology firms

rely less on bank funding. In terms of stocks too, controlling for firm size the weight of bank debt decreases as technological intensity increases.

12.2. Finance and growth: empirical analysis for Italy

The connections between finance and corporate growth in Italy have been the subject of a number of empirical analyses. Various works have maintained that the existence of financial constraints to growth is due to the small size of Italian companies (Angelini and Generale, 2008; Pozzolo, 2003; Magri, 2007). And innovative firms are more frequently subject to financial constraints, as a result of the greater elasticity of R&D investment with respect to the availability of internal resources, although the results in this sense are weaker when product innovation is involved (Guiso, 1997; Nucci, Pozzolo and Schivardi, 2004; Benfratello, Schiantarelli and Sembenelli, 2006).

One strand of inquiry has focused on firms' investments. The main findings imply that investment by smaller firms and firms with less tangible assets to use as collateral depends more heavily on the availability of internal resources (Gaiotti and Generale, 2002; Franzosi, 2000), while investment reacts less strongly to variations in cash flow in the case of large firms (Galeotti, Schiantarelli and Jaramillo, 1991) and firms with stable relations with banks (Bianco, 1997).

More generally, Guiso, Sapienza and Zingales (2004) show that where the financial system is more highly developed, the probability of becoming an entrepreneur is greater, the degree of competition is higher and so, consequently, is the rate of output growth. The degree of local financial development is less important to larger firms, which have access to funds in the national and international markets.

12.3. Private equity and venture capital: general features

As generally used in Europe, the term "private equity" comprises two main types of investment. One is venture capital operations involving new businesses with high growth prospects that would find it difficult to raise capital by the traditional instruments. These firms have trouble borrowing from banks, given the low profitability that usually characterizes the start-up phase and their relative lack of tangible fixed assets to post as collateral. The second type of investment goes to larger firms, often with abundant financial

resources. [64] These may be corporate expansions, owing to the need to consolidate the growth of mature corporations, or buyouts, entailing a change in management – often in connection with generational succession in family-controlled firms – for greater efficiency of operations and management. Buyouts frequently bring an increase in leverage and introduce incentive schemes linking directors' compensation to company performance. Finally, some private equity operations serve to restructure ailing mature corporations.

Venture capital is a means for stimulating firms' procurement of resources for investment, in particular equity for start-ups and for the expansion of existing firms, especially in technologically innovative industries (ICT, biotechnology), where information asymmetries are most pronounced. Most of the empirical studies in this field concern the United States, finding that venture capital funds have effectively helped companies with high growth potential to overcome financing constraints and have also provided consulting on product development and outlet markets. In the case of buyouts, the findings are mixed: the high degree of leverage and the introduction of appropriate incentives for managers have helped to foster efficiency, but heavy indebtedness has aggravated firms' vulnerability.

12.4. Private equity and venture capital in Italy

Unlike the United States and in part the United Kingdom, Europe and Italy have so far experienced only limited development of venture capital operations, while expansions and buyouts have been more numerous. The Bank of Italy has sought to determine the causes for the Italian lag, studying a set of private equity and venture capital operations and conducting a detailed analysis of the structure of early stage financing, expansions and buyouts (Generale and Sette, 2008). The sample consists of 57 operations: 16 early stage (seed and start-up), 15 expansions or replacements, and 26 buyouts. The data gathered (apart from the identity of the company, the entrepreneur and the intermediary) were: year and investment stage (early stage, expansion, buyout); whether the operation was syndicated; details of contract characteristics, financial structure and instruments utilized; planned and actual mode of the intermediary's exit and disinvestment clauses (stock exchange listing, sale to another company, sale of stakes to other intermediaries); any disagreement between investors and the entrepreneur over exit mode; the

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[64] In the United States the term "private equity" refers only to this type of operation and does not embrace "venture capital".

entrepreneur's assessment of the operation; an evaluation of the intermediary's contribution of advice on various aspects of the firm's management.

Contract features

The survey of contract features was designed to detect any peculiar characteristics of the Italian market that could diminish its efficacy, in view of the main factors considered in the literature (Kaplan and Stromberg, 2003 and 2004; Basha and Walz, 2001; Bienz and Hirsh, 2006; Cumming, 2008). The study concentrated on the financial structure of the firm (size of the intermediary's equity stake, type of securities issued and rights embodied), the investor's board representation rights (power to name and remove directors), veto powers contemplated and the types of transaction to which they apply, any graduation of the investor's powers of intervention as a function of the firm's performance, and the existence of non-competition clauses and exit agreements.

The responses reveal ample variability in transaction structures and contract terms. In general, however, the main characteristics are in line with the American experience. Vesting clauses that make voting rights or the distribution of profits to the entrepreneur conditional on the firm's results are less common in Italy, as are hybrid equity instruments, which were in any case hard to design prior to the company law reform that went into effect in 2004. The use of common shares appears to be counterbalanced by clauses limiting the entrepreneur's activities, by shareholder agreements and by the attribution of veto powers to the intermediary.

The small size of the sample and the difficulty of specifying an adequate control group prevented robust econometric analysis of the relationship between private equity access and firm performance. Other studies based on Italian data (Del Colle, Finaldi Russo and Generale, 2005) have found that the principal effect of private equity is a re-balancing of the financial structure of companies that had expanded greatly before the intermediary's intervention, while there were no substantial differences in performance by comparison with the firms that did not resort to private equity. The effects of venture capital finance on company performance may depend crucially on contract clauses that make it possible to design appropriate incentives for management. The lack of detailed information on the existence of such clauses makes it empirically difficult to pinpoint the effects of such financing on firms' profitability.

The role and characteristics of intermediaries

The second part of the analysis focuses on intermediaries' activities and characteristics. In the case of early stage operations, specific technical expertise plays an important role in orienting the firm's choice of private equity financier. The study finds that in Italy intermediaries provide consulting mainly on financial matters and strategy. They also play a "certification" role, making it easier to raise funds from other financiers and improving relations with banks. But in other areas –technical product development, human resource management, marketing policy, enhancing access to suppliers and distributions – their contribution is limited. They do appear to have fostered the internationalization of firms through takeovers or collaboration agreements with foreign firms. The qualitative information drawn from interviews suggests that the intermediaries' relatively modest contribution on the technical-production side is due in part to the attitude of the entrepreneur. Especially in the case of expansions, the latter already has experience in the industry and sees little use for "intrusions" by persons who may have no familiarity with the market the company is doing business in.

The intermediary's role in the management of the company is also linked to the size of its stake. Aside from buyouts, where the private equity fund has a stake that ensures control, the investor's stake averages 32 per cent. Consistently with the indications of the literature, in these cases shareholders agreements are put in place to ensure that the private equity fund has powers of control and monitoring. . In any event, the intermediary's stake is relatively large, and together with provisions of the by-laws and shareholder agreements it can allow a sufficiently active role in company management.

Entrepreneurs' assessments of the relationship with the intermediary are mixed. A number of entrepreneurs, especially those engaged in expansions, expected a greater contribution on material financial or strategic matters, such as the adoption of strategies for hedging raw materials prices. It was also noted that the intermediary's knowledge of the firm's market was superficial and its strategy suggestions tended to be based on standard schemas that failed to take sufficient account of sectoral specifics. Finally, some entrepreneurs complained of excessive concern for complying with financial ratios, which might compromise the longer-term ability of the firm to create value. On the other hand, the businessmen involved in early stage operations appreciated the presence, at the intermediary, of people capable of understanding the technical-scientific side of the company project, stressing that the project could not have been realized by alternative sources of financing. They also noted how important it is for entrepreneurs/inventors from the academic world to be flanked by managers capable of converting an idea into a commercially

viable product. In general, the intermediaries favoured more professional models of management (in terms of control of results, costs, relations with suppliers and distributors) as necessary to the expansion process.

Intermediaries rarely use managers with technical expertise (engineers, information technology specialists, chemists, etc.), except in early stage operations, where in most cases those assigned do have technical and operational expertise. This factor is crucial and suggests that for the most part these intermediaries do have the human resources needed to handle early stage operations in which the financier's ability to grasp the potential of an innovative product or service is fundamental. A factor that limits such operations is the relatively small number of Italian intermediaries that specialize in early stage ventures.

Overall, despite the considerable variability in contract terms and in results (company performance), in Italy too private equity is a form of financing that not only increases the resources at firms' disposal but also makes a major contribution in terms of consulting.

12.5.   The obstacles

The intermediaries interviewed indicated that one of the main factors holding back the development of private equity funding in Italy is the small size of pension funds, together with the bankruptcy law and tax rules. These findings are in line with the economic literature, which considers as possible obstacles the underdevelopment of the stock market, the limited presence of institutional investors such as pension funds (which are a steady source of resources for these intermediaries), and bankruptcy law (Jeng and Wells, 2000; Armour and Cumming, 2006).

The recent reform of the bankruptcy law has had positive effects in this regard. The new rules provide for the cancellation, under certain conditions, of the bankrupt's residual debts after the end of the bankruptcy proceeding, hence the possibility of an immediate return to productive activity. The punitive nature of the bankruptcy law has been attenuated only in some respects, and there has been no change to the penal sanctions levied, which are still directed to repressing not only fraudulent but even merely negligent conduct. As to fiscal rules, an impediment to buyouts may derive from the recent reform of company taxation, which sets a limit on the deductibility of interest payments and limits the possibility of leveraged buyouts (Bracchi, 2008). More generally, Italian fiscal rules offer no tax incentive for private equity transactions (see Chapter 10).

Less significant obstacles, in the view of the respondents, are competition from public investment projects, the regulations on intermediaries' permissible range of business operations, and company law. The company law reform has eliminated the possible illegality of some operations, buyouts in particular. More generally, it has removed many of the legal constraints that barred intermediaries from implementing instruments of contract and governance for adequate protection of their investment.

APPENDIX

Interviews with businessmen

In the spring of 2007 about forty in-depth interviews were conducted with businessmen to gather opinions and qualitative information that could not be derived from the available quantitative data.

Although statistical representativeness was not an objective, care was taken to select a sample of firms with sufficient variety in at least four respects: size, sector, geographical area and age. In terms of size, the extremes of the sample were a firm with 25 workers and one with 17,500 workers; most were medium-sized (between 200 and 500 workers). By sector, it was decided to focus mainly on manufacturing (26 firms), including both traditional industries (a total of 7 companies in food products, textiles, footwear and brick making) and technologically more advanced sectors (mainly mechanical, electrical and electronic machinery and equipment). As for services, in order to avoid excessive dispersion it was decided to restrict the field to business services (two software firms, one electricity trading company, one public relations firms and one telephone survey firm). The regions involved were Piedmont, Lombardy, Veneto, Emilia Romagna, Marche, Campania, Puglia and Sardinia. Available indicators were also used with a view to having the sample contain some variability in terms of company performance.

Each interview was conducted by at least two researchers, one from the Bank's Economic Research Department and one from the local branch's economic research unit, on the basis of a "structured interview guide", and was prepared with background notes on the firm. The information collected was entered on fact sheets summarizing, though with sufficient detail, the case history according to a uniform report format. The interviewers were given leeway to pursue the specifics of the company history and the topics that came up (sometimes at random) during the interview and to adapt to the personality of the interviewee.[65] The survey method and the results of the interviews were discussed by the ad hoc working group on the basis of the reports and provisional documents.

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[65] The methodological literature (Dilley, 2000) points out that one difference between interviews and questionnaires is that interviews allow the person interviewed to raise issues he or she considers important.

Bank of Italy survey of firms (Invind)

The Bank of Italy, through its branches, has conducted an annual survey of Italian manufacturing firms with 50 or more workers since 1972. In 1999 the sample was extended to all industry excluding construction, in 2001 to firms with between 20 and 49 workers and in 2002 to firms in private non-financial services (distribution, transport, telecommunications, business services) with 20 or more workers. For 2007 the sample consisted of 2,980 firms in industry excluding construction (1,852 with 50 or more workers) and 1,083 service firms (686 with 50 or more workers); the participation rate was 79.7 per cent for industry and 77.6 per cent for services.

The sample is a panel, with the same firms observed year after year as far as possible. A weighting coefficient for each firm, which takes account of the ratio of the number of units in the reference universe to the number of businesses surveyed by size class, geographical area and branch of economic activity, makes it possible to scale the results to the universe. For further details on the sample design, see Banca d'Italia (2007).

Monetary variables, such as investments and turnover, are treated with the robust estimation method called "type II winsorization" in which the variable is squashed against lower and upper cut-offs using a formula that takes account of the cut-off value and the original value. The weight of the latter increases in proportion to the sampling fraction.

With questionnaires sent to the firms at the start of the year concerning the previous year, the survey obtains continuous data on the firm's identity (name, registered office, sub-class of economic activity, mergers/spin-offs where applicable), employment (average and year-end workforce, hours worked and use of Wage Supplementation, hiring and terminations, change in employment expected for the subsequent year, fixed-term and temporary employment), investments (realized and planned, actual and forecast change in prices of capital goods, reasons for revising investment plans), total turnover and export sales, production capacity and debt.

Every year the survey focuses on selected special topics. In the past, these have included trade credit, use of ICT, electricity, services purchased and offered to firms, internationalization and business strategies.

Bank of Italy survey on the diffusion of ICT in electronic payments and network activities

The third edition of the survey, coordinated by the Bank's Payment System Oversight Office, was conducted between April and May 2008 on a representative sample of more than 4,300 firms with annual turnover of more than €2.5 million. The survey covered service and industrial firms, the latter for the first time. The method and results are reported in detail in Banca d'Italia (2009).

Cerved data

Cerved has financial statement data for about 84 per cent of the companies in the manufacturing sector and 61 per cent of those in the total economy. Although only 21 per cent of manufacturing firms are companies (14 per cent in the total economy), those in the Cerved database account for between 70 and 80 per cent of total manufacturing turnover and value added, thus making it possible to study the evolution at firm level in close connection with the analysis of aggregate economic data. The incompleteness of the information on number of staff, not obligatory in financial reports, rules out extending the analysis to labour productivity.

Mediocredito-Capitalia survey (IMC)

Since 1992 the Observatory on small and medium-sized enterprises of the Capitalia Banking Group (formerly Mediocredito, now Unicredit Group) has conducted surveys every three years on a sample of some 5,000 Italian manufacturing firms with more than 10 workers (sample survey for firms with between 11 and 500 workers and census survey for those with more than 500 workers). The data are available from 1989 to 2003. The sample is stratified and representative by sector of economic activity, geographical area and size class. It is an open sample: every survey includes new firms as well as firms already present in previous surveys.

The questionnaire's basic structure remains unchanged, but it has been expanded, modified and supplemented with one or more monographic parts on new topics. The questionnaire is divided into sections. In the most recent surveys, the following have been fixtures: (1) *General information*: company identification information and data on mergers and spin-offs, ownership and control, membership in groups and participation in consortia; (2) *Workforce*:

information on staff (divided into five groups according to their functional position in the company), workers engaged in R&D, use of flexible employment contracts and participation in training activities; (3) *Investments and R&D*: investments made and financing sources; (4) *Internationalization*: type and geographical distribution of exports, acquisition of foreign licences and patents, direct investments abroad and market penetration programmes, recourse to services for assistance in international markets; (5) *Market*: distribution channels and characteristics of main competitors; (6) *Corporate finance*: bank-firm dealings, access to innovative financial instruments and equity capital, use of financial or tax incentives, organization of the financial function and related development plans.

Indices of market power

The three composite indices of market power are constructed using the Cerved database of the universe of Italian companies between 1995 and 2006 (an average of some 280,000 companies per year).

The Hirschman-Herfindahl index of concentration (*HHI*) is given by the sum of the squared market shares of all the *n* firms present in the market. The index increases with a firm's share and ranges between $1/n$, in the case of perfect equality, to 1, in the case of monopoly. In the United States, a merger is deemed not to be immune from risks of abuse of dominant position if the increase in the *HHI* is less than 0.02 and the post-merger index remains below 0.18; an investigation is opened if these limits are exceeded. The index is affected by the changes in market share due to firms entering and exiting the market or to extraordinary corporate actions such as mergers.

Ideally, the market for calculating the *HHI* should refer to the sales of a given product in a given geographical area. The unavailability of firm-level data on sales of product by area makes it necessary to identify the reference market only on the basis of product sector. The more precise the definition of sector, the less the scope for erroneously assuming that firms operating in a sector compete with each other. Taking account of the number of firms in the Cerved database, the three-digit Ateco classification of sectors was used. The index so calculated refers to the total turnover of Italian firms operating in each sector. The actual index of concentration would require taking into account: (a) Italian firms' export sales, to be subtracted from both the numerator and the denominator; (b) the value of imports, to be added to the denominator; and (c) the market shares of the individual foreign firms that sell in Italy, to be included in the numerator.

The Lerner index (*PCM*) is given by the ratio of the mark-up (the difference between the final selling price *p* and the marginal cost *mc*) to the price *p*: *PCM*= (*p–mc*)/*p*. It is calculated as the sectoral average of the ratio of gross operating profit to turnover of the individual firms. As is customary in the calculation of marginal costs, average variable costs are estimated, so that it is implicitly assumed that the variable cost function is linear in the arguments.

Boone's coefficient is obtained by estimating the elasticity of profit margins to marginal costs (proxied by average variable costs). The relation between profits π and marginal costs *mc* is expressed with a linear specification in the logarithms, $\ln \pi = \alpha - \beta \ln mc$, so that the elasticity of profits to marginal costs, β, represents Boone's coefficient. As with the Lerner index, here too it is necessary to proxy marginal costs with average variable costs, assuming a linear cost function. In addition, it was decided to use gross operating profit rather than profit for the year, since gross operating profit is not subject to distortions induced by particular measures of tax law.

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STATISTICAL TABLES

Table 2.1: Sectoral composition of value added at factor cost

(percentage shares calculated on current values)

	1980	1985	1990	1995	2000	2005	2007
Agriculture, fishing and forestry	6.1	4.8	3.6	3.5	3.0	2.5	2.3
Mining and quarrying	0.7	0.7	0.6	0.5	0.5	0.4	0.4
Manufacturing	29.0	25.2	23.3	22.4	21.0	18.3	18.2
Food, beverages and tobacco products	2.5	2.4	2.4	2.2	2.1	1.9	1.7
Textiles and wearing apparel	3.5	3.2	2.7	2.5	2.1	1.5	1.4
Tanning and dressing of leather and the like	1.0	1.0	0.8	0.7	0.6	0.5	0.5
Wood and products of wood and cork	0.8	0.7	0.6	0.6	0.6	0.4	0.4
Paper and paper products	1.5	1.4	1.4	1.4	1.3	1.1	1.0
Coke, refined petroleum products	0.4	0.5	0.3	0.6	0.4	0.4	0.5
Chemical products and man-made fibres	2.0	1.9	1.8	1.7	1.6	1.2	1.2
Rubber and plastics products	1.1	0.9	0.9	1.0	0.9	0.7	0.7
Other non-metallic mineral products	1.9	1.4	1.5	1.2	1.1	1.1	1.1
Basic metals	4.3	3.5	3.3	3.5	3.2	3.1	3.3
Mechanical machinery and equipment	3.4	2.9	2.6	2.6	2.7	2.5	2.7
Electrical machinery and equipment	2.8	2.6	2.3	2.0	2.0	1.9	1.8
Transport equipment	2.1	1.7	1.6	1.3	1.3	0.9	1.0
Other manufacturing industries	1.7	1.3	1.1	1.1	1.1	0.9	0.9
Electricity, gas and water supply	1.2	1.9	2.1	2.2	2.0	2.0	2.0
Construction	7.2	6.5	6.1	5.3	5.0	6.1	6.3
Wholesale and retail trade	14.0	14.4	13.9	13.9	12.8	11.7	11.1
Hotels and restaurants	2.7	2.9	2.9	3.4	4.0	3.8	3.8
Transport, storage and communications	6.6	6.8	6.7	6.9	7.2	7.7	7.6
Financial intermediation	5.6	5.1	4.9	4.7	4.6	4.7	4.9
Real estate, renting and business activities	10.0	13.0	15.1	17.3	20.0	22.1	22.7
Public administration	5.4	6.0	6.6	6.1	5.9	6.4	6.3
Education	4.5	5.0	5.4	5.0	4.9	4.9	5.0
Health and social work	3.7	4.0	4.6	4.8	5.3	5.7	5.6
Other community, social and personal service activities	2.5	3.0	3.3	3.1	3.0	2.8	2.8
Private households with employed persons	0.7	0.8	0.8	0.9	0.9	1.0	1.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
of which: *non-market activities*	*12.8*	*13.6*	*14.9*	*14.0*	*13.8*	*14.6*	*14.5*

Source: Based on Istat, national accounts.

Table 2.2: Sectoral composition of employment

(standard labour units; percentages)

	1980	1985	1990	1995	2000	2005	2007
Agriculture, fishing and forestry	13.4	10.0	7.5	6.0	4.8	4.2	4.0
Mining and quarrying	0.3	0.2	0.3	0.2	0.2	0.2	0.2
Manufacturing	29.1	25.3	24.7	23.2	21.8	20.5	20.2
Food, beverages and tobacco products	2.2	2.1	2.2	2.2	2.1	2.0	2.0
Textiles and wearing apparels	5.0	4.3	4.1	3.5	2.9	2.5	2.3
Tanning and dressing of leather and the like	1.5	1.3	1.2	1.1	1.0	0.7	0.7
Wood and products of wood and cork	1.3	1.1	0.9	0.9	0.8	0.7	0.7
Paper and paper products	1.4	1.3	1.3	1.3	1.2	1.1	1.1
Coke, refined petroleum products	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Chemical products and man-made fibres	1.5	1.2	1.2	1.0	0.9	0.9	0.8
Rubber and plastics products	0.7	0.7	0.8	0.9	1.0	0.8	0.8
Other non-metallic mineral products	1.5	1.3	1.4	1.2	1.1	1.1	1.0
Basic metals	4.5	3.9	3.6	3.5	3.6	3.5	3.7
Mechanical machinery and equipment	2.9	2.7	2.5	2.5	2.6	2.6	2.6
Electrical machinery and equipment	2.5	2.2	2.2	2.0	2.0	1.9	2.0
Transport equipment	2.2	1.8	1.6	1.4	1.3	1.1	1.1
Other manufacturing industries	1.5	1.4	1.5	1.6	1.4	1.4	1.3
Electricity, gas and water supply	0.7	0.8	0.8	0.8	0.6	0.5	0.5
Construction	8.0	7.3	6.7	6.8	6.8	7.7	7.7
Wholesale and retail trade	14.1	16.2	15.7	15.3	15.0	14.6	14.5
Hotels and restaurants	3.0	3.4	3.6	4.0	4.2	4.6	4.9
Transport, storage and communications	5.1	5.2	5.2	4.9	5.3	5.0	4.9
Financial intermediation	2.1	2.6	2.6	2.8	2.6	2.5	2.5
Real estate, renting and business activities	2.9	4.7	6.6	7.6	10.3	11.8	12.2
Public administration	6.1	6.5	6.7	6.8	6.4	5.7	5.5
Education	6.3	6.9	7.2	7.2	6.8	6.6	6.5
Health and social work	4.6	4.9	5.2	5.9	6.3	6.4	6.3
Other community, social and personal service activities	2.6	3.2	3.6	3.9	4.1	4.2	4.3
Private households with employed persons	1.7	2.7	3.6	4.6	4.8	5.6	5.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Based on Istat data, *national* accounts.

Table 2.3: Labour productivity and its components
(average annual percentages changes)

Period	Labour productivity	Capital intensity	Quality of capital	Quality of labour	Composition of supply (1)	Total factor productivity
			Private sector			
1986-90	2.36	0.56	0.13	0.32	0.02	1.34
1991-95	2.29	0.65	0.02	0.52	0.02	1.08
1996-00	1.11	0.32	0.13	0.25	0.01	0.40
2001-07	0.01	0.31	-0.01	0.18	0.02	-0.50
2001-03	-0.97	0.31	0.02	0.08	0.01	-1.40
2004-07	0.74	0.30	-0.03	0.26	0.03	0.18
			Industry			
1986-90	3.06	0.70	0.12	0.19	0.04	2.01
1991-95	3.58	1.16	0.03	0.46	0.00	1.93
1996-00	1.32	0.71	0.07	0.31	0.01	0.22
2001-07	-0.13	0.35	0.01	0.30	0.02	-0.80
2001-03	-1.17	0.51	0.00	0.29	0.02	-2.00
2004-07	0.66	0.22	0.01	0.30	0.02	0.11
			Private services			
1986-90	1.30	0.49	0.21	....	0.01	0.59
1991-95	1.65	0.60	0.03	....	0.01	1.00
1996-00	0.76	0.21	0.21	....	0.01	0.33
2001-07	0.01	0.41	-0.06	....	0.01	-0.35
2001-03	-1.01	0.35	0.00	....	0.01	-1.36
2004-07	0.77	0.46	-0.10	....	0.01	0.40

Source: Bassanetti and Zollino (2008). (1) Measures the effects of sectoral reallocations; in the table it is shown with the opposite sign to ensure the additivity of the components of labour productivity based on aggregate value added.

Table 2.4: A comparison between old and new estimates of total factor productivity
(average annual percentages changes)

	Private sector		Industry		Private services	
	Old	New	Old	New	Old	New
1986-90	1.2	1.3	2.0	2.1	0.4	0.6
1991-95	0.9	1.1	1.9	1.9	0.6	1.0
1996-00	-0.1	0.4	-0.3	0.2	-0.3	0.3
2001-06	-0.9	-0.5	-1.4	-0.3	-1.3	-0.5

Source: Bassanetti and Zollino (2008).

Table 3.1: Job creation and job destruction in manufacturing firms
(percentages)

	Job creation rate in expanding firms				Job destruction rate in contracting firms				Variance ratio (1)
	Total	*of which: permanent*	Frequency	Standard deviation	Total	*of which: permanent*	Frequency	Standard deviation	
Firms with 50 or more employees									
1984	8.5	….	201	262.1	8.5	….	635	614.8	5.5
1985	7.1	….	256	382.6	8.0	….	588	426.2	1.2
1986	8.6	….	289	1.392.8	7.3	….	550	305.1	0.0
1987	8.6	….	450	671.4	8.3	….	577	1.404.8	4.4
1988	8.5	….	457	481.9	8.1	….	535	264.9	0.3
1989	8.7	….	526	367.7	6.7	….	489	479.0	1.7
1990	10.8	….	459	1.476.1	6.9	….	563	236.4	0.0
1991	9.5	….	340	421.2	7.5	….	641	323.5	0.6
1992	6.8	….	222	120.4	9.5	….	723	464.5	14.9
1993	5.6	….	257	122.9	8.8	….	686	399.8	10.6
1994	7.5	….	373	182.6	10.3	….	543	633.4	12.0
1995	8.0	….	544	218.5	6.8	….	398	338.6	2.4
1996	6.3	….	401	92.2	6.9	….	602	209.0	5.1
1997	7.1	….	470	206.8	6.0	….	488	116.9	0.3
1998	9.0	….	413	256.7	6.2	….	531	188.4	0.5
1999	6.7	5.0	473	101.3	7.0	5.7	562	157.7	2.4
2000	6.9	4.9	748	119.9	7.3	6.2	571	178.8	2.2
2001	6.5	5.7	809	74.1	6.7	5.4	796	143.1	3.7
2002	7.2	5.6	798	129.2	7.0	5.4	874	163.5	1.6
2003	6.3	6.1	810	83.2	6.9	5.7	918	126.8	2.3
2004	6.3	5.6	804	75.0	6.8	5.8	885	92.3	1.5
2005	5.7	4.6	811	72.4	6.1	5.2	917	60.3	0.7
2006	6.3	4.7	854	91.2	6.3	5.2	822	102.9	1.3
2007	6.4	4.8	909	64.2	6.3	6.1	741	76.9	1.4
Firms with 20-49 employees									
2001	9.5	8.6	452	15.3	9.7	8.0	354	23.8	2.4
2002	9.6	9.6	477	14.4	9.8	8.1	438	18.0	1.6
2003	10.5	8.8	434	35.0	11.3	9.3	490	25.7	0.5
2004	8.7	6.1	446	14.6	10.2	9.1	492	17.0	1.4
2005	8.7	7.9	463	14.0	10.5	8.4	484	14.9	1.1
2006	9.9	8.0	443	17.6	9.2	7.9	460	17.1	0.9
2007	8.5	6.6	396	14.2	9.8	8.5	419	24.4	3.0
Firms with 20 or more employees									
2001	7.3	6.5	1.261	61.4	7.4	6.0	1.150	121.4	3.9
2002	7.8	6.7	1.275	103.8	7.6	6.0	1.312	135.0	1.7
2003	7.4	6.8	1.244	71.1	7.9	6.5	1.408	104.8	2.2
2004	6.9	5.7	1.250	62.2	7.6	6.6	1.377	76.3	1.5
2005	6.5	5.5	1.274	59.5	7.0	5.9	1.401	51.1	0.7
2006	7.3	5.6	1.297	75.9	7.0	5.9	1.282	84.2	1.2
2007	6.9	5.2	1.305	56.0	7.2	6.7	1.160	64.8	1.3

Source: Based on Invind data. (1) Ratio between the variance of destruction rates and the variance of creation rates.

Table 5.1: Research and development spending

(percentages)

	France		Germany		Italy		United Kingdom		Spain		United States	
	Total/GDP	Private sector share	Total/GDP	Private sector share	Total/GDP	Private sector share	Total/GDP	Private sector share	Total/GDP	Private sector share	Total/GDP	Private sector share
1981	1.90	58.9	2.35	68.9	0.86	55.8	2.38	63.0	0.40	45.0	2.34	69.2
1982	1.99	57.8	2.42	70.2	0.88	56.8	….	….	0.46	47.8	2.51	70.5
1983	2.03	56.7	2.43	70.4	0.93	57.0	2.19	62.6	0.45	48.9	2.58	70.2
1984	2.12	57.1	2.43	70.8	0.99	56.6	….	….	0.47	51.1	2.64	70.8
1985	2.17	58.5	2.60	72.3	1.10	57.3	2.23	64.6	0.52	55.8	2.75	71.6
1986	2.15	58.6	2.63	72.2	1.11	58.6	2.25	68.9	0.58	55.2	2.72	71.3
1987	2.19	58.9	2.74	72.3	1.16	57.8	2.19	68.5	0.60	55.0	2.69	71.4
1988	2.19	59.4	2.73	72.5	1.19	58.0	2.13	69.0	0.68	55.9	2.65	70.6
1989	2.23	60.5	2.71	72.3	1.21	58.7	2.14	69.2	0.71	56.3	2.61	70.5
1990	2.32	60.3	2.61	72.0	1.25	58.4	2.14	69.2	0.80	57.5	2.65	70.6
1991	2.32	61.6	2.47	69.2	1.19	56.3	2.06	67.0	0.82	56.1	2.71	71.2
1992	2.33	62.7	2.35	68.5	1.15	55.7	2.01	66.2	0.86	51.2	2.64	70.5
1993	2.38	61.8	2.28	67.1	1.10	53.6	2.04	66.2	0.86	47.7	2.52	69.4
1994	2.32	61.6	2.19	66.7	1.02	52.9	2.00	64.5	0.79	46.8	2.42	69.0
1995	2.29	60.7	2.19	66.2	0.97	53.6	1.94	64.9	0.79	48.1	2.51	70.5
1996	2.27	61.7	2.19	66.2	0.99	53.5	1.86	65.1	0.81	48.1	2.55	71.8
1997	2.19	62.6	2.24	67.4	1.03	49.5	1.80	65.0	0.80	48.8	2.58	72.9
1998	2.14	62.1	2.27	67.8	1.05	48.6	1.78	65.7	0.87	52.9	2.62	74.0
1999	2.16	63.0	2.40	69.6	1.02	49.0	1.86	66.7	0.86	52.3	2.66	74.4
2000	2.15	62.3	2.45	70.6	1.05	49.5	1.85	64.9	0.91	53.8	2.74	74.8
2001	2.20	63.2	2.46	69.9	1.09	48.6	1.82	65.4	0.92	52.2	2.76	72.5
2002	2.23	63.2	2.49	69.1	1.13	48.7	1.82	64.8	0.99	54.5	2.66	69.9
2003	2.17	62.7	2.52	69.8	1.11	46.8	1.78	63.5	1.05	54.3	2.66	69.2
2004	2.15	63.3	2.49	69.9	1.10	47.3	1.71	62.6	1.06	54.7	2.59	69.1
2005	2.13	62.4	2.48	69.4	1.09	50.5	1.76	61.4	1.12	53.6	2.62	69.8

Source: Based on OECD data (2008b).

Table 5.2: Patent application filed at European Patent Office
(totals and per 100,000 inhabitants)

	France		Germany		Italy		United Kingdom		Spain		United States	
1981	2,768	5.0	6,561	8.4	804	1.4	2,436	4.3	50	0.1	7,408	3.2
1982	2,897	5.2	6,656	8.5	835	1.5	2,583	4.6	65	0.2	8,947	3.9
1983	3,087	5.5	7,780	10.0	1,047	1.9	2,845	5.1	101	0.3	10,062	4.3
1984	3,291	5.8	8,634	11.1	1,219	2.2	2,949	5.2	82	0.2	10,769	4.6
1985	3,682	6.5	9,312	12.0	1,461	2.6	3,218	5.7	123	0.3	11,635	4.9
1986	3,821	6.7	9,741	12.5	1,637	2.9	3,508	6.2	143	0.4	12,076	5.0
1987	4,319	7.6	10,998	14.2	1,927	3.4	3,513	6.2	174	0.4	13,401	5.5
1988	4,745	8.2	11,927	15.3	2,039	3.6	3,993	7.0	206	0.5	15,048	6.1
1989	5,029	8.7	12,106	15.4	2,289	4.0	3,878	6.8	245	0.6	16,522	6.7
1990	4,924	8.5	11,419	14.4	2,242	4.0	3,570	6.3	255	0.7	17,495	7.0
1991	4,963	8.5	11,282	14.1	2,288	4.0	3,466	6.1	321	0.8	17,503	6.9
1992	4,671	8.0	11,454	14.2	2,200	3.9	3,453	6.0	293	0.7	17,876	7.0
1993	4,779	8.1	11,714	14.4	2,262	4.0	3,490	6.1	366	0.9	18,365	7.1
1994	4,992	8.4	12,463	15.3	2,337	4.1	3,668	6.4	392	1.0	19,488	7.4
1995	5,139	8.6	13,008	15.9	2,479	4.4	3,809	6.6	387	1.0	21,683	8.1
1996	5,611	9.4	15,552	19.0	2,887	5.1	4,216	7.3	431	1.1	23,045	8.5
1997	6,235	10.4	17,461	21.3	3,156	5.5	4,593	7.9	586	1.5	25,774	9.4
1998	6,768	11.3	19,521	23.8	3,325	5.8	5,167	8.9	622	1.6	27,976	10.1
1999	7,184	11.9	20,870	25.4	3,707	6.5	5,762	9.9	732	1.8	30,078	10.8
2000	7,254	11.9	21,928	26.7	3,964	7.0	5,927	10.1	796	2.0	30,603	10.8
2001	7,246	11.8	21,662	26.3	3,956	6.9	5,519	9.4	865	2.1	29,783	10.4
2002	7,303	11.9	21,373	25.9	4,173	7.3	5,408	9.1	928	2.2	30,816	10.7
2003	7,824	12.6	21,601	26.2	4,317	7.5	5,355	9.0	927	2.2	31,317	10.8
2004	8,155	13.1	22,423	27.2	4,470	7.7	5,266	8.8	1,174	2.7	32,419	11.0
2005	7,962	12.7	22,888	27.8	4,572	7.8	5,128	8.6	1,245	2.9	33,036	11.1

Source: Based on OECD data (2008b).

Table 8.1: Import penetration rates, by manufacturing sector

(percentages)

	1980	1985	1990	1995	1996	1997	1998	1999	2000	2001	2002	2003
Food, beverages and tobacco products	14.9	18.3	15.6	17.5	17.4	17.5	17.2	18.1	18.6	19.4	17.2	16.8
Textiles, wearing apparel, leather and footwear	10.8	13.1	12.9	18.3	18.5	20.5	20.3	21.2	24.7	26.5	28.9	28.2
Wood and products of wood and cork	19.3	13.6	14.2	16.7	15.4	16.3	16.3	16.2	17.2	16.4	16.2	15.9
Paper and paper products	11.2	12.5	11.4	15.7	13.4	14.4	14.6	15.2	17.1	16.3	15.4	14.6
Rubber and plastic products	19.9	25.1	23.9	30.1	29.8	30.4	30.8	32.0	34.3	35.7	36.3	36.0
Coke, refined petroleum products	14.7	24.2	20.0	18.8	18.8	17.0	14.8	16.1	17.0	16.7	18.8	17.6
Chemicals and chemical products	27.1	29.4	28.4	38.4	38.1	39.3	40.5	41.3	46.3	48.3	48.6	48.3
Chemical products excl. pharmaceuticals	31.8	35.2	33.5	41.2	41.5	41.7	42.9	44.5	47.9	48.1	49.7	....
Pharmaceutical products	10.7	13.5	15.6	28.6	28.2	31.6	33.4	33.3	41.5	48.8	46.1	....
Rubber and rubber products	12.9	12.9	14.0	17.1	17.4	18.0	17.5	19.2	21.8	21.5	20.7	20.7
Other non metallic mineral products	7.3	6.7	7.0	9.3	8.7	8.7	8.8	8.5	8.8	8.7	7.9	7.3
Metal products	19.4	16.7	17.7	21.3	19.5	20.4	21.1	20.4	24.3	24.0	22.9	21.5
Basic metals	41.0	35.3	34.7	36.2	36.6	36.9	38.3	38.6	43.2	45.0	43.7	....
Iron and steel	23.7	22.0	22.6	27.5	27.0	27.2	30.6	29.1	34.5	36.0	34.8	....
Non-metallic mineral products	84.1	61.1	59.0	50.1	51.9	52.2	49.8	51.8	53.7	56.1	55.5	....
Metal products excl. machinery	3.7	3.9	4.6	5.9	5.7	6.0	6.2	6.5	7.4	7.4	7.2	....
Machinery and equipment	23.8	26.4	28.0	37.3	37.2	37.2	38.9	41.0	44.9	46.0	43.2	43.7
Machinery and apparatus n.e.c.	21.7	21.4	21.6	30.0	31.3	31.3	33.0	34.1	36.7	37.9	34.2	35.5
Electrical and optical machinery	25.7	30.8	33.8	43.2	41.7	41.3	43.3	46.3	50.9	52.1	51.2	50.5
Office, accounting and computing machinery	....	....	72.0	102.2	97.5	93.0	89.0	90.2	94.6	90.7	90.8	....
Electrical machinery	....	....	15.0	22.2	22.8	21.0	22.2	21.4	29.1	27.8	27.5	....
Radio, television and telecommunication equipment	....	....	41.4	50.0	41.1	44.9	49.9	62.4	52.0	61.9	62.2	....
Medical, precision and optical instruments	....	....	42.4	49.5	48.6	51.5	50.8	52.9	59.3	61.0	57.6	....
Transport equipment	32.9	35.6	38.5	47.2	48.1	48.2	53.4	54.8	57.3	58.8	61.3	62.1
Motor vehicles, trailers and semi-trailers	45.7	44.2	41.4	54.3	54.0	53.7	56.9	56.8	58.0	59.3	61.3	....
Other transport equipment	12.5	20.3	29.3	25.9	28.2	27.8	40.3	46.7	54.6	57.0	61.7	....
Manufacture and repair of ships	5.5	4.6	13.5	5.1	8.6	9.3	12.5	20.6	30.5	35.4	38.8	....
Manufacture of aircraft and spacecraft	24.9	38.2	41.8	40.4	39.9	37.8	66.9	73.0	87.8	76.1	90.2	....
Manufacture of railway equipment	5.6	7.6	20.8	21.6	26.9	30.5	26.3	31.7	34.0	42.6	35.7	....
Other products of manufacturing n.e.c.	6.1	7.3	9.0	13.4	13.8	15.3	16.1	15.7	18.3	18.3	17.1	16.1
Total	18.0	20.1	20.1	25.1	24.7	25.8	26.7	27.8	30.5	31.1	30.4	29.7

Source: OECD (2008c).

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Table 8.2: Degree of market power, by sector

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
	Boone coefficient											
CA: energy minerals	0.77	0.77	0.85	0.85	0.98	0.96	1.07	1.03	0.93	0.91	0.89	0.87
CB: non-energy minerals	0.73	0.73	0.75	0.75	0.72	0.73	0.71	0.72	0.72	0.71	0.70	0.69
DA: food products and beverages	0.68	0.71	0.71	0.71	0.71	0.71	0.70	0.72	0.72	0.70	0.71	0.71
DB: textiles	0.77	0.77	0.77	0.76	0.74	0.75	0.74	0.74	0.72	0.71	0.71	0.69
DC: hides and leather	0.74	0.76	0.74	0.72	0.72	0.73	0.72	0.72	0.73	0.72	0.70	0.69
DD: wood	0.74	0.75	0.74	0.75	0.73	0.73	0.74	0.73	0.70	0.72	0.70	0.68
DE: paper and printing	0.73	0.76	0.75	0.75	0.75	0.74	0.74	0.73	0.73	0.73	0.71	0.70
DF: refineries	0.75	0.76	0.79	0.80	0.80	0.83	0.77	0.76	0.77	0.79	0.74	0.69
DG: chemicals and man-made fibres	0.79	0.83	0.83	0.80	0.83	0.82	0.82	0.82	0.82	0.80	0.80	0.79
DH: rubber and plastic	0.79	0.81	0.82	0.83	0.81	0.79	0.80	0.80	0.79	0.76	0.76	0.75
DI: non-metallic mineral products	0.77	0.77	0.77	0.77	0.78	0.77	0.78	0.80	0.78	0.78	0.78	0.75
DJ: basic metals	0.77	0.77	0.78	0.78	0.78	0.77	0.76	0.76	0.76	0.76	0.75	0.75
DK: mechanical machinery & equip.	0.77	0.78	0.80	0.80	0.80	0.80	0.79	0.79	0.77	0.78	0.76	0.77
DL: electrical machinery & equip.	0.77	0.79	0.80	0.80	0.80	0.79	0.78	0.78	0.76	0.76	0.75	0.75
DM: transport equipment	0.74	0.77	0.79	0.78	0.78	0.79	0.77	0.76	0.76	0.75	0.76	0.74
DN: other manufactures	0.72	0.73	0.74	0.73	0.73	0.73	0.72	0.71	0.70	0.70	0.70	0.68
E: energy, gas and water	0.71	0.66	0.70	0.77	0.75	0.74	0.74	0.71	0.71	0.71	0.69	0.65
F: construction	0.56	0.56	0.56	0.57	0.57	0.58	0.58	0.59	0.58	0.58	0.58	0.58
G: trade	0.60	0.62	0.62	0.62	0.61	0.62	0.62	0.60	0.61	0.61	0.60	0.60
H: hotels and restaurants	0.64	0.65	0.66	0.67	0.68	0.70	0.68	0.66	0.64	0.64	0.64	0.65
I: transport and communications	0.59	0.60	0.60	0.62	0.62	0.62	0.63	0.62	0.62	0.62	0.61	0.61
J: financial activities	0.60	0.59	0.58	0.60	0.62	0.64	0.63	0.64	0.67	0.65	0.65	0.64
K: other private non-financial services	0.56	0.56	0.57	0.60	0.60	0.60	0.60	0.59	0.59	0.60	0.59	0.58
	Lerner index											
CA: energy minerals	13.8	14.6	31.2	32.9	60.5	67.3	67.1	35.7	34.6	9.0	8.7	68.1
CB: non-energy minerals	22.2	21.5	20.0	20.5	19.3	18.9	19.5	19.7	19.0	18.0	17.0	16.8
DA: food products and beverages	8.3	8.4	8.8	9.4	9.6	9.1	9.1	9.2	8.9	8.6	8.1	8.2
DB: textiles	12.4	11.2	10.9	10.6	10.5	10.5	10.3	10.0	9.4	9.1	9.1	9.2
DC: hides and leather	9.4	8.6	8.0	8.0	8.2	8.4	7.6	7.4	7.5	8.3	8.0	7.5
DD: wood	11.9	11.4	10.4	10.2	9.9	10.2	9.9	9.5	9.1	9.1	8.7	8.7
DE: paper and printing	12.6	13.0	12.3	13.5	12.9	12.9	13.3	12.8	11.2	12.8	10.6	10.3
DF: refineries	6.5	6.0	14.6	8.6	31.4	23.4	4.7	12.8	4.0	5.1	4.7	3.0
DG: chemicals and man-made fibres	13.0	11.9	11.2	11.6	12.0	11.1	12.2	11.4	11.4	11.1	10.3	11.5
DH: rubber and plastic	13.9	13.2	12.4	12.1	11.9	10.9	10.8	10.3	9.6	9.3	8.7	8.2
DI: non-metallic mineral products	15.7	14.5	14.4	14.3	14.8	14.8	14.8	15.5	14.4	14.5	12.9	12.3
DJ: basic metals	13.8	12.1	11.1	11.5	10.9	10.6	10.4	10.0	9.4	10.0	9.7	9.7
DK: mechanical machinery & equip.	11.6	10.7	11.4	11.2	10.9	10.9	10.3	10.2	9.3	9.6	9.3	9.6
DL: electrical machinery & equip	12.1	11.4	11.4	10.8	11.3	11.6	11.7	11.6	11.0	10.7	10.9	10.7
DM: transport equipment	10.1	9.9	10.5	9.3	9.5	9.1	8.7	8.6	8.5	9.1	8.5	6.5
DN: other manufactures	10.5	9.8	9.4	9.3	9.5	9.6	8.8	8.8	8.6	8.5	8.2	8.1
E: energy, gas and water	24.7	19.9	32.5	17.1	32.1	24.2	18.6	17.0	20.6	15.0	13.1	6.8
F: construction	12.8	11.6	10.3	10.0	10.2	9.8	9.8	9.9	9.5	8.9	9.5	9.6
G: trade	5.8	5.6	5.2	5.2	5.1	5.0	5.0	5.0	4.9	4.7	4.6	4.8
H: hotels and restaurants	16.4	16.0	16.2	16.8	16.9	18.0	16.8	15.6	15.0	14.3	13.9	14.5
I: transport and communications	12.5	15.6	22.5	23.4	24.4	22.5	22.5	16.2	24.5	20.6	20.9	12.0
J: financial activities	18.7	22.6	19.3	19.4	19.8	18.6	18.4	20.1	15.6	15.5	15.5	17.8
K: other private non-financial services	16.0	16.1	11.9	12.9	12.0	12.7	12.7	13.3	12.8	12.6	13.1	13.2
Total	10.6	10.0	11.3	10.8	12.3	11.7	10.6	10.7	11.1	9.7	9.2	8.2

Source: Based on Cerved data.

Table 11.1: Incidence of additional pay components set at company level on total earnings

(industrial firms with 20 or more workers; percentages)

Geographical area	Total	Size classes (number of workers)			
		20-49	50-199	200-499	500 or more
Production workers and apprentices					
North-East	12.6	10.8	10.7	12.7	13.0
North-West	12.8	8.9	10.1	11.3	13.4
Centre	9.0	5.8	7.9	9.4	9.9
South and Islands	6.3	2.8	5.2	6.1	10.3
Italy	10.6	5.3	7.8	10.3	11.6
Clerical, technical and supervisory workers					
North-East	20.7	15.6	17.2	20.5	21.6
North-West	22.4	13.8	15.9	19.9	23.7
Centre	15.4	8.5	11.8	16.7	16.9
South and Islands	9.6	3.9	7.6	9.5	15.9
Italy	17.9	7.8	12.0	17.4	20.3
Total employees					
North-East	16.2	13.4	14.1	16.7	16.6
North-West	17.8	11.4	13.1	15.6	18.8
Centre	12.7	7.2	9.9	12.9	14.1
South and Islands	8.1	3.3	6.4	8.0	13.2
Italy	14.9	6.7	9.9	13.9	16.9

Source: Casadio (2008, Table 7), based on Invind data, 2002-06. Data weighted by the number of employees.

Table 11.2: Share of employees earning only the contractual minimum

(industrial firms with 20 or more workers; percentages)

Geographical area	Total	Size classes (number of workers)			
		20-49	50-199	200-499	500 or more
Production workers and apprentices					
North-East	9.4	20.8	12.9	11.4	8.0
North-West	9.7	24.4	13.2	8.9	9.1
Centre	30.6	44.5	32.3	17.4	31.3
South and Islands	47.2	70.7	51.5	50.3	28.3
Italy	22.1	51.5	32.7	19.8	18.7
Clerical, technical and supervisory workers					
North-East	5.7	16.4	10.8	8.3	4.0
North-West	3.4	19.7	9.9	6.1	1.8
Center	28.2	41.1	27.7	14.8	29.4
South and islands	43.4	68.7	48.0	45.8	24.5
Italy	18.1	48.1	29.2	16.7	14.4

Source: Casadio (2008, Table 7), based on Invind data, 2002-06. Data weighted by the number of workers.

Table 11.3: Employment by sector and status of employment, 2007
(percentage shares)

	Payroll employees				Self-employed				Total
	Permanent		Fixed-term		Occasional and continuous collaborators		Entrepreneurs, professionals, self-employed workers		
	full-time	part-time	full-time	part-time	full-time	part-time	full-time	part-time	
Agricultural and fishing	21.5	1.7	21.8	2.9	0.5	0.4	45.2	6.0	100.0
Mining and quarrying	88.1	3.2	4.2	0.9	0.6	0.5	2.5	0.0	100.0
Manufacturing	71.7	4.9	7.2	0.7	0.8	0.3	13.4	1.0	100.0
Construction	52.6	2.6	7.0	0.6	0.5	0.2	34.6	1.9	100.0
Trade	40.6	9.8	5.1	2.2	0.6	0.5	38.4	2.8	100.0
Hotels and restaurants	32.8	15.6	11.0	6.2	0.5	0.8	30.3	2.7	100.0
Transport and communications	71.6	4.3	6.3	1.4	1.3	0.6	13.7	0.8	100.0
Financial intermediation	64.0	8.6	4.1	0.7	1.3	0.8	18.3	2.2	100.0
Business activities	37.3	12.3	5.4	2.3	3.1	1.9	33.7	3.9	100.0
Public administration	85.4	3.8	6.5	2.3	1.1	1.0	–	–	100.0
Education, health and social work	67.5	8.8	10.6	3.2	1.3	1.7	5.1	1.7	100.0
Other social service activities	39.2	21.6	6.1	4.2	2.0	2.8	19.4	4.8	100.0
Total	55.9	8.3	7.6	2.2	1.2	0.9	21.7	2.2	100.0

Source: Based on Istat, labour force survey.

Table 11.4: Employees by sector and profession, 2007
(percentage shares)

	Legislators, senior officials, managers, entrepreneurs	Intellectual and highly skilled professions	Technical professions	I Clerks	Skilled professions	Craftsmen, specialized trades workers, and farmers	Plant and machinery operators and semi-skilled workers	Elementary professions	Armed forces	Total
Agricultural and fishing	12.9	0.5	2.5	1.9	1.6	45.7	3.9	31.0	–	100.0
Mining and quarrying	2.2	7.5	35.7	15.0	3.4	17.9	14.7	3.6	–	100.0
Manufacturing	4.3	3.6	18.1	9.2	3.4	32.5	24.2	4.6	–	100.0
Construction	6.1	1.0	8.0	3.2	0.3	67.9	5.8	7.7	–	100.0
Trade	6.6	2.9	16.7	10.3	40.9	13.0	3.1	6.5	–	100.0
Hotels and restaurants	10.9	0.2	2.4	3.5	73.2	3.5	0.4	5.8	–	100.0
Transport and communications	3.8	2.8	19.5	22.1	2.9	4.4	34.6	9.9	–	100.0
Financial intermediation	7.5	4.4	53.1	29.5	2.2	0.7	0.2	2.5	–	100.0
Business activities	3.6	27.4	32.7	13.5	5.6	8.5	1.6	7.1	–	100.0
Public administration	3.4	10.6	21.1	21.7	19.5	1.9	2.0	2.3	17.5	100.0
Education, health and social work	1.7	31.2	43.5	5.4	9.8	0.9	0.6	6.9	–	100.0
Other social service activities	2.3	8.8	13.5	7.2	27.7	4.7	2.7	33.1	–	100.0
Total	4.9	10.0	21.9	10.3	15.9	18.3	8.8	8.8	1.1	100.0

Source: Based on Istat, labour force survey.

Table 12.1: Firms' short-term debt as a percentage of their total financial debt
(weighted averages)

	Total	Size classes (number of workers)			
		Up to 250	251-500	501-1000	Over 1000
1983	42.2	65.5	56.8	61.7	28.2
1984	47.5	66.3	63.5	59.5	34.5
1985	47.7	67.0	62.7	62.9	31.9
1986	48.6	66.5	63.3	61.2	32.3
1987	49.1	67.2	62.2	62.2	32.0
1988	52.3	68.7	64.1	61.6	34.9
1989	54.5	69.6	66.9	62.0	37.1
1990	55.9	70.5	66.8	66.6	36.7
1991	50.7	68.7	66.7	63.7	30.7
1992	52.0	68.8	66.8	64.3	33.0
1993	58.5	71.6	67.4	67.7	44.0
1994	56.2	72.0	64.1	65.9	38.6
1995	56.6	73.1	59.7	66.2	39.3
1996	63.8	70.7	56.6	55.1	60.7
1997	66.6	69.5	65.7	65.7	64.3
1998	65.0	69.7	64.3	60.0	60.4
1999	64.1	66.6	63.0	63.4	61.2
2000	66.3	67.8	65.2	62.9	65.3
2001	64.9	67.5	65.5	63.1	62.0
2002	65.3	68.1	66.5	65.5	61.8
2003	61.9	67.1	62.2	59.3	57.2
2004	55.1	62.7	63.6	55.5	46.2
2005	54.0	60.9	60.1	54.9	46.5
2006	56.8	67.2	56.9	52.4	48.2

Source: Based on Centrale dei Bilanci data.

Table 12.2: Leverage, manufacturing firms
(weighted average; percentages)

	Total	Technological Intensity			
		Low	Low-Medium	Medium-High	High
1983	55.9	52.1	56.3	59.1	53.0
1984	57.2	54.5	58.3	60.0	52.4
1985	55.4	55.1	54.8	58.3	50.0
1986	53.0	52.5	52.8	55.7	47.0
1987	52.1	52.9	53.3	53.0	45.3
1988	53.1	53.4	54.3	54.8	45.1
1989	53.8	55.0	54.7	55.4	45.0
1990	54.5	56.2	54.9	55.4	47.9
1991	53.1	54.0	52.8	56.3	45.5
1992	56.7	56.5	57.7	60.2	47.1
1993	57.5	55.9	63.1	59.4	48.5
1994	55.4	56.1	62.2	53.3	47.4
1995	55.1	56.7	61.1	53.3	45.8
1996	54.1	55.6	57.8	51.7	49.3
1997	53.7	56.3	52.4	52.3	52.7
1998	54.2	57.6	53.6	51.7	52.1
1999	53.2	56.5	52.2	51.8	49.6
2000	51.1	54.2	51.3	49.6	45.7
2001	52.3	54.8	51.9	52.1	47.4
2002	51.8	54.7	52.4	49.2	49.1
2003	51.0	54.0	50.8	48.4	49.3
2004	49.4	54.2	48.6	46.2	45.9
2005	47.6	51.4	47.4	45.0	43.7
2006	48.1	51.6	49.5	44.7	43.2

Source: Based on Centrale dei Bilanci data.