

Thoughts on Hungarian Industrial Policy—adaptation and
pathfinding

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CONTENTS

| | | |
|-----------|--|-----------|
| | Introduction | 5 |
| 1. | Industrial policy tasks – addressing problems of the Hungarian processing industry | 9 |
| 2. | Basic conditions determining the business environment | 16 |
| 3. | Necessity of coordinating industrial policy objectives with those of other policies | 18 |
| 4. | The tasks, goals and priorities of industrial policy in Hungary | 23 |
| 5. | Place of industrial policy in future development scenarios | 27 |
| | Statistical Annex | 33 |

Introduction

The Hungarian *industrial policy* of the future should be a *competition and development oriented policy* encompassing not only the industry itself, but also numerous segments of the economy. Conceptually, it is much more a horizontal policy – operating with sector-neutral instruments – than a type of sector policy. Thus, in *our approach, industrial policy comprises business policy, innovation and technology policy, as well as competition policy.*

Today's industrial policy must face two challenges:

- it should contribute to the improvement of competitiveness of the Hungarian industry, with considering issues like easing pressures on the environment, or social and employment-related - consequences of structural transformation
- it should promote a rapid integration within the internal market of the European Union

Industrial policy goals, such as improvements in competitiveness, modernization of the production structure, support for SMEs (small and medium enterprises) as well as for environmental issues¹, have become harmonized with those of the European Union. In the course of implementation instruments that conform to EU standards are to be used with aiming at improving cooperation between the domestic SMEs and the multinational corporations, enabling corporate networks, increasing the capacity for corporate innovation, encouraging investments.

In line with the Lisbon goals the EU's new industrial policy has become more

innovation-oriented, providing guidelines for establishing necessary frameworks encouraging entrepreneurs.

As a result of the accession:

- a) Hungary has become a part of the internal market, thus accommodation becomes inevitable
- b) Hungary's state aid system has already been adjusted to fit the goals and the competition policy rules of the EU. As in the development policy of the future the importance of structural funds and the necessary Hungarian co-financing will grow (especially after 2007), we might assume that the guiding role of the EU objectives will strengthen
- c) Due to export-orientation and the preponderance of foreign capital in the locomotive sectors of Hungarian industry, our integration in international production networks in the future will continue to be realized through the mediation of FDI. In the areas where foreign companies dominate already, the direct influence of economic policy is very limited. However, the improvement of the general framework of investments and entrepreneurial activity in Hungary could make this market more attractive to foreign companies, or keep domestic companies at home, enabling their integration. Many studies have also proven that, within certain sectors, as well as within certain corporate groups, differences are becoming greater than between sectors or corporate groups. *Thus, the goal of state institutions desiring to enable industrial development should be instead of pursuing a sectoral approach, the strengthening of broadly-defined competitiveness-capabilities, entrepreneurial skills, access to knowledge and capital, workforce training and mobility-increasing tools. The latter permitting cheap access (as soon as*

¹ See Comprehensive monitoring report on the preparation for Hungary's accession. November 5th, 2003.

possible, perhaps free of charge) of needed information to businesses.

The *quest* for defining industrial policy is not only typical of Hungary, but for other countries of the European Union as well. The Maastricht Treaty enlarged the Community's, and the Committee's industrial policy legroom, without increasing significantly its charters. Industrial policy goals are still drafted by individual member states, while the array of instruments at their disposal is limited by community competition regulation. Thus, the national industrial policies are increasingly relying on horizontal instruments; sectoral² instruments (especially the differing types of assistance available for businesses which are in trouble) are on the wane.

The execution of the goals set by industrial policy is thus the outcome of manoeuvring between the possibilities offered by EU structural policy and the limits set by EU competition policy. Judging by the most recent industrial policy document³, this will not change in the future, either. Thus:

- by adopting the Lisbon Principles, the EU industrial policy will be completed by directly integrating Lisbon goals
- at the same time, the EU's efforts to roll back state aid⁴, in addition to

² The types of assistance given by the European Union to the manufacturing industry: capital allocation, ownership share, preferential credit, tax breaks, guarantees.

³ Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions—Industrial Policy in an Enlarged Europe, COM (2002) 714 final.

⁴ State Aid Scoreboard, Autumn 2003 update, COM (2003) 636 final, Brussels, 29.10.2003 <http://europa.eu.int/comm/competition/>

According to the latest results, state funding as share of GDP in 2001 in the Eu-15 was 0.99% (excluding funding of the agricultural sector, the transportation sector and the fishing sector, this result is 0.38%). Excluding the aforementioned sector-specific funding, 77% of funding serves horizontal goals. Between 1997-2001 state

budget deficits in some old, as well as new member states, leads to the conclusion that state funds available for industrial policy will not grow.

- The EU continues to take an overwhelmingly horizontal approach to its industrial policy, its instruments are increasingly framework-oriented, trying to establish the necessary conditions for the development of a competitive environment. In this interpretation, the three key elements of industrial competitiveness demand the greatest attention: knowledge, innovation and entrepreneurship.
- Although the new industrial policy document alludes to the fact that certain sector-specific aspects must also be presented among the goals, as well as among the instruments of industrial policy (highlighting the sectors which are important to the Union, namely, the chemical industry, automobile production, the pharmaceutical industry, aviation production and the telecommunication sector), but the tasks which are listed here too are more horizontal. As for instruments, the appropriate changes of the regulatory framework which take centre-stage.

Research findings, first of all, strengthen the opinion that industrial policy can only become effective if it can get the state to increase funding for research and development, and/or, if it is capable of creating an environment which can encourage businesses to invest as much as possible in research, in knowledge-acquisition. Considering the fact that the social return on the above-mentioned investments is much higher than the profit-increase businesses would benefit from, the state, cannot afford to extricate itself from this domain, even in the long run. Research results also call attention to the fact that, generally, in the long term, an approach to industrial policy which, relying on

funding as a share of the GDP decreased by 0.16%, the greatest decreases were recorded in Denmark, Germany, France, Portugal, Italy, Greece and Finland.

strategic concerns, protects a couple of industries from impacts of the market, while propping up, with state support, national businesses' leadership position in the domestic market, is doomed to fail.⁵ There are similar experiences regarding the so-called “infant-industry” theory, considering that preferences set at the top don't always take market processes into account, and vice versa⁶.

All of this leads us to the conclusion that the first task of top-down industrial policy is to develop and strengthen those institutions which would contribute to growth even if the state did not interfere directly into market processes.⁷

When assessing possibilities of Hungarian industrial policy, several barriers have to be reckoned with due to certain domestic peculiarities:

- *There has been no strategic document that could be used to establish an industrial policy which would harmonize with the other sectoral policies. A long-term, comprehensive conception is indispensable, which would give the strategic background and framework to the national developmental programs, as well as to the EU co-financed programs. This logical framework would enable defining the weight of industrial policy, its place in the hierarchy, the institutional structure.*
- The strict budgetary policy which seeks to curb expenses in order to improve the budget *balance* and to regain investor confidence *influences, or we*

might say limits development possibilities in Hungary, too.

- Until 2006, an important part of development funds will be allocated, in line with the priorities set *by the National Development Plan*. Out of the five operational programs primarily the goals laid down in the *Economic Competitiveness Operational Program*, as well as, to a lesser extent, those laid down in the *Human Resource Operational Program and the Regional Development Operational Program* which can be connected to industrial policy financing. The weakness of industrial policy's place and role becomes also apparent in the fact that the measures taken by National Development Plan, which, in the end, should also be serving the goals of industrial policy, were articulated earlier owing to the constraints of the situation than the industrial policy itself.
- In our opinion the use of EU funds, will play an even more important role in setting the course for industrial policy during the period after 2006. As with the growth of EU funds will come an increase in co-financed commitments, and this will tie up the entire amount of funds earmarked for development policy in Hungary. *The re-evaluation of structural policy could bring about the necessity of redefining the projects of outstanding importance in the European Union, thereby the narrowing of subsidies allocated to industrial projects after 2007.*⁸
- The European Union's *competition policy* represents a further limitation: according to

⁵ See, for example the German experiment, when, to ease the collapse of East German industry, they tried to save certain key industries (Kernindustrie), or rather, the remains of certain erstwhile big companies.

⁶ Leahy and Neary [1995]: International R&D rivalry and industrial strategy without government commitment”, CEPR Discussion Paper, 1199.

⁷ Christiansen, C. [1997]: The Innovation Dilemma: when new technologies cause great firms to fail, Harvard Business School Press.

⁸ See: Europäisches Parlament: Elisabeth Schroedter: Bericht über den Ersten Zwischenbericht der Kommission über den wirtschaftlichen und sozialen Zusammenhalt, Endgültig A5-0354/2002, October 2002; Sapir, A.: An agenda for a growing Europe, Making the EU Economic System Deliver, Report of an Independent High-Level Study Group established on the initiative of the President of the European Commission, July 2003.

the 3rd paragraph of the 88th article of the E.E.C.⁹

- It must be noted, that *the strategies of those multinational corporations, which have settled in Hungary and nonetheless occupy an important role in the field of exports* (a relatively small number), *will continue to be decisive in the future* for the development of Hungarian industry. Thus, taking this into consideration, industrial policy's area of free movement is quite limited.
- However, one of the objectives of industrial policy's should be to achieve that the development of certain activities (for ex, R&D) together with the increase of the share of domestic added value, become the interest of the above-mentioned companies, as well; and also that these considerations not conflict automatically with short-term profitability interest of these companies. *This highlights the importance of framework conditions, normative support and incentives. Which, of course, implicitly affect all corporate-groups.*
- Different research results and interviews conducted by our organization¹⁰ all concur that *the business sector's expectations towards industrial policy refer to directions where the latter has only an indirect influence on realization:* such as the amelioration of the entrepreneurial environment, the scaling-back of bureaucratic limitations, tax and social security reform, improved harmonization of the different portfolios policies', better coordination of the array of instruments with goals.
- *Institutions which create the possibility for policies to build from the bottom-up, are non-existent or are not sufficiently developed.* These institutions would provide the framework for institutional cooperation among businesses, chambers of commerce, professional organizations, labour representatives and regional institutions.

⁹ Treaty, the committee must be informed in due time of all planned funding, or changes in already existent funding. The member state cannot put the planned funding into practice until the committee reaches its final decision. (Notification process). Based on government resolutions 2073/2002. (III. 21.) and 2330/2002. (XI. 7.), the government wishes to conserve 24 funding activities, of which the Committee found 21 to be compatible. In this respect, the *Accession Treaty* is also a benchmark, as the chapter on Competition enables certain preferences that influence business to remain available for a limited time.

¹⁰ For example, DIUHK, Activities of Bavarian businesses in Hungary, 2003, Combined results of the Konjunktura test questionnaire conducted between 1996-2000, by Kopint-Datorg.

1. Industrial policy tasks – addressing problems of the Hungarian manufacturing industry

In course of the elaboration of an industrial policy we should reckon with the fact that the economic cycle in Hungary is greatly linked with Western Europe's, and foremost with Germany's, and this relationship is not expected to diminish. Concurrently, satisfying the Maastricht criteria requires a stricter budgetary policy, and thus an economic policy with stricter bounds.

Although, during the past ten years, the Hungarian manufacturing industry demonstrated that its ability to *accommodate* to changes in its business environment was impressive, and though this manufacturing industry, along with the development of exports associated with this industry, was the engine of the economy until 2000, nowadays, the *vulnerability* of this path of economic development has also become apparent. *The development of the industry proceeded in an extraordinarily concentrated way.* There are only a limited number of relevant sectors, fuelling economic development (production of electric machines, instruments and vehicles, communication engineering industry and, to a lesser extent, the production of rubber and plastic goods). However, recently, *the above sectors indicated the most noticeable deceleration in production.* A similar *concentration is characteristic for the trend in exports*, as well (62.4% of all exports in 2002 belonged to three groups: electronic machines [26.8%], furnace, machinery and mechanical equipments [24.7%], public road vehicles [11%]¹¹). As to the direction of trade flows, the share of EU countries in total Hungarian exports of goods in 2003, was 73.6%.

Despite of a swift structural change, in 2001 the Hungarian manufacturing industry was still dominated by low- and medium-low technology products. More than $\frac{3}{4}$ of the businesses in the manufacturing industry belonged to these industrial branches, while 66% of those employed, worked in this area. At the same time, the role of labour-intensive branches in exports, in sales and in capital-allocations, has decreased tremendously; foremost to the benefit of high-tech and medium-high technology-intensive sectors. In contrast, the high-tech industries employed 11% of the labour force in the manufacturing industry in 2001, while these branches accounted for almost $\frac{1}{3}$ of exports, and 19% of all revenues. Despite the swift increase in productivity, of the entire manufacturing industry, the level of gross added-value/labour force has a much greater lag in comparison with the EU-15 (52%, 2000), than the similar ratio (61%) measured for the Hungary's entire economy.

In the years 1996 and 2000, the difference recorded between the growth rate of gross production in volume terms and that of value-added, among the five east-and-central-European states which acceded to the union, was greatest in Hungary; the gap grew to over 40 percentage points. In the cases of the Czech Republic and Slovakia this difference is only half that. In Poland, the index moved, on the whole, together with that of Hungary, while in Slovenia, the value-added increased faster than gross production. *While calculated on the basis of gross production and gross wage figures, the rise in the productivity of the manufacturing industry was the highest in Hungary during the period in question; however, based on value added and wages, every country performed better than Hungary (with the exception of the Czech Republic).* Between 2001 and 2002, *the parallel deceleration in productivity and the increase of labour*

¹¹ Clothing and plastic products were not in the first five most important categories of goods; on the other hand products of the inorganic chemical industry, as well as optical products were incorporated.

costs, was most characteristic of the Czech manufacturing industry (aside from Hungary). When comparing the levels of unit labour costs internationally to Austrian levels (based on the ratio of nominal incomes to value-added estimated at current prices¹²), we see that – contrary to the common belief – the level of unit labour costs in the Hungarian manufacturing industry is not especially high compared with the other CEE states. At the same time, one must keep in mind that in the years following Hungary's accession to the EU, relative wage-costs will rise and converge toward the EU average, which might negatively affect both productivity and competitiveness. In this respect, the introduction of the Euro in the future will narrow Hungary's economic even more.¹³

The dynamic branches of the Hungarian exports and industry performed in unison with the tendencies of the global economy. However, it is clear from structural analyses, that the share of simpler, labour-intensive activities, in total employment is still important, albeit its share in exports has decreased significantly. This, today, represents one of the greatest tensions that economic and industrial policy must tackle. Because, if the new structural accommodations require first and foremost changes within branches, their costs are much smaller than if a structural change were required between branches. This is why, in the traditional fields, it would be important to support developments (like networking, R&D) that encourage progress in the case of viable firms – without conserving the present structure. With the increase in the level of wages, labour-intensive activities will

probably gradually move east and south to other countries; it is apparent that this trend has already begun. This future trend will not cause a disturbance for the Hungarian economy if a significant progress can be made in the global division of labour along the vertical line, towards activities that have a higher value-added. In other words, the settlement of activities should be encouraged where knowledge, quality and reliability is required. Concentrating development efforts on a single industry or sector is not cost-effective (because of fast-paced changes, that are oftentimes unforeseeable). Often dynamically developing new activities can be, and are in fact, found in so-called lagging sectors.

In line with international trends, *macro-economic convergence depends more and more on the development and on the efficiency of the services sector*. The productivity level¹⁴ of services has surpassed the level recorded in the industry (and even more so, surpassed the level registered in agriculture); by 2002, the difference in the figures recorded in the gross value added of branches has increased greatly to the benefit of services (to the detriment of industry, and by now, mainly to the detriment of the manufacturing industry). International tendencies confirm that firms in the manufacturing industry are, on the one hand, increasingly outsourcing their strategic services (information technology activities, sales, marketing, human resources management, research and development, etc.); mainly because of cost and quality concerns, or rather, in order to concentrate on their key activity. On the other hand, they are becoming service-providers themselves, mostly by moving this activity to a country or region that has some sort of comparative advantage (for example, lower wage levels). Co-ordination, management, quality control and planning are activities that continue to be

¹² Albeit compensation (according to SNA definition) is not equal to total labour cost, it is closer to it than gross wage, for, in addition to employee's wage, it contains social security payments which is paid by the employer.

¹³ See Oblath Gábor – Péntes Petra: A nemzetgazdaság nemzetközi versenyképessége: értelmezések, mutatók és néhány tanulság, in *Külgazdaság* 02/2004.

¹⁴ It must be noted that the quality of services data leaves something to be desired, both in the EU and in Hungary

executed in the business' headquarters. To make this process successful, investments in training, networking, image forming and info-communication technology are necessary. These processes will gain importance in Hungary, too, during the next couple of years. However, framework conditions have to be made more entrepreneur-friendly.

Similar to international trends, the extent of info-communication technology penetration will define the futures of both the industrial and the service sectors in Hungary. The info-communication sector's share in total value-added of the business sector at the millennium was close to 10%, which is around the OECD average, and somewhat more favourable than that of the EU-15; moreover, it is also the highest among central and east European OECD members.¹⁵ According to main components, the 10% average is provided by the 8.5% of manufacturing industry and the approx. 11% of business services. During the last couple of years, Hungary has specialized in the production of a limited number of segments of info-communication technologies (computer parts and office machines, but mainly communication facilities), similarly to certain EU member states (e.g. Ireland and Finland) and to a couple of other OECD member states (see e.g. South Korea, Japan, Mexico). As regards to the share of the ICT-sector within the manufacturing industry, Hungary takes the lead among the new accession central-east European countries; in respect of business services, only the Czech Republic surpasses Hungary. In the category of business services, the share of telecommunication services is dominant, whilst that of computer industry and related services (e.g. software)

as well as the so-called other info-communication technology services (including the wholesale and leasing of info-communication technology). The increasing importance of ICT-related services (and especially of telecommunication services and software) is typical throughout the OECD region. In 2001, the share of ICT-products within the foreign trade of the manufacturing industry was 28%, which, even when compared with European standards is particularly high. Among current EU member states, this was only surpassed by Ireland, and remained below in case of all countries in the central eastern European region. This is due to the strong specialization in the production of ICT-goods, which can be mainly credited to a couple of multi-national corporations that have established themselves in Hungary. These companies are typically input-oriented, they build mainly on – what by international standards is still cheap – domestic labour, and they export the dominant part of their production. Since, this is mostly an assembly-type activity, the role of importing inputs is also important. The fact that Hungary has cut back on customs duties on imports in the framework of the Singapore Agreement, is an incentive to import ICT products. Due to the above mentioned high degree of specialisation of ICT-production the importance of the ICT-sector in the Hungarian economy is much bigger than the penetration of the use of this products both by firms and by private households. In this respect Hungary's lag is great, not only in comparison with current EU-member states; Hungary is in the mid-field even among east and central European countries. The *cost of internet usage*, which, in great part, determines future possibilities for the diffusion of info-communication technology, was 60% higher in Hungary in 2002, than in the average of the OECD countries. In the telecommunications sector, especially since 1998, after the wave of liberalization, competition burgeoned throughout Europe,

¹⁵ Of those employed in the business sector, in 2001, 7.1% were employed in the info-communication sector, in Hungary. This surpasses both EU and OECD averages. The fact that info-communications represent a bigger share in value-added than in employment leads us to conclude that the sector's productivity is higher than the business sphere's average productivity.

which brought down the cost of internet usage.

Foreign direct investments played a crucial role in the structural shift of both the production and the export of the Hungarian manufacturing industry toward technology-intensive activities. At the beginning of the millennium, the share of FDI rose to 64% of subscribed corporate capital. In 2001, the share within total net revenues of firms with FDI and dual-entry accounting grew to 75%, whilst their share within total export revenues grew to 89%. At the same time they accounted for almost half (46%) of the employed labour. Today, *of the 100 biggest companies, representing Hungary's economic locomotives, ¾ are foreign-managed*¹⁶.

Although the role of FDI in the structural transformation towards technology-intensive production was of a dominant character during the last decade, *in the late nineties, low-tech industry branches*¹⁷ *dominated the group of firms with FDI*. At the same time, it can be observed that an increase in technology level within the different branches comes parallel with the domination of FDI, especially in terms of exports and net revenues. The fact that the high-tech profiles of both foreign corporate groups and the totality of manufacturing industry show much similarity is a clear indication that industrial development, over a longer period than the last ten years, has been increasingly determined by the activities of foreign owned companies. We may conclude, based on the results of business case studies that in the case of foreign-owned companies crucial decision-making, such as market-acquisition and elaboration of strategy, will be made by the parent corporation – especially when

high-tech, cutting-edge technology is concerned. In conclusion, subsidiaries do not function as independent companies, but rather as production units. The fact that, according to surveys¹⁸, those companies that have FDI find *research and development* done in Hungary to be a less-important source of competitiveness, shows that these firms primarily produce goods that do not belong to the first phase of the product life-cycle. FDI will continue to play a defining role in the development of the Hungarian economy, and within it, in the manufacturing industry. This is why it is not enough to concentrate simply on the volume of capital inflow when tackling investment-incentives (i.e. it can go out as swiftly as it came in), instead one must concentrate chiefly on the type of activity that attracts financing (e.g. R&D, applied info-communication technology).

The regional location of the industry also has a lot to do with the territorial positioning of FDI, which continues to show a sharp east-west contrast, as well as a concentration around Budapest. Regional analysis of the business sector proves that the prominent development of micro regions requires at least one of the following four conditions: big business working with foreign capital, business centre must be either in a big city, or being situated in Budapest (as a European-sized agglomeration centre) as well as good transportation (most importantly, highways). Aside from this, the long-term success of investors in a given region can naturally be explained by an array of settlement-structural, as well as societal-social framework conditions. Dynamically developing firms are mostly situated around main transportation routes or economic or administrative centres of a given area. Regional differences encountered when assessing the flow of FDI is also similar. As

¹⁶ Where the share of foreign-owned capitalisation exceeds 50%.

¹⁷ In 1996, based on the share of foreign capitalization, 36% of foreign working capital went to these branches, in the first place, to the food industry. By 2001, this share had decreased to 29%, and concurrently, the attention of foreign working capital shifted toward medium and high-tech.

¹⁸ J. Hamar (2003) Prod Gap: "Mechanisms of Productivity Growth through Inward Foreign Direct Investment" (<http://www.iwh-halle.de/projects/productivity-gap>)

industry still plays a defining role in employment, strategic decisions taken by foreign-owned firms can engender serious local employment-related, and thus social, problems. Although the treatment of the latter is not the task of industrial policy, it can still contribute to the pre-emption of these problems. According to the classification of the Hungarian Central Statistical Office, there are five types of statistical – so called – micro regions. 26 of the micro regions are developing dynamically; they have attracted three-quarters of the FDI.¹⁹ During the past couple of years, foreign investors' interest in investing in dynamically developing and in converging micro regions has also significantly grown. However, often in the seemingly spectacular growth, the activity of a few—often transitory—investors becomes manifest; indicating the vulnerability both of the Hungarian economy as a whole, and mainly that of a couple of less-developed micro regions. Thus, changes in the business policies or market opportunities of big corporations that have settled in these micro regions, could generate a socio-economic shock there.

The difference in productivity between *domestically-owned firms* and foreign-owned corporations (calculated as a rate of gross added-value/employee) has increased significantly during the past ten years, even though domestic firms did improve their market position in both high-technology and labour-intensive branches. Thus, the fast-increasing inflow of FDI fostered in Hungary, as well as in the other East-European countries, the modernization and the catching-up of the manufacturing industry. Our analysis draws attention to the discrepancy between the role of labour-intensive activities in employment and the necessary change of structure needed in order to increase the pace of modernization. Traditional activities are still needed partly

because of the prevailing structure of labour, and partly because of their important role in respect of employment.

It must be noted, that in the case of a big corporations, it is becoming increasingly hard to distinguish between “domestic” and “foreign-owned” firms. Portfolio-investment analysis may show a more detailed picture, however, interpretation remains difficult. E.g. if, instead of professional investors, foreign portfolio investors dominate a company's ownership structure, and the number of small investors is large, then no interest group – at least no identifiable one – will have a defining influence on the company's strategic decisions. In this case, most likely, short-term profitability considerations might play a bigger role in decision-making. In this classical case contradictory interests between the management and the owners may become manifest markedly. If the greater part of the shares of portfolio-investors is handled by investment funds, there is an increasing risk of exercising influence over enterprise decisions. As far as the industrial policy relevance of this issue is concerned, we do not think that the group of firms influenced by portfolio investors requires specific policy treatment.

The group of firms that should be devoted a delicate attention is *the sector of small and medium enterprises*. Domestic SMEs represent a share of 98% of all businesses – which is higher than EU figures –, and their role in employment is also important. At the same time, the falling-back of certain groups of SMEs, the increased lag of competitiveness as compared to big firms, is an enduring danger. E.g. companies employing more than 250 people²⁰ have a share of 65% of subscribed capital, 74% of foreign direct investments, 86% of export revenues and 71% of sales revenues. At the same time, they employ only 51% of total employees. Between 1996 and 2001, the above category of firms expanded its

¹⁹ Based on the aggregate data of firms using double-entry accounting between 1992-2002. State Tax Authority (APEH) database.

²⁰ Firms using double-entry accounting, figures of 2001.

activities most dynamically: their sales revenue more than tripled, while their export revenue increased by over 470%; FDI attracted by this firm category almost doubled in the period concerned. At the same time, the majority of small businesses suffer from a shortage of capital and necessary competitive equipments. Firms with 1-49 employees (i.e. micro-firms measured by EU standards) represent the most numerous group, employing 22% of the workforce²¹. This is the group that has increased its number of employees the most dynamically during the last few years (between 1996 and 2001). Within different branches, one can notice a pear-shaped structure, according to business size²²: a relatively large number of firms (except tool production), cover a relatively modest market share, modest export capabilities, as well as modest powers of attracting capital.

SME-financing is the delicate part of Hungarian business-financing practice. Although it plays an important role in both GDP production and in employment, the average Hungarian SME is relatively small in size. In addition, 40% of these firms is not or hardly profitable, thus not preferred by commercial banks. Their lag in competitiveness is also increased by their weak business and management skills, their low level of capital stock, the lack of efficient market-orientation and by an imperfect knowledge of the European Union. Mitigating the risk of bigger investments is rather difficult for them.

The tax policies of the past few years have not been favourable for small and medium sized enterprises, either: while their average tax burden was greater than that of big corporations, they were not able to take advantage of tax benefits. For SMEs, strengthening networks and the re-orientation toward business services might represent a

break out point. The planned strengthening of regional and local functions could also encourage entre-preneurial spirit. The task of industrial policy is to facilitate a better access to financial services (credit guarantees, access to cash flow credit, encouraging venture capital), and to improve institutionalized forms of representing and enforcing interests of SMEs.

According to international analyses²³ *the brisk diffusion of research findings* is one of the most important factors contributing to the improvement of competitiveness. Thus, slow European growth can also be attributed to the fact that adaptation of new industrial structures as well as the process of diffusing new technologies within the economy is much slower in the EU than in the US. One of the reasons for this is that in the US, research and development costs are shouldered to a greater extent by the business sector than they are in the EU. Business expenditures on R&D as a per cent of GDP (BERD) fluctuated between 2.6-2.9% in the US during the last ten years, showing an upward trend, while in the case of the EU-15, this rate was between 1.6-1.8% (in the case of Hungary, this figure was between 0.4-0.6%). It also seems that in the case of traditional industry branches, it is innovations and the use of ICT that give new dynamism to development, rather than a boost in investment flows. Nowadays, the dimensions of competition have been transformed, the competitive edge have shifted to the local level. Certain areas, or broadly defined regions, have appreciated, since long-term competitive leads materialize in geographically concentrated patterns. Thus special innovative cores can emerge at local level with increased comparative advantages.

Product life-cycles have shortened, which in turn demands greater flexibility and increased ability for accommodation on

²¹ Based on average statistical number of firms using double-entry accounting, 2001

²² With the exception of highly concentrated specialized branches like coke production and oil refining.

²³ O'Mahony Mary - Bart van Ark: EU Productivity and Competitiveness: An Industry Perspective; Can Europe Resume the Catching-up Process?, European Commission, 2003.

behalf of businesses. Big corporations are slimming down, concentrating on their core competences by increasingly expanding the practice of outsourcing, as well as by establishing strategic partner networks. Thus, the key to competitiveness is *innovation*, which is hard to finance, even for big firms, not to mention for a small or medium sized Hungarian enterprises. Networking ease access to financial resources, to highly qualified labour, new markets and the pooling of business services. In case of advanced countries the number and viability of spin-off businesses have become indicators for the quality of relationship between science and industry. Aside from transferring research findings to industry, spin-off businesses also strengthen the *professional* (research and innovation), the *financial* (own revenues) and *employment* (e.g., alternative careers) functions of *knowledge centres*. Unfortunately, in Hungary, a meaningful knowledge transfer has not materialized yet between research organizations, research and development institutions and the business sector. This suggests, that the system of mediating institutions requires further strengthening and support. One possible way for the development of the R&D activity of the business sector could be research and development conducted by multinationals that have settled in Hungary. However, with few exceptions, in the subsidiaries of multinational corporations, R&D is mainly realized via the import of the technology know-how, spare parts and materials as well as of investment goods, instead of implemen-

ting local R&D. Investment-inducing policies, as well as factors influencing the investment climate in general that might encourage the activities of multinational R&D centres can expand in the future, and determine whether further R&D bases will settle in Hungary. At the same time, we must not neglect the fact that a large part of European enterprises are shipping their research activities to the United States, where the regulatory environment is more flexible, funds are more available, and where the supply of professional staff are better tailored to satisfy needs, thus the skill-gap is smaller. According to the latest figures, already 40% of R&D investments made by EU companies are made outside of Europe²⁴. The encouragement of research-development activities in the business sector must be linked much more with the goals of SME policy, since the influence of policy tools is greater here than in case of multinational corporations. The unhaltable wage-convergence reminds that policy tools have to be invented encouraging FDI to settle R&D activities generating a high value added in Hungary.

²⁴ Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions: Some Key Issues in Europe's Competitiveness—Towards an Integrated Approach, COM (2203) 704 final, Brussels, 21.11.2003.

2. Basic conditions determining the business environment

International comparative analyses clearly show that industrial development in Hungary is characterized by a specific duality – although one which can also be observed in the other central European countries (viewed as Hungary’s direct competitors in most areas). The development of public institutions lags behind the impressive progress, which characterizes the modernization of the business sector or the development of financial intermediaries. Gaps in the transparency of regulation, in the curbing of corruption, as well as deficiencies in law and contract security add up to serious lags in competitiveness in the mid-term. According to a comparative analysis²⁵ done by the Enterprise Directorate-General of the European Commission, entrepreneurship (expressed by the number of start-ups) counts as the strength of the business sector in Hungary, while there are insufficiencies in respect of the access to bank financing, the state of human resources, innovative skills, as well as the environmental burden caused by production. The specificities of the tax system, as well as the short-term, often ‘crisis-management’ style of measures, do not contribute to establishing an entrepreneur-friendly environment.

Corporate taxes that represent 2.4% of the GDP, are a mere 2/3 of the EU average. Within Europe, only in case of the other transitional economies are *actual corporate tax burdens* at this or at even lower level (in Poland, Slovakia). However, an important difference is that whilst the level of overall tax burden decreases every year in these countries, in Hungary, it is the other way round. In Hungary, with the significant decrease of the corporate

tax rate, most tax preferences were also abolished. Thus, currently there exists a changing number of different kinds of tax allowances, but not more than 10 to 15. During the last few years, most of these have been made EU-compatible, and certain parts are altered yearly according to economic policy priorities.

According to what we can learn from figures about the way the tax burden has evolved during the last three years, it seems that tax burdens – especially for the smallest firms – are considerable: they cover approximately half to a third of their net revenues, however showing a decreasing trend. On the average, the tax burden of the smallest businesses is higher than that of medium and big business. Big enterprises enjoy over 90% of corporate tax benefits, which is mainly the outcome of a policy introduced during the 90’s with the purpose of attracting FDI to Hungary.

The amount of corporate taxes paid by Hungarian businesses as per cent of the GDP, is one of the lowest in international comparison.

Of the *other taxes* levied on businesses, local taxes are the most important: taxes that are collected on four pretences (industrial, communal, building and estate) impose a significant burden on them. EU accession has brought about changes in this area, too: according to EU regulations, the tax allowances that have been given by the local councils as part of an effort to support local entrepreneurs, must be repealed or modified. However, this affects small businesses less, because, in the past, these tax breaks were mostly bestowed on big businesses.

According to international comparison, *taxes and social contributions on employed labour* are of a much greater burden for enterprises than corporate taxes.

²⁵ European Commission, Enterprise Directorate-General, A Pocketbook of Enterprise Policy Indicators, 2003 Edition.

Taxes and other contributions, along with the administrative burdens of registration, filing returns and compulsory *data provision* – according to entrepreneurs—represent a serious obstacles to the functioning and growth of business, and the increased propensity towards entrepreneurship.

The present VAT tax brackets, even when compared to rates in the EU, are high. The 25% VAT bracket which burdens education and research development, is a comparative disadvantage affecting competitiveness and also emerging as an obstacle of financing certain activities.

In Hungary, during the last five years, one of the most important changes in *corporate financing* was the significant growth in funding from external sources. The fact that, from the end of the 90's on, companies had an *easier access to (mainly) banking funds* is due partly to the improved financial position of the Hungarian banking system and partly to the fact that a real market with competing banks has developed. However, at the same time, the market power and the financial credibility of the Hungarian business sector improved simultaneously, with the stabilization of

the macroeconomic environment which provided for a diminishing risk of enterprise crediting. All this led to a substantial increase of the credit stock granted to companies. *At the same time, the possibilities of acquiring credit are very unequal for the different enterprise categories; this is also reflected* by the considerably high concentration of both credit and customers in the Hungarian banking system.

Until the end of the decade favourable credit programs were almost the only possibility of gaining access to long-term investment credit for small and medium sized enterprises (that suffer from a lack of capital and cannot get easy access to funds via the market), this was especially true for start-ups. In general, aside from low-interest bank loans, *credit guarantee funds* play an important role. These credit guarantee funds as part of state support programs for SMEs have had a big hand in the fact that, at the end of the decade, commercial banks showed readiness when approaching the SME sector, and by sharing the risk, they have increased their SME business branch substantially.

3. Necessity of coordinating industrial policy objectives with those of other policies

Harmonizing the goals of differing policies is also very important for Hungarian industrial policy. It already became clear when elaborating the National Development Plan, that, two crucial elements are needed: on the one hand, a coherent, nation-wide development policy, which could serve as the basis for a framework, when deciding the NDP's priorities; on the other hand, an institution which is capable of coordinating strategic planning and execution. Due to the lack of a vision of development based on a long-term view of the future, which is comprehensive as well as being well-coordinated, it was difficult to provide for a synergy between development projects financed by EU co-financing and those financed out of national resources. Thus, the professional and institutional coordination of different sectoral and horizontal policies is one of the most important guarantees of the efficient implementation of industrial policy goals.

This kind of coordination is especially important in fields like employment and labour market policy, environmental protection, R&D policy, SME policy, energy policy, consumer protection and regional and infrastructure development. In this respect we would draw a special attention to employment and labour market policy as one of the barriers to attracting FDI; there seems to be the imbalance between labour supply and demand. Although labour market developments (or more broadly, the quality of human resources) and industrial production trends affect each other in many ways, (and there could be important economic policy consequences for both of the markets in the long term); it is not quite evident in what way the labour market and the product market influence each other, because of the

complexity of interactions that appear in these markets.

These anomalies, and the importance of indirect effects²⁶ also turn up in international literature. *Complementarity can be observed as the general connection between industrial and labour market policy.* The experience of the OECD countries shows that elimination or restriction of commercial and competition barriers brings challenges to labour market policy in improving employment in the long-run. Recent trends show that the share of wage costs within total costs tend to decline. The increasing specialization of branches with a greater growth potential could have a favourable effect on employment and real wages. Policies encouraging an increase of competition obviously engender lay-offs, and usually cause greater job loss in those branches that had been more regulated. Consequently, it is important, on the one hand, to use active labour market instruments, in other words, to speed up the re-employment of those who had lost their jobs, on the other hand, to have passive instruments at disposal, i.e., to provide for a minimal living standards and survival of those who have been laid-off. Policies that encourage competition in production endanger the job security of certain groups of workers. Job security may grow for those who are already inside, which will decrease the job security of those who are outside (the 'insider-outsider problem'). However, studies have found that regulation of product markets has a

²⁶ The OECD's study analyses such interactions: OECD (2002) *And the twain shall meet: cross market effects of labour and product market policies*, Chapter 5, pp. 254-300. Nicoletti et al. (2001): *Product and Labour Market Interactions in OECD Countries*, Based on OECD Economic Department Working Papers No. 312.

less positive impact on job-security than what labour market policy itself can guarantee, especially through the right employment laws and system of unemployment allowances.

Labour and product markets affect each other in complex ways, which must call on policy makers to be prudent when wishing to use the effects of one market to attain goals in the other market. It is obvious that strict regulation on job security will limit companies' innovative ability, thus stifling the possibilities for economic growth. More in-depth analyses, however, refer to more complex interactions: measures aimed at preserving job security can also encourage R&D activities and investments, depending on the prevailing system of wage negotiation and the specificities of the technology used in a given branch. Although for policy makers a relationship between the fostering of competitiveness and the tasks of labour market policy can be demonstrated, considering reciprocity of major effects of these policies, *complementary policy tools* are necessary.

Human resources that satisfy the needs of industry are an important part of the relationship between industrial policy and labour market policy. The adequate qualification of those entering the job market depends on the relationship between the job market and education. An important and topical issue for employment policy is the functioning of an *information system*, which provides necessary details and points out imbalances between the structure of education and the needs of the economy. *One of the current priorities of employment policy is the elaboration of an appropriate system of long-term forecasts on labour demand and with adequate methodology.* Articulating the needs of the industry could be one of the elements and inputs of such an information system. Professional debates have not yet come to a conclusion as to what kind of intervention is needed in the system of education and training to deal

with the over-qualification of those with college degrees and the lack of those with certain professions. Other preferences of industrial policy (like the development of the ICT-sector, the strengthening of e-commerce, the fostering of R&D in the business sector) indirectly help to satisfy the labour demand in more developed branches. At the same time, in certain companies, sectors and regions, with the right type of vocational training completed by special training tailored to the needs of firms themselves can solve problems of labour demand and supply locally. However, training cannot ease short-term or ad hoc demand, as it can only supply the required labour force with a certain time lag, and could even lead to a new oversupply cycle. When considering alternative development paths, industrial policy should encourage company decisions that do not endanger competitiveness and efficiency, and come with the slowest cut in employment. (e.g. when choosing an optimal method and timing for the introduction of new high-tech methods.)

The task of employment policy is to introduce non-traditional, flexible forms of employment, thus increasing the number of jobs and the number of employed. One of the important preconditions for this is a possible decrease in taxes and social contributions on employed labour, doing so would encourage flexible and competitive forms of employment. Funds and instruments made available to employment policy can support the spread of more flexible and atypical forms of employment. EU funds may also be relied upon when aiding the employment of certain social groups (the disadvantaged, Roma groups, the reconciliation of female labour and the family, equal opportunities).

The number of employed in the industry will probably not change much, but significant shifts in its technological and in professional structure may be expected. This is expected to further strengthen

partial labour market imbalances, over-supply and shortages in the labour market. With constant and flexible labour market policy tools like (re)training schemes, and with service-provider type, workforce mediation, these problems can be mitigated. The establishment of a new type of labour service organization that provides a constant check on efficiency could support the implementation of adequate instruments and methods. This type of restructuring of the labour service organization is one of the priorities of the Human Resource Development Operational Program and thus can be supported by EU funding (ESF)

A rapid expansion of training facilities, the sudden rise in the number of pupils in certain types of schools has led to insufficiencies in the quality of education, and the preference of certain professions caused an over-supply in the *short-term*. There may be tensions between the expectations of graduates of certain school types and the reality awaiting them in the labour market. The anomalies of the school system can be compensated by the training of the labour force, and by offering different types of life-long learning programs. Life-long learning and improving the adaptability of labour force is also one of the priorities of the Human Resource Development Operational Program. Thus, EU funds (ESF) can also be used to support basic education and vocational training as well as to promote entrepreneurial skills (employment policy). Aside from developing the institutional system and the content of education, the task of *education policy* and the *educational-financing* is to provide the necessary guidance and incentives, and also to spread the costs between those professions that promise more financial rewards and those that promise less. Limited tuition-free education can have significant effects on the career choices of graduates of higher education. Short-term elevated returns (which compensate

shortages) offered by certain types of education (such as economics), i.e. high wages in the category of entry-level jobs, decreases with market saturation; because of these forces, the demand for training changes direction.

The transformation of vocational training and adult education for those groups that become excluded from the labour market represent a serious danger, as lower-level day-time education and adult education both get pushed back. It would be expedient to enable access to traditional lower level education (which represents, nevertheless a quality education), either through the educational system or through a part of employment policy, in the framework of adult education and workforce training. This is supported both by EU funds and by the national HRDP priorities. Planning of the structure of labour supply, or incentives to push labour toward professions with prevailing labour shortages, in themselves are not the best solutions to ease imbalances. Training programs which can take up to five years, may hardly accommodate to short-term market needs and might cause newer, unneeded cyclical developments in the economy and on the labour market.

Regional differences have remained unchanged. While certain regions show high unemployment figures, in other regions and in certain professions labour shortages occur. Due to the prevailing situation in the real estate market and other factors hindering mobility, the permanent and intermittent migration remains modest, even beyond the boundaries of the counties, thus regional mobility is not contributing to the increase in the adaptability of labour. Without more radical economic incentives enforced by *regional policy*, fragmentation of the labour market will increase. Short-term labour market imbalances and labour shortages (as inner-mobility is limited), might be eased by daily commuting or by,

the temporary employment of foreign labour with specific contracts (for ex., the cases of Suzuki's employment strategy and Benetton, which has newly relocated from Slovakia. Interviews with chambers of commerce attest to similar needs; for ex. our consultation with the German chamber of commerce).

When tackling the tasks of industrial policy and employment policy at the regional level, one could also rely on the arsenal provided by *regional policy*. Regional policy's main goal is to enable balanced regional development, and to prevent backward regions from falling behind. Of all the ROP's (Regional Operational Program) short-term goals, it is the strengthening of economic potential in certain regions that can be most easily combined with the goals of local industrial development. The development of the economic environment may be promoted in the first line via improved accessibility (i.e. by developing local infrastructure and improving network relations between micro regions) and through the rehabilitation of brown field areas in settlements. One of these activities is the rehabilitation of areas that are attractive to tourists, rich in monuments, and mostly populated by disadvantaged groups, another is the development of tourism-related capacities. The ROP supports the development of small and medium-sized enterprises foremost through training programs improving the professional knowledge of SME employees²⁷. The competence of regional development has been constantly migrating during the last few years between the different ministries, indicating that it did not achieve a similar standing as in other countries (like France, Ireland, Great Britain). Law No. XXI. of 1996 established the NUTS II regions and the Regional Developmental Committees, which however, could not become defining

players in respect of development policy because of a lack of real political and economic functions, as well as of financial facilities. The planned amendment of the Law on Regional Development, which would increase the scope of decision-making of regional players, and promises an increased decentralization of resources, could change this situation. Fusing the outcomes of the development of industrial branches with local needs, as well as with harmonized local initiatives could open up new possibilities for coping with local employment problems; in addition, it could enable the development of new functions for the given region. This assertion is bolstered by the fact that the size of funds that are at the free disposal of regions will grow in the future. These funds may be used to improve competitiveness, aid the investment of local councils, as well as to develop human resources.

A common objective of regional development, employment and industrial policies is the handling problems of industrial branches in crisis situation that have an important role in employment in a given area. Previous analyses suggest that saving companies or branches with competitiveness problems – if structural adjustments did not prove to be successful on the whole – will be even less feasible in the future. Similar trends can be observed for example currently in East German states, where the reallocation of jobs to lower-wage regions (mainly labour-intensive industries, among others, the clothing industry) seem to be unstoppable; at the same time alternative ways of tackling severe employment problems have not yet materialized. As a result of this, the compelled migration of the economically active part of the population of working age is exacerbating the already serious demographic tensions.

Similar Hungarian examples warn us that short-term, 'crisis management' solutions do not help, and that the three above policies (industrial, employment and

²⁷ Office of the Prime Minister: Regional Development Operational Program, April 2003, pp 26, 96.

regional development), supported by institutions representing local professional and social interests, must act in a coordinated way.

On the basis of the reciprocal effects of industrial, employment and regional policy, we can say that in order to foster competitiveness the elaboration of *complementary policies* taking into account conflicting effects, is needed. Social dialogues, tripartite, and less-well

functioning bipartite talks can play an important clarifying-harmonizing role when tackling issues where the conflicting goals (competitiveness and employment security, environmental issues, health concerns on the job, etc.) of complementary policies emerge.

4. The tasks, goals and priorities of Hungarian industrial policy

International examples (Ireland, Finland, Spain, Portugal) show that in rapidly modernizing countries, successful national industrial policies were supported by a (broadly defined) infrastructural development (the creation of road and rail networks, i.e. physical infrastructure, as well as the provision of information-flow, dispersion of knowledge, financial and consulting-related institutional networks) and by governmental measures pursued with the purpose of spreading high-tech innovation and know-how. Beside giving preference to foster knowledge-oriented activities (for ex., the system of tax breaks that encourage R&D activity, and related investments), priority was given to export-orientation, increasing the power to attract FDI, counter-balancing SME competitiveness lag and enabling labour market mobilization.

In our opinion, the current level of development, of the Hungarian economy, the bulk of modernization tasks, forces us to consider also other aspects of industrial policy than the EU does. *EU industrial policy places the utmost importance on investing in knowledge-oriented activities. Hungarian industrial policy has little leg-room, and aside from adopting the governing principles of the EU, it has to put more emphasis on enabling direct investment (such as providing for infrastructure-development and big investments), on the development of capital formation. At the same time, goals (in harmony with the Lisbon Strategy), like the increase of added value, the development of human resources (education, training), as well as the support of research and development must be more forcefully articulated than they have been so far. Moreover, industrial policy should address also issues like the increased mobilization of private business capital (one of the basic requirements for modernization in Hungary),*

the increased transparency of state aid policy, a new evaluation of challenges facing SMEs by increased competition due to accession, excess levies on enterprises associated with the accession (e.g. environmental issues, health and labour regulations, consumer protection, etc.), as well as guaranteeing the stability of the macro-economic and the regulatory environment.

It should be an important macro-economic policy goal in Hungary that the industrial policy become a long-term strategic document, not merely one with a short-term, crisis management approach. This is made difficult by the fact that – as it has been referred to earlier – until 2006, the development path set by the National Development Plan of Hungary is fixed and approved by the EU. Thus, the assessments of post-accession experiences might elicit unforeseen strategic and instrumental corrections. The Hungarian industrial policy should be considered as part of the overall development policy, and accordingly, it should have a basic influence on the priorities of the National Development Plan to be set after 2007. An obstacle to be tackled is that the industrial policy should comprise many goals, the implementation of which assumes the harmonization of the policies (goals, means, resources and institutional frameworks) of several branch ministries. Consequently, the institutions responsible for industrial policy must detain adequate competence of being able to enforce this coordination.

According to what has been said so far, we recommend the following hierarchy of goals in case of the Hungarian industrial policy with making efforts to integrate the objectives of the new EU industrial policy (figure 2) and those of the Lisbon Strategy (figure 3).

Figure 1

Suggested goals and priorities of Hungarian industrial policy

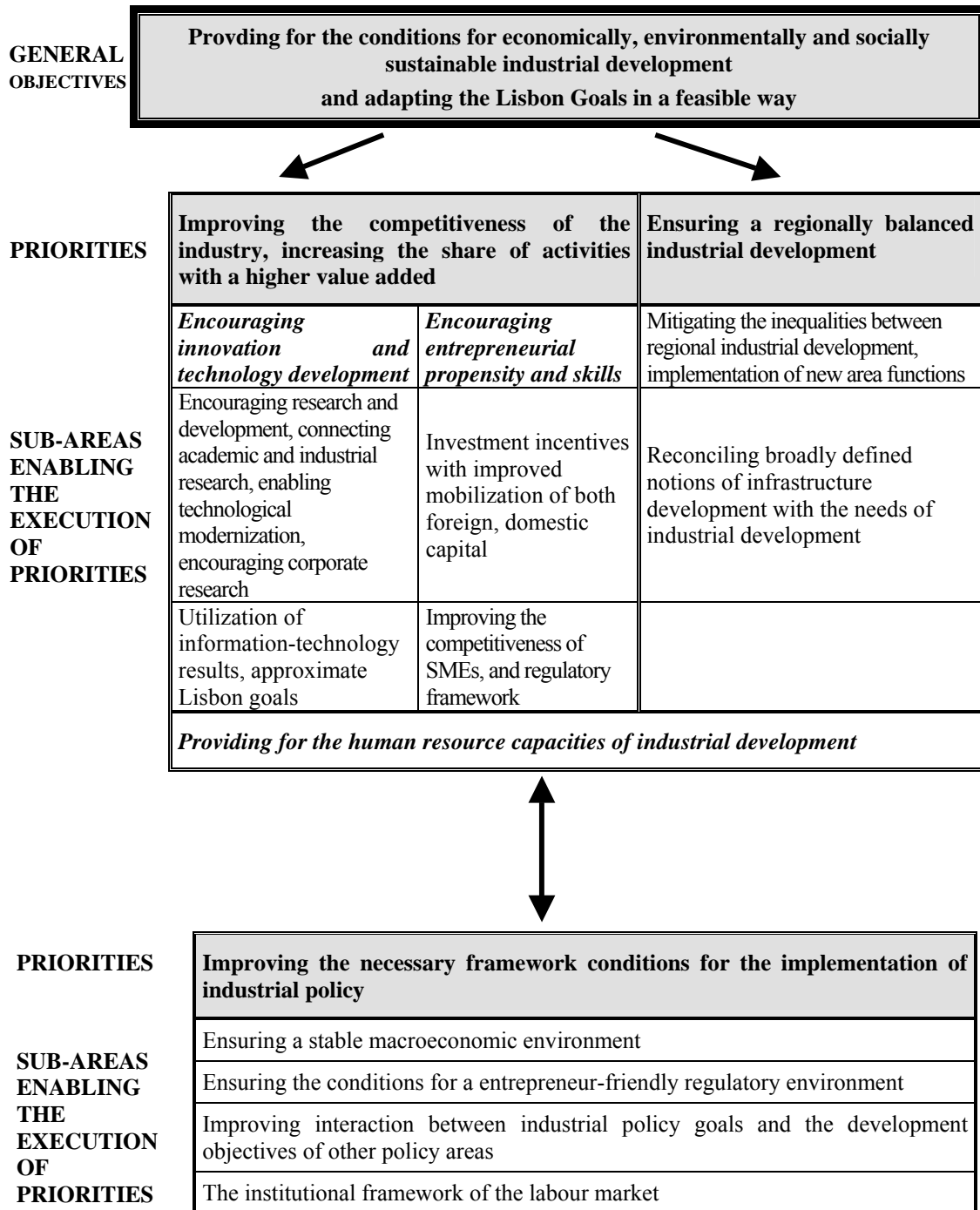


Figure 2

Framework for a new EU industrial policy

- 1) Improving the competitiveness of EU industry
- 2) Handling the implications of Enlargement for EU industry
- 3) Challenges facing the EU:
 - Globalisation
 - Technological and organizational changes
 - Innovation, entrepreneurship and research
 - Sustainability and attending to the societal demands by means of industrial policy
- 4) Means to achieve improved competitiveness:
 - Stable macroeconomic environment
 - Perfecting internal market integration
 - Increase qualifications
 - Further progress toward a unified internal services market
 - Development of energy, transport and communications networks
 - Social cohesion
- 5) Presence of Lisbon goals in EU industrial policy
 - Keeping in mind the three-fold goal of innovation, research and knowledge (means: technological platforms, investment in human resources, innovation clusters and networks, defence research)
 - Encouraging entrepreneurial spirit (means: education, development of financial services, stable budgetary policy)
 - Sustainable industrial development (means: best practice, recycling, clean technologies, vindication of environmental considerations throughout the product's entire life-cycle, PPP in R&D)
- 6) Regulatory framework: (market rules, institutional background securing market functioning, vindication of specific laws relating to goods and services/security prescriptions, consumer protection prescriptions, etc./ entrepreneur-friendly environment)
- 7) Providing for a better integration of EU policies (especially in the domains of trade policy, single market-related policies, R&D policies, competition policy, regional policy, employment policy, consumer protection, environmental protection).

The Lisbon Goals and framework requirements of implementation

Lisbon Goals

- 1) The EU should become the world's foremost dynamic and most competitive region. Growth should come together with job creation.
- 2) Establishment of a knowledge-based society, by facilitating the access to information
- 3) Strengthening of the European social model through investing in human resources.
- 4) Ensuring the broad diffusion of information technology, fulfilling the requirements of the digital society.
- 5) Speeding up market liberalization through the strengthening of competition.

The 4 basic requirements without which the Lisbon goals cannot be realized:

- 1) In order to uphold a stable macroeconomic framework, the aim towards the consolidation of the national budgets; and towards the requirements of the Stability and Growth Pact should be respected.
- 2) The level of employment and productivity remains too low to generate a development path of dynamic growth. The unsatisfactory investment activities are particularly acute in three areas: investments in info-communication technology, investments in human resource development and in education, and new investments in order to broaden research.
- 3) Further intensifying internal market integration. The integration of the goods market has slowed while the services market remains fragmented. Although services make up 70% of the EU's GDP, there are still many barriers to a free movement of services extending beyond the border. In certain markets, liberalization is showing a slow progress. The national transposition of the 70 Lisbon directives is implemented very slowly.
- 4) Securing growth sustainability. Growth has to contribute to perfecting societal cohesion, and to mitigating burdens on the environment.

5. Place of industrial policy in future development scenarios

It will take a decade for the Hungarian manufacturing industry to reach the productivity of the average of the EU 15 – assuming the current pace of convergence and the prevailing structure of the economy. The lag in respect of public services is similar to that of industrial productivity (with 32%, fairly high, even by international standards): an improvement in this field would help to speed up the process of catching up, whilst a further backfall would deepen the gap.

Structural changes and adjustments in the ownership pattern in case of the manufacturing industry in Hungary as experienced in the past decade, as well as international development trends in case of locomotive branches, draw attention to the fact that we cannot base a vision of the future on the extrapolation of current structures. Since production in case of the major export-oriented branches (where sales go almost exclusively – up to 90% or even more – to foreign markets, like the manufacturing of vehicles (34), the production of electric machines (31), communication engineering industry (32), as well as the production of office materials and computers (30)) is based, to a great extent, on assembling parts, and mainly on the building-in, and further processing, of imported inputs. Via multinational corporations that invest in the country, production in Hungary is fitted into an internationally (globally) integrated production-sales network. Although these branches belong to the technologically high or medium-high intensity industrial branches, their activities concentrate on the production phases of the added value chain, which require a less qualified labour force, where wage costs competitiveness represents a serious motivation for investing.

Inputs required for goods produced (assembled) in Hungary, are arriving, with increasing value, from countries with lower

wages than in Hungary (especially from Asia), whilst the machines necessary for processing come mainly from developed countries. It would be unrealistic to expect that an increasing share of imported input parts could be replaced by domestically produced goods, as in this respect cost-competitiveness considerations are of a decisive role and not the availability of required technological capabilities. As a consequence of the great import dependency of exports, despite of the significant expansion of exports, the country's commercial balance shows only slight improvements.

Speciality of the division of labour in respect of production and sales in a globalized world is that the phases of productions and marketing become increasingly fragmented and are settled in different parts of the world. Consequently, at the different production locations the work-phases are becoming increasingly segmented, thus it becomes difficult to gain an overview of the entire production-sales process, and it also becomes hard to influence this complex procedure. The low level of value added in case of export-oriented branches is primarily the effect of this phenomenon.

However, in case of the Hungarian export-oriented branches the apparently and steadily decreasing level of gross added value as compared to gross output is an unfavourable trend. Between 1992 and 2001 this ratio fell by 18 percentage points in computer production, 13 points in communication engineering industry, 11 points in the electric machinery industry and by 8 in vehicle manufacturing. This explains why, despite the significant “export-boom”, the share of value added of the above branches within the total value added of manufacturing industry does not grow proportionally, even if the rate of growth of value added is in these branches the highest. All of this also reflects the weak

efficiency of government programs supporting domestic suppliers.

The type of transnational mergers that took place predominantly in the field of telecommunications, electronics, automotive, chemical and food industries, which fundamentally determined the forms and the directions of structural change in international industry during the 90's, sped up globalisation and narrowed the freedom of national governments, generated such swift changes that could not be predicted by most forecasts. *Thus, medium-term structural changes in the Hungarian manufacturing industry will probably be determined in the first line by the actions and motivations of multinational corporations, and to a lesser extent by the EU accession itself.* This view is underlined also by the fact that one of the explanations for current competitiveness and employment problems facing the EU is that the national governments failed to implement an adequate policy-mix to tackle the challenges of globalisation. Thus, for example, the current problems facing the eastern states of Germany suggest that the state – even if the availability of necessary funds is granted – cannot stop (perhaps it may only slow down) the process of moving jobs to other regions for comparative productivity and cost advantages. Whilst the settlement of new activities, which could bare higher costs even with state support, cannot take place from one moment of the next.

Although the structure of the Hungarian manufacturing industry is increasingly similar to that of developed countries, including developed EU-member states, and the dominance of new high and medium-high intensity technological branches becomes more and more manifest; the specifics of fitting into the international pattern of industrial specialization and division of labour raise questions relating to the sustainability of its industrial performance, its development and export potential already in the medium-term. Since the locomotive

branches of exports (vehicle manufacturing, electric machinery industry, communication engineering industry, and office and computer production) made up 63% of the exports of the Hungarian manufacturing industry (2001), we have to draw attention to the possibly strong dependence of Hungarian exports on international economic cycles – which will probably continue to strengthen during the next couple of years; this could cause significant fluctuation in performance. The effects of this could be felt during the past few years (2001/2002), due to the deepening economic downturn in Western Europe: a break in the export boom took place in those branches which had provided export's dynamism during the preceding years.

We have to reckon with that the specialisation on production phases demanding less qualified labour in the most dynamic branches of industry, makes the mid- and long-term sustainability of industrial development more volatile. With EU accession, wage convergence will continue, probably in an accelerating rate. This process might be slowed down, but it cannot be stopped. *A responsible industrial policy, however, cannot base the industry's international competitiveness on temporary advantages that could erode from one day to another.* Many advantages enjoyed prior to EU accession, which were of importance in attracting FDI into locomotive branches (e.g., long-term tax exemptions and other breaks, exemptions from duty, low wages in international comparison) will gradually vanish. We can count on increased competition for the attention of foreign investors not only on behalf of the other central and eastern European countries but on behalf of rapidly industrializing developing countries as well. In the course of this the scope for action of economic policy is narrowing, while its instruments are changing. In this global race, unequal conditions and the sometimes-differing rules of the game imply that Hungary cannot always compete in every field. Thus, wage

convergence (as one of the requirements of a socially sustainable development) seems to be an unavoidable bi-product of the catching up process, bringing about a gradual delocalisation of low-wage, labour-intensive jobs. This process has already been characteristic for Western-Europe for decades, whilst in Hungary, it has only started and should hold on during the next few years. It is motivated by the decisions of multinational corporations striving for profit optimisation, being hardly under the control of economic policy.

Thus, under these conditions the general objective of the industrial policy in Hungary as advised in the frame of this paper²⁸, can only be achieved if a structural shift can be enforced towards activities with higher added value; i.e. encouraging the development of business related services. Under these conditions, industrial policy should strive to improve the attractiveness of the Hungarian economy for FDI, should foster a durable settlement by improving the general framework conditions (like reliable economic policy, more efficient economic coordination, infrastructure development, etc.), and by stimulating the qualitative transformation and modernization of the Hungarian industry. The already mentioned shift towards activities with a higher value added could be fostered by the improvement of the efficiency of education and training, by employment policy tools, as well as by fostering the implementation of R&D and info-communication technology results in the practice, as well as encouraging cooperation between research facilities (including universities) and industry. In respect of facilitating investment, it is not enough to concentrate on the volume of FDI invested, but the quality and sustainability of the planned activity should also be cared for. More attention should be devoted to the

improvement of opportunities of SMEs in entering sub-contracting networks.

Thus, if we would strive for drawing up some sort of priority list in respect of overall objectives of industrial policy in Hungary, then:

- 1) the first priority should be *improving the competitiveness of industry, increasing the share of activities with a higher value added, and within this frame, encouraging innovation and technological development.*
- 2) the second pillar would be *encouraging entrepreneurship and skills.*
- 3) The third most important area is *the improvement of framework conditions.*
- 4) At the same time, the issue of *human resources development* is inseparable from the other priorities.
- 5) The priority “*Ensuring a regionally balanced industrial development*” is *closely related to other priorities, especially to that aiming at environmentally and socially sustainable industrial development* whilst at the same time raises questions to be tackled already in the short run.

Future scenarios of industrial development, in Hungary depending on the achievement of the above-mentioned goals, can be outlined as follows:

²⁸ Providing for the conditions for economically, environmentally and socially sustainable industrial development and adapting the Lisbon Goals in a feasible way

A. Optimistic scenario:

The qualitative transformation of the Hungarian industry continues, and a gradual increase of the share of activities with a higher quality added-value takes place. As a result of EU accession the country's ability to attract FDI as well as future prospects of production and sales improve, and the country manages to cope with the increase of competition. Hungary succeeds in using EU support with higher efficiency, which favourably affects framework conditions and the process of a qualitative convergence. Substantial progress can be achieved in establishing preconditions of an e-economy, being a prerequisite, or even more one of the pillars, of a qualitative transformation in the industry. The structural adjustment of the manufacturing industry goes on without any major disruptions. The delocation of labour-intensive activities takes place only gradually, whilst being replaced by new types of activities. The withdrawal of the most important multinational corporations from Hungary can be averted, especially as a result of the modification of their activities. The competitiveness and the ability for cooperation of domestic SMEs improve. A rapid development takes place in respect of business-related services.

B. Pessimistic scenario:

As a consequence of EU accession, problems in competitiveness become more marked; the country's ability to attract FDI weakens. The decisive part of Hungarian firms, especially the SMEs are not able to cope with the increased competition in the internal market. Qualitative structural transformation of the industry cannot be achieved, as a consequence of the slow pace of adjustment, growth in the locomotive branches of the industry slow

down, and the delocation of certain activities generate acute local difficulties, which cannot be easily handled. As a result, in some areas serious tensions may occur especially in respect of the labour market. The modernization process of the economy and the industry comes to a standstill, and a substantially slower growth path will be followed. There will be no substantial improvement in respect of R&D, education and vocational training, or progress of information society, the penetration of ICT. As to the latter, the backwardness of Hungary when compared to the rapidly developing countries of the world increases. The ability of SMEs in coping with new challenges worsens, only a limited number of firms will be able to improve their market position. The use of EU support shows only a slow progress, and efficiency and absorption problems become more manifest. The scope of possibilities of the Hungarian industrial policy becomes more and more limited, all efforts have to be concentrated on tackling crisis situations. Instead of an active role in being able to shape and influence the future trends of development, industrial policy is forced to a passive role of preventing acute difficulties.

C. The most possible scenario:

In some areas, the adjustment of the industry accelerates, even if not quite smoothly, only slowly and steadily. This transformation process will have losers and winners, as it used to be in the past as well. EU accession will bring advantages and disadvantages as well. The participation in the single market will bring increased competition, which will be confronted successfully by a part of the enterprises, however the dislocation of certain less competitive activities will

speed up. After some preliminary difficulties, EU supports will be successfully committed, and their efficiency – followed by a learning process – will improve. Even if the delocation of activities in certain locomotive branches cannot be hindered, this turns to be a smooth process, and part of these activities can be replaced by others. With the help of more efficient government programmes the market position of the SMEs can be improved, however the necessity of adjustment might generate severe problems for a great number of SMEs. Progress is achieved in establishing an e-economy, however convergence will not turn out spectacular, showing substantial sectoral and regional imbalances. An efficient dynamisation of R&D will take place only in certain fields. A special problem might be that multinationals will not be ready to

relocate R&D activities with high value added from the company centre or from other developed countries to Hungary. The inflow of FDI accelerates after accession, however, this will not mean the emergence of professional investors, but rather more the consequences of mergers and acquisitions being characteristic for the global world but especially for Europe. The economic and industrial convergence will continue, however at a slower pace. It will become a serious economic challenge that whilst the level of development of the different EU member states differs, a harmonisation is strived for in respect of the economic policy arsenals and the scope of the national autonomy becomes more and more limited. All this draws attention to the fact that success can only be achieved by more coordinated and concentrated efforts

Statistical Annex

Table 1

Figures relating to businesses of diverse sizes in differing specialized branches

| 2001 | Roster categories | Number of enterprises within a branch | Break-down of enterprises according to the number of firms within a given branch % | Net sales revenue according to corporate categories, within a branch % | Net export sales revenue according to corporate categories, within a branch, % | Capitalization according to corporate categories, within a branch, % | FDI according to corporate categories, within a branch, % | Share of FDI by branch % |
|---|---------------------------|---------------------------------------|--|--|--|--|---|--------------------------|
| 15 MANUFACTURE OF FOOD PRODUCTS AND BEVERAGES | 0 none | 271 | 9.61 | 0.49 | 0.50 | 0.61 | 0.06 | 0.01 |
| | 1-49 persons | 2162 | 76.67 | 15.18 | 10.29 | 14.42 | 10.74 | 1.99 |
| | 50-249 persons | 291 | 10.32 | 23.87 | 19.94 | 20.88 | 17.80 | 3.29 |
| | 250- persons | 96 | 3.40 | 60.46 | 69.27 | 64.09 | 71.40 | 13.20 |
| | Total spec. branch | 2820 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| 16 MANUFACTURE OF TOBACCO PRODUCTS | 1-49 persons | 1 | 14.29 | 0.07 | 0.00 | 0.37 | 0.00 | 0.00 |
| | 50-249 persons | 3 | 42.86 | 3.51 | 30.68 | 19.18 | 6.87 | 0.05 |
| | 250- persons | 3 | 42.86 | 96.42 | 69.32 | 80.46 | 93.13 | 0.74 |
| | Total spec. branch | 7 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 0.80 |
| 17 MANUFACTURE OF TEXTILES | 0 none | 63 | 7.85 | 0.37 | 0.19 | 0.90 | 0.27 | 0.01 |
| | 1-49 persons | 600 | 74.72 | 18.30 | 10.57 | 12.21 | 7.81 | 0.18 |
| | 50-249 persons | 108 | 13.45 | 41.63 | 35.30 | 34.83 | 31.42 | 0.74 |
| | 250- persons | 32 | 3.99 | 39.70 | 53.94 | 52.06 | 60.50 | 1.42 |
| | Total spec. branch | 803 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| 18 MANUFACTURE OF CLOTHING; DYEING OF FUR | 0 none | 105 | 8.20 | 0.53 | 0.22 | 1.73 | 1.02 | 0.01 |
| | 1-49 persons | 951 | 74.30 | 19.64 | 5.59 | 20.28 | 6.00 | 0.06 |
| | 50-249 persons | 181 | 14.14 | 21.64 | 19.12 | 23.33 | 18.95 | 0.20 |
| | 250- persons | 43 | 3.36 | 58.19 | 75.07 | 54.66 | 74.03 | 0.80 |
| | Total spec. branch | 1280 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| 19 TANNING AND DRESSING OF LEATHER | 0 none | 29 | 8.03 | 0.08 | 0.01 | 0.74 | 0.44 | 0.00 |
| | 1-49 persons | 242 | 67.04 | 23.41 | 17.44 | 30.68 | 12.05 | 0.07 |
| | 50-249 persons | 74 | 20.50 | 35.49 | 34.30 | 28.72 | 30.90 | 0.18 |
| | 250- persons | 16 | 4.43 | 41.01 | 48.25 | 39.86 | 56.61 | 0.32 |
| | Total spec. branch | 361 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| 20 MANUFACTURE OF WOOD AND PRODUCTS | 0 none | 152 | 10.87 | 1.01 | 0.71 | 4.90 | 0.70 | 0.01 |
| | 1-49 persons | 1166 | 83.40 | 39.68 | 18.86 | 30.78 | 21.13 | 0.21 |
| | 50-249 persons | 68 | 4.86 | 24.92 | 30.20 | 23.87 | 23.83 | 0.24 |
| | 250- persons | 12 | 0.86 | 34.39 | 50.23 | 40.45 | 54.35 | 0.55 |
| | Total spec. branch | 1398 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |

KOPINT-DATORG Ltd.

| 2001 | Roster categories | Number of enterprises within a branch | Break-down of enterprises according to the number of firms within a given branch % | Net sales revenue according to corporate categories, within a branch % | Net export sales revenue according to corporate categories, within a branch, % | Capitalization according to corporate categories, within a branch, % | FDI according to corporate categories, within a branch, % | Share of FDI by branch % |
|--|---------------------------|---------------------------------------|--|--|--|--|---|--------------------------|
| 21 MANUFACTURE OF PULP, PAPER AND PAPER PRODUCTS | 0 none | 24 | 7.69 | 0.33 | 0.01 | 0.25 | 0.20 | 0.00 |
| | 1-49 persons | 240 | 76.92 | 10.76 | 2.88 | 7.43 | 2.95 | 0.07 |
| | 50-249 persons | 38 | 12.18 | 29.30 | 16.54 | 34.48 | 35.78 | 0.81 |
| | 250- persons | 10 | 3.21 | 59.60 | 80.56 | 57.84 | 61.07 | 1.39 |
| | Total spec. branch | 312 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| 22 PUBLISHING, PRINTING AND REPRODUCTION OF RECORDED MEDIA | 0 none | 553 | 17.45 | 3.24 | 1.70 | 5.32 | 7.74 | 0.07 |
| | 1-49 persons | 2526 | 79.71 | 55.16 | 47.01 | 40.44 | 53.14 | 0.48 |
| | 50-249 persons | 81 | 2.56 | 28.40 | 36.13 | 20.96 | 24.37 | 0.22 |
| | 250- persons | 9 | 0.28 | 13.20 | 15.15 | 33.27 | 14.75 | 0.13 |
| | Total spec. branch | 3169 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| 23 MANUFACTURE OF REFINED PETROLEUM PRODUCTS | 0 none | 1 | 11.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 1-49 persons | 6 | 66.67 | 2.00 | 1.47 | 0.13 | 0.19 | 0.01 |
| | 250- persons | 2 | 22.22 | 98.00 | 98.53 | 99.87 | 99.81 | 5.01 |
| | Total spec. branch | 9 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 5.02 |
| 24 MANUFACTURE OF CHEMICALS, CHEMICAL PRODUCTS | 0 none | 59 | 11.20 | 1.95 | 1.22 | 3.52 | 5.50 | 0.45 |
| | 1-49 persons | 379 | 71.92 | 7.73 | 2.93 | 8.62 | 6.99 | 0.57 |
| | 50-249 persons | 64 | 12.14 | 14.74 | 11.46 | 18.01 | 18.06 | 1.47 |
| | 250- persons | 25 | 4.74 | 75.58 | 84.39 | 69.85 | 69.45 | 5.64 |
| | Total spec. branch | 527 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| 25 MANUFACTURE OF RUBBER AND PLASTIC PRODUCTS | 0 none | 70 | 6.22 | 0.20 | 0.07 | 0.37 | 0.33 | 0.02 |
| | 1-49 persons | 901 | 80.02 | 22.31 | 9.71 | 16.99 | 9.02 | 0.47 |
| | 50-249 persons | 131 | 11.63 | 45.15 | 42.84 | 52.13 | 58.52 | 3.03 |
| | 250- persons | 24 | 2.13 | 32.34 | 47.38 | 30.51 | 32.14 | 1.66 |
| | Total spec. branch | 1126 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| 26 MANUFACTURE OF OTHER NON-METALIC MINERAL PRODUCTS | 0 none | 67 | 7.99 | 0.31 | 0.05 | 1.51 | 1.12 | 0.07 |
| | 1-49 persons | 676 | 80.57 | 19.17 | 4.48 | 11.52 | 6.25 | 0.38 |
| | 50-249 persons | 75 | 8.94 | 38.33 | 44.00 | 32.12 | 26.88 | 1.65 |
| | 250- persons | 21 | 2.50 | 42.19 | 51.47 | 54.85 | 65.74 | 4.04 |
| | Total spec. branch | 839 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |

Thoughts on Hungarian Industrial Policy—adaptation and pathfinding

| 2001 | Roster categories | Number of enterprises within a branch | Break-down of enterprises according to the number of firms within a given branch % | Net sales revenue according to corporate categories, within a branch % | Net export sales revenue according to corporate categories, within a branch, % | Capitalization according to corporate categories, within a branch, % | FDI according to corporate categories, within a branch, % | Share of FDI by branch % |
|--|---------------------------|---------------------------------------|--|--|--|--|---|--------------------------|
| 27 MANUFACTURE OF BASIC METALS | 0 none | 13 | 5.73 | 0.08 | 0.00 | 0.06 | 0.02 | 0.00 |
| | 1-49 persons | 152 | 66.96 | 6.27 | 4.10 | 3.88 | 3.28 | 0.11 |
| | 50-249 persons | 40 | 17.62 | 15.22 | 15.26 | 10.75 | 4.07 | 0.13 |
| | 250- persons | 22 | 9.69 | 78.43 | 80.63 | 85.31 | 92.64 | 3.04 |
| | Total spec. branch | 227 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| 28 MANUFACTURE OF METAL PRODUCTS | 0 none | 297 | 9.00 | 1.48 | 0.56 | 1.55 | 0.46 | 0.02 |
| | 1-49 persons | 2696 | 81.67 | 30.74 | 13.29 | 22.40 | 12.73 | 0.62 |
| | 50-249 persons | 281 | 8.51 | 32.64 | 35.07 | 41.42 | 39.44 | 1.92 |
| | 250- persons | 27 | 0.82 | 35.14 | 51.08 | 34.62 | 47.37 | 2.31 |
| | Total spec. branch | 3301 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| 29 MANUFACTURE OF MACHINES AND EQUIPMENT | 0 none | 162 | 7.78 | 0.97 | 0.04 | 1.46 | 1.40 | 0.07 |
| | 1-49 persons | 1701 | 81.66 | 28.46 | 8.41 | 14.72 | 4.78 | 0.25 |
| | 50-249 persons | 179 | 8.59 | 27.33 | 26.84 | 28.17 | 24.56 | 1.30 |
| | 250- persons | 41 | 1.97 | 43.24 | 64.71 | 55.66 | 69.25 | 3.67 |
| | Total spec. branch | 2083 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| 30 MANUFACTURE OF OFFICE APPLIANCES AND COMPUTERS | 0 none | 27 | 13.78 | 0.09 | 0.00 | 2.02 | 3.13 | 0.02 |
| | 1-49 persons | 159 | 81.12 | 3.79 | 0.20 | 5.00 | 2.00 | 0.01 |
| | 50-249 persons | 6 | 3.06 | 3.04 | 0.43 | 5.33 | 0.48 | 0.00 |
| | 250- persons | 4 | 2.04 | 93.07 | 99.36 | 87.66 | 94.39 | 0.70 |
| | Total spec. branch | 196 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| 31 MANUFACTURE OF ELECTRICAL MACHINERY AND APPLIANCES n.e.c. | 0 none | 60 | 8.67 | 0.30 | 0.29 | 0.59 | 0.54 | 0.04 |
| | 1-49 persons | 531 | 76.73 | 4.73 | 0.67 | 7.34 | 4.41 | 0.32 |
| | 50-249 persons | 61 | 8.82 | 6.17 | 3.47 | 13.61 | 10.64 | 0.78 |
| | 250- persons | 40 | 5.78 | 88.80 | 95.57 | 78.46 | 84.40 | 6.16 |
| | Total spec. branch | 692 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| 32 MANUFACTURE OF RADIO, TELEVISION AND COMMUNICATION EQUIPMENTS | 0 none | 65 | 11.28 | 0.10 | 0.05 | 0.24 | 0.10 | 0.01 |
| | 1-49 persons | 429 | 74.48 | 3.09 | 0.57 | 15.85 | 13.34 | 1.24 |
| | 50-249 persons | 39 | 6.77 | 2.40 | 1.34 | 4.98 | 3.38 | 0.31 |
| | 250- persons | 43 | 7.47 | 94.41 | 98.03 | 78.93 | 83.17 | 7.71 |
| | Total spec. branch | 576 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| 33 MANUFACTURE OF MEDICAL, PRECISION AND OPTICAL INSTRUMENTS | 0 none | 93 | 10.25 | 1.63 | 0.09 | 1.44 | 1.37 | 0.01 |

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| 2001 | Roster categories | Number of enterprises within a branch | Break-down of enterprises according to the number of firms within a given branch % | Net sales revenue according to corporate categories, within a branch % | Net export sales revenue according to corporate categories, within a branch, % | Capitalization according to corporate categories, within a branch, % | FDI according to corporate categories, within a branch, % | Share of FDI by branch % |
|--|---------------------------|---------------------------------------|--|--|--|--|---|--------------------------|
| | 1-49 persons | 763 | 84.12 | 45.09 | 17.19 | 61.13 | 50.54 | 0.29 |
| | 50-249 persons | 42 | 4.63 | 29.79 | 38.65 | 21.48 | 33.78 | 0.19 |
| | 250- persons | 9 | 0.99 | 23.49 | 44.07 | 15.95 | 14.31 | 0.08 |
| | Total spec. branch | 907 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 0.57 |
| 34 MANUFACTURE OF MOTOR VEHICLES, TRAILERS AND SEMI-TRAILERS | 0 none | 12 | 5.85 | 1.09 | 1.15 | 0.15 | 0.13 | 0.02 |
| | 1-49 persons | 131 | 63.90 | 0.92 | 0.32 | 1.62 | 1.32 | 0.20 |
| | 50-249 persons | 32 | 15.61 | 2.20 | 1.33 | 5.11 | 2.38 | 0.36 |
| | 250- persons | 30 | 14.63 | 95.79 | 97.20 | 93.11 | 96.18 | 14.75 |
| | Total spec. branch | 205 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 15.34 |
| 35 MANUFACTURE OF OTHER TRANSPORT EQUIPMENTS | 0 none | 18 | 12.77 | 0.54 | 0.00 | 0.54 | 0.01 | 0.00 |
| | 1-49 persons | 103 | 73.05 | 9.61 | 6.03 | 16.75 | 16.15 | 0.07 |
| | 50-249 persons | 10 | 7.09 | 13.71 | 5.81 | 27.22 | 36.57 | 0.16 |
| | 250- persons | 10 | 7.09 | 76.14 | 88.16 | 55.50 | 47.27 | 0.21 |
| | Total spec. branch | 141 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 0.44 |
| 36 MANUFACTURE OF FURNITURE, n.e.c. | 0 none | 107 | 8.02 | 0.62 | 0.14 | 2.04 | 0.29 | 0.00 |
| | 1-49 persons | 1118 | 83.81 | 36.06 | 12.93 | 28.78 | 18.25 | 0.17 |
| | 50-249 persons | 93 | 6.97 | 39.07 | 43.35 | 39.79 | 49.75 | 0.47 |
| | 250- persons | 16 | 1.20 | 24.26 | 43.58 | 29.39 | 31.71 | 0.30 |
| | Total spec. branch | 1334 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 0.94 |
| 37 RECYCLING | 0 none | 17 | 15.60 | 0.72 | 0.00 | 16.71 | 0.91 | 0.00 |
| | 1-49 persons | 84 | 77.06 | 26.19 | 17.38 | 41.00 | 41.48 | 0.01 |
| | 50-249 persons | 7 | 6.42 | 72.22 | 82.62 | 33.14 | 57.61 | 0.02 |
| | 250- persons | 1 | 0.92 | 0.87 | 0.00 | 9.14 | 0.00 | 0.00 |
| | Total spec. branch | 109 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 0.03 |
| TOTAL | 0 none | 2265 | 10.10 | 0.66 | 0.44 | 1.13 | 0.84 | 0.84 |
| | 1-49 persons | 17717 | 79.02 | 12.36 | 3.48 | 13.06 | 7.79 | 7.79 |
| | 50-249 persons | 1904 | 8.49 | 15.66 | 10.30 | 20.83 | 17.53 | 17.53 |
| | 250- persons | 536 | 2.39 | 71.32 | 85.78 | 64.99 | 73.83 | 73.83 |
| | Total spec. branch | 22422 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |

Source: Ministry of Economics and Transportation

Table 2

Changing roles of businesses working with foreign capital, by sector

| | Number of firms working with FDI | | Total number of firms | | Number of firms working with FDI as % of total number | | Invested FDI as share of the branch's capitalization, in percentage | |
|-------------|----------------------------------|-------|-----------------------|--------|---|------|---|------|
| | 2000 | 2001 | 2000 | 2001 | 2000 | 2001 | 2000 | 2001 |
| Main branch | | | | | | | | |
| A | 749 | 755 | 11 300 | 11 663 | 6,6 | 6,5 | 10,6 | 8,3 |
| B | 16 | 15 | 178 | 180 | 9,0 | 8,3 | 6,3 | 4,9 |
| C | 58 | 59 | 395 | 430 | 14,7 | 13,7 | 43,8 | 55,4 |
| D | 3 743 | 3 664 | 37 699 | 38 549 | 9,9 | 9,5 | 60,5 | 63,9 |
| E | 50 | 55 | 536 | 574 | 9,3 | 9,6 | 26,7 | 26,3 |
| F | 745 | 803 | 23 206 | 25 369 | 3,2 | 3,2 | 20,3 | 13,9 |
| G | 8 140 | 8 398 | 78 298 | 80 335 | 10,4 | 10,5 | 55,6 | 58,2 |
| H | 834 | 990 | 11 221 | 12 318 | 7,4 | 8,0 | 29,1 | 29,4 |
| I | 732 | 723 | 10 417 | 11 058 | 7,0 | 6,5 | 28,9 | 27,5 |
| J | 291 | 317 | 3 274 | 3 537 | 8,9 | 9,0 | 89,1 | 92,0 |
| K | 4 986 | 5 780 | 74 484 | 83 779 | 6,7 | 6,9 | 57,7 | 45,7 |
| M | 96 | 122 | 4 510 | 5 283 | 2,1 | 2,3 | 15,1 | 15,4 |
| N | 102 | 104 | 10 652 | 11 924 | 1,0 | 0,9 | 15,1 | 15,5 |
| O | 401 | 434 | 17 020 | 18 262 | 2,4 | 2,4 | 27,5 | 17,2 |

Source: figures from the Ministry of Economy and Transportation

Legend: A= agricultural economy B= forest economy C = mining D = processing E = supply of electric, gas, steam and water F = building industry G= commerce, repair H = hotel and restaurant business I = transportation, storage; postal services, communications J = financial activities K = real estate, business activities L = public administration, security, compulsory social security M = education N = health and social services O = other community, personal services

Table 3

Export orientation in domestic and foreign businesses by branch

| D | | Export sales | | | | | |
|-------|---|---|-------|-------|--|-------|------|
| | | The structure of manufacturing industry | | | The share of foreign owned firms in a given sector | | |
| | | 1996 | 2000 | 2001 | 1996 | 2000 | 2001 |
| DA | Food, beverages, tobacco | 13,7 | 6,2 | 6,0 | 62,6 | 68,4 | 67,4 |
| DB | Textiles, textile goods | 5,1 | 4,0 | 3,5 | 58,9 | 74,1 | 74,8 |
| DC | Leather processing, footwear | 1,3 | 0,9 | 0,8 | 65,3 | 82,5 | 84,6 |
| DD | Manufacture of woods, wood products | 1,5 | 1,1 | 1,0 | 71,3 | 69,6 | 71,4 |
| DE | Paper production, publishing, printing activities | 4,8 | 1,6 | 1,6 | 93,6 | 70,7 | 73,6 |
| DF | Coke, petrol, fuel | 4,2 | 2,8 | 2,3 | 100,0 | 100,0 | 100 |
| DG | Chemicals, chemical products and man-made fibre | 10,2 | 7,3 | 5,6 | 89,5 | 92,1 | 91,1 |
| DH | Rubber, plastic products | 3,6 | 3,4 | 3,3 | 61,6 | 68,5 | 73,7 |
| DI | Other non-metallic mineral products | 1,9 | 1,2 | 1,1 | 74,3 | 80,6 | 65,3 |
| DJ | Basic metals, metal products | 10,4 | 7,9 | 7,0 | 54,2 | 74,0 | 66,4 |
| DK | Manufacture of machinery, equipments | 9,4 | 4,5 | 3,8 | 81,6 | 80,6 | 75,7 |
| DL | Manufacture of electrical and optical equipments | 19,9 | 31,5 | 41,7 | 93,9 | 95,1 | 97,3 |
| DM | Manufacture of transport equipments | 12,5 | 26,4 | 21,5 | 87,7 | 96,5 | 96,3 |
| DN | Manufacturing n.e.c. | 1,4 | 1,2 | 0,9 | 61,3 | 75,0 | 75,0 |
| DA-DN | Total | 100 | 100,0 | 100,0 | 78,8 | 88,5 | 89,2 |

| D | A3 | Export/output | | | | | | | |
|-------|---|---------------|------|----------------|------|---------------|------|----------------|--|
| | | Foreign owned | | Domestic firms | | Foreign owned | | Domestic firms | |
| | | 1996 | | 2000 | | 2001 | | | |
| DA | Food, beverages, tobacco | 22,7 | 15,6 | 21,9 | 15,2 | 19,8 | 15,5 | | |
| DB | Textiles, textile goods | 58,2 | 37,2 | 72,0 | 37,5 | 78,2 | 36,9 | | |
| DC | Leather processing, footwear | 71,7 | 34,0 | 85,1 | 36,2 | 81,8 | 32,6 | | |
| DD | Manufacture of woods, wood products | 49,8 | 18,5 | 61,1 | 21,2 | 62,9 | 20,2 | | |
| DE | Paper production, publishing, printing activities | 35,0 | 4,2 | 23,3 | 9,1 | 27,2 | 8,3 | | |
| DF | Coke, petrol, fuel | 15,0 | 0,3 | 16,7 | 0,0 | 12,1 | 0,0 | | |
| DG | Chemicals, chemical products and man-made fibre | 41,3 | 19,3 | 51,2 | 28,1 | 51,0 | 27,8 | | |
| DH | Rubber, plastic products | 40,3 | 31,9 | 54,3 | 34,5 | 56,2 | 30,5 | | |
| DI | Other non-metallic mineral products | 23,9 | 14,7 | 25,3 | 14,7 | 22,9 | 20,7 | | |
| DJ | Basic metals, metal products | 51,9 | 27,8 | 63,9 | 21,0 | 60,4 | 26,8 | | |
| DK | Manufacture of machinery, equipments | 66,8 | 19,1 | 61,3 | 20,8 | 60,9 | 23,5 | | |
| DL | Manufacture of electrical and optical equipments | 69,7 | 15,8 | 84,4 | 29,6 | 91,0 | 26,1 | | |
| DM | Manufacture of transport equipments | 78,3 | 48,2 | 93,7 | 43,9 | 93,2 | 44,9 | | |
| DN | Manufacturing n.e.c. | 58,0 | 19,3 | 67,2 | 14,8 | 65,5 | 14,1 | | |
| DA-DN | Total | 42,5 | 20,6 | 59,9 | 21,8 | 60,9 | 22,3 | | |

Source: Ministry of the Economy–State Tax Authority: Own calculations based on the tax returns of businesses using double-entry accounting

Table 4

The share of individual branches in the gross output of the manufacturing industry, %

| Code | Branch | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
|----------|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 15 | Manufacture of food and beverages | 26.7 | 26.6 | 26.6 | 25.1 | 24.8 | 21.2 | 19.2 | 16.2 | 13.9 | 14.9 |
| 16 | Manufacture of tobacco products | 0.8 | 0.9 | 0.9 | 0.8 | 0.8 | 0.7 | 0.6 | 0.7 | 0.6 | 0.6 |
| 17 | Textile industry | 3.0 | 3.2 | 2.8 | 2.7 | 2.6 | 2.3 | 1.8 | 1.7 | 2.1 | 2.1 |
| 18 | Manufacture of clothing and dyeing of fur | 2.4 | 2.4 | 2.4 | 2.1 | 2.0 | 1.8 | 2.1 | 2.2 | 2.9 | 3.0 |
| 19 | Tanning and dressing of leather, manufacture of footwear | 1.7 | 1.6 | 1.2 | 1.0 | 0.9 | 0.9 | 0.9 | 0.8 | 1.1 | 1.1 |
| 20 | Manufacture of wood and wood products | 2.6 | 2.3 | 2.3 | 2.2 | 2.1 | 1.8 | 1.6 | 1.6 | 1.4 | 1.5 |
| 21 | Manufacture of paper and pulp | 2.1 | 1.8 | 2.0 | 2.2 | 1.9 | 1.8 | 2.0 | 1.8 | 1.6 | 1.7 |
| 22 | Publishing and printing industry | 3.9 | 4.1 | 4.1 | 3.7 | 3.5 | 3.3 | 2.9 | 2.8 | 2.9 | 3.1 |
| 23 | Manufacture of coke, refined petroleum products and nuclear fuel | 9.1 | 9.2 | 7.8 | 6.8 | 7.1 | 6.6 | 5.6 | 5.9 | 5.4 | 4.6 |
| 24 | Manufacture of chemicals and chemical products | 9.8 | 9.8 | 10.0 | 10.1 | 9.1 | 8.7 | 7.6 | 6.7 | 6.4 | 6.4 |
| 25 | Rubber and plastic industry | 2.9 | 3.0 | 3.5 | 3.8 | 3.8 | 3.5 | 3.5 | 3.5 | 3.5 | 3.7 |
| 26 | Manufacture of other non-metallic mineral products | 3.7 | 3.7 | 3.9 | 3.7 | 3.5 | 3.2 | 3.3 | 3.1 | 2.6 | 2.8 |
| 27 | Manufacture of basic metals | 5.4 | 4.3 | 4.3 | 5.6 | 5.7 | 5.3 | 4.7 | 3.8 | 3.8 | 3.5 |
| 28 | Manufacture of fabricated metal products | 5.4 | 5.6 | 6.3 | 6.4 | 5.1 | 4.8 | 4.6 | 4.4 | 4.4 | 4.5 |
| 29 | Manufacture of machinery and equipments | 6.9 | 6.3 | 6.0 | 5.7 | 5.5 | 5.5 | 5.0 | 4.8 | 4.7 | 4.9 |
| 30 | Manufacture of office machinery and computers | 0.4 | 0.6 | 0.4 | 0.3 | 2.1 | 5.6 | 6.7 | 8.2 | 6.4 | 5.0 |
| 31 | Manufacture of electric machinery, n.e.c. | 3.1 | 3.4 | 3.6 | 3.9 | 4.6 | 4.2 | 4.7 | 5.8 | 10.9 | 10.8 |
| 32 | Manufacture of radio, television, and communication equipments | 1.7 | 1.9 | 2.1 | 2.4 | 3.1 | 4.7 | 5.5 | 7.8 | 9.1 | 10.1 |
| 33 | Manufacture of medical precision and optical instruments | 2.1 | 2.1 | 2.2 | 2.0 | 1.9 | 1.5 | 1.3 | 1.2 | 1.1 | 1.1 |
| 34 | Manufacture of motor vehicles, trailers and semi-trailers | 3.2 | 4.3 | 4.7 | 7.0 | 7.6 | 10.6 | 14.2 | 15.0 | 13.2 | 12.4 |
| 35 | Manufacture of other transport equipments | 0.5 | 0.5 | 0.5 | 0.4 | 0.4 | 0.4 | 0.6 | 0.6 | 0.5 | 0.5 |
| 36 | Manufacture of furnitures | 2.6 | 2.4 | 2.1 | 1.9 | 1.7 | 1.5 | 1.5 | 1.5 | 1.3 | 1.3 |
| 37 | Recycling | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 |
| D | Total manufacturing industry | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Source: Hungarian Central Statistical Office, Hungarian Statistical Yearbooks, 1994-2002,

Table 5

The share of individual branches in the gross added value of the manufacturing industry, %

| Code | Branch | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
|----------|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 15 | Manufacture of food and beverages | 20.7 | 20.1 | 19.0 | 18.0 | 17.1 | 14.8 | 14.2 | 12.6 | 13.5 | 15.3 |
| 16 | Manufacture of tobacco products | 0.6 | 0.6 | 0.7 | 0.5 | 0.7 | 0.7 | 0.6 | 1.0 | 0.8 | 1.0 |
| 17 | Textile industry | 3.2 | 3.3 | 3.0 | 3.2 | 3.2 | 2.9 | 2.4 | 2.4 | 2.2 | 2.2 |
| 18 | Manufacture of clothing and dyeing of fur | 4.4 | 4.3 | 4.4 | 3.9 | 3.7 | 3.5 | 3.9 | 3.9 | 3.3 | 3.5 |
| 19 | Tanning and dressing of leather, manufacture of footwear | 2.2 | 2.0 | 2.0 | 1.7 | 1.5 | 1.4 | 1.3 | 1.3 | 1.1 | 1.2 |
| 20 | Manufacture of wood and wood products | 2.7 | 2.6 | 2.8 | 2.6 | 2.5 | 2.2 | 1.9 | 2.1 | 2.0 | 2.0 |
| 21 | Manufacture of paper and pulp | 1.6 | 1.6 | 1.8 | 2.0 | 1.9 | 1.9 | 2.0 | 1.8 | 1.6 | 1.9 |
| 22 | Publishing and printing industry | 3.9 | 4.4 | 4.6 | 3.8 | 3.7 | 4.0 | 3.5 | 3.5 | 3.7 | 4.0 |
| 23 | Manufacture of coke, refined petroleum products and nuclear fuel | 13.6 | 13.3 | 9.8 | 8.4 | 8.2 | 8.6 | 7.9 | 8.4 | 5.8 | 4.1 |
| 24 | Manufacture of chemicals and chemical products | 8.4 | 9.1 | 10.5 | 11.6 | 10.0 | 10.3 | 9.7 | 8.6 | 9.5 | 10.0 |
| 25 | Rubber and plastic industry | 2.8 | 3.1 | 3.3 | 3.7 | 3.9 | 3.7 | 3.9 | 4.0 | 3.9 | 4.3 |
| 26 | Manufacture of other non-metallic mineral products | 4.2 | 4.3 | 4.9 | 4.9 | 4.6 | 4.3 | 4.5 | 4.4 | 4.6 | 4.8 |
| 27 | Manufacture of basic metals | 2.7 | 2.3 | 2.5 | 3.6 | 3.3 | 2.7 | 2.8 | 2.1 | 2.9 | 2.4 |
| 28 | Manufacture of fabricated metal products | 5.4 | 5.7 | 6.3 | 7.2 | 6.8 | 6.2 | 6.1 | 6.1 | 6.4 | 6.6 |
| 29 | Manufacture of machinery and equipments | 9.0 | 7.4 | 6.6 | 7.1 | 7.0 | 7.5 | 6.6 | 6.7 | 6.4 | 6.6 |
| 30 | Manufacture of office machinery and computers | 0.3 | 0.4 | 0.2 | 0.2 | 1.3 | 3.5 | 4.2 | 3.5 | 2.2 | 1.7 |
| 31 | Manufacture of electric machinery, n.e.c. | 2.7 | 3.1 | 4.3 | 3.9 | 5.8 | 5.7 | 6.1 | 7.2 | 8.9 | 7.8 |
| 32 | Manufacture of radio, television, and communication equipments | 1.4 | 2.0 | 2.2 | 2.6 | 2.8 | 3.3 | 3.4 | 4.3 | 5.4 | 6.0 |
| 33 | Manufacture of medical precision and optical instruments | 3.4 | 3.3 | 3.6 | 2.9 | 3.0 | 2.3 | 2.0 | 2.0 | 2.0 | 2.0 |
| 34 | Manufacture of motor vehicles, trailers and semi-trailers | 2.6 | 3.6 | 3.8 | 5.0 | 5.9 | 7.9 | 10.1 | 11.1 | 11.1 | 9.7 |
| 35 | Manufacture of other transport equipments | 0.5 | 0.5 | 0.8 | 0.6 | 0.6 | 0.5 | 0.8 | 0.8 | 0.7 | 0.7 |
| 36 | Manufacture of furnitures | 3.5 | 3.0 | 2.8 | 2.5 | 2.3 | 2.1 | 2.1 | 2.1 | 2.0 | 2.1 |
| 37 | Recycling | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 |
| D | Total manufacturing industry | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Source: Hungarian Central Statistical Office, Hungarian Statistical Yearbooks, 1994-2002, own calculation, based on national accounts.

Table 6

**Sectoral breakdown of the manufacturing exports—
the branch's share in the total (%)**

| Code | Branch | 1994 | 1996 | 1998 | 2000 | 2001 |
|----------|--|------------|------------|------------|------------|------------|
| 15 | Manufacture of food and beverages | 14 | 13 | 8 | 5 | 6 |
| 16 | Manufacture of tobacco products | 0 | 1 | 0 | 0 | 0 |
| 17 | Textile industry | 4 | 3 | 2 | 1 | 1 |
| 18 | Manufacture of clothing and dyeing of fur | 4 | 3 | 2 | 2 | 2 |
| 19 | Tanning and dressing of leather, manufacture of footwear | 2 | 1 | 1 | 1 | 1 |
| 20 | Manufacture of wood and wood products | 1 | 1 | 1 | 1 | 1 |
| 21 | Manufacture of paper and pulp | 1 | 1 | 1 | 1 | 1 |
| 22 | Publishing and printing industry | 0 | 0 | 0 | 0 | 0 |
| 23 | Manufacture of coke, refined petroleum products and nuclear fuel | 6 | 5 | 2 | 2 | 2 |
| 24 | Manufacture of chemicals and chemical products | 14 | 11 | 7 | 7 | 6 |
| 25 | Rubber and plastic industry | 4 | 4 | 3 | 3 | 3 |
| 26 | Manufacture of other non-metallic mineral products | 3 | 2 | 2 | 1 | 1 |
| 27 | Manufacture of basic metals | 7 | 6 | 5 | 3 | 3 |
| 28 | Manufacture of fabricated metal products | 7 | 4 | 4 | 3 | 3 |
| 29 | Manufacture of machinery and equipments | 7 | 6 | 5 | 4 | 4 |
| 30 | Manufacture of office machinery and computers | 1 | 5 | 13 | 12 | 9 |
| 31 | Manufacture of electric machinery, n.e.c. | 9 | 9 | 7 | 11 | 17 |
| 32 | Manufacture of radio, television, and communication equipments | 2 | 5 | 9 | 16 | 15 |
| 33 | Manufacture of medical precision and optical instruments | 2 | 1 | 1 | 1 | 1 |
| 34 | Manufacture of motor vehicles, trailers and semi-trailers | 10 | 17 | 25 | 24 | 23 |
| 35 | Manufacture of other transport equipments | 0 | 0 | 1 | 0 | 0 |
| 36 | Manufacture of furnitures | 1 | 1 | 1 | 1 | 1 |
| 37 | Recycling | 0 | 0 | 0 | 0 | 0 |
| D | Total manufacturing industry | 100 | 100 | 100 | 100 | 100 |

Source: Hungarian Central Statistical Office, Hungarian Statistical Yearbook, 1994-2002

Table 7

The share and performance of some given branches in the manufacturing industry

(2001)

| Code | Branch | Classification of the branch according to technology intensity (OECD) | Contribution of the branch to the total manufacturing industry (%) | | | The share of exports within total manufacturing exports (%) | The ratio of gross added value to gross output (%) | 2001/1992 | 2001/1992 | 2001/1994 |
|---|--|---|--|------------|----------------------|---|--|---|--|---|
| | | | In gross output | In exports | In gross added value | | | Growth rate of the value of gross output (1992=100) | Growth rate of the value of added value (1992=100) | Growth rate of the value of export (1994=100) |
| 15 | Manufacture of food and beverages | L | 14.9 | 5.6 | 15.3 | 22 | 23 | 394 | 376 | 412 |
| 24 | Manufacture of chemicals and chemical products | MH/H | 6.4 | 6.1 | 10.0 | 54 | 34 | 461 | 603 | 432 |
| 29 | Manufacture of machinery and equipments | MH | 4.9 | 4.0 | 6.6 | 56 | 30 | 495 | 377 | 554 |
| 30 | Manufacture of office machinery and computers | H | 5.0 | 8.8 | 1.7 | 97 | 7 | 10051 | 2976 | 16423 |
| 31 | Manufacture of electric machinery, n.e.c | MH | 10.8 | 16.7 | 7.8 | 89 | 16 | 2485 | 1440 | 1849 |
| 32 | Manufacture of radio, television, and communication equipments | M | 10.1 | 14.8 | 6.0 | 89 | 13 | 4187 | 2117 | 7513 |
| 34 | Manufacture of motor vehicles, trailers and semi-trailers | MH | 12.4 | 22.5 | 9.7 | 93 | 17 | 2773 | 1917 | 2338 |
| Total of the above-mentioned 7 highlighted branches | | | 64.5 | 78.5 | 57.0 | | | | | |
| Of this, the last 4, so-called locomotive branches | | | 38.4 | 62.8 | 25.1 | | | | | |
| Total manufacturing industry | | | 100.0 | 100.0 | 100.0 | 60 | 22 | 705 | 510 | 1010 |

Source: Based on Hungarian Central Statistical Office, Hungarian Statistical Yearbook, 1994-2002, own calculations.

Note: The changes in value are calculated based on current prices in forints. Technology-intensity: L = low, H = high, MH = medium high.

Table 8

Employment in the differing branches of the manufacturing industry according to the rate of technological intensity in different regions

| Technology requirement | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
|------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | percentage | | | | | |
| Central-Hungary | | | | | | |
| Low (labour intense) | 33,9 | 39,2 | 38,3 | 39,0 | 36,4 | 38,1 |
| Medium low | 18,8 | 21,6 | 20,7 | 21,7 | 23,5 | 21,5 |
| Medium high | 34,9 | 24,6 | 25,9 | 25,4 | 25,4 | 25,8 |
| High (high tech) | 12,4 | 14,6 | 15,1 | 14,0 | 14,7 | 14,6 |
| Total | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 |
| Middle Transdanubia | | | | | | |
| Low (labour intense) | 29,6 | 29,5 | 28,7 | 30,1 | 25,4 | 24,7 |
| Medium low | 32,2 | 31,4 | 31,3 | 31,8 | 29,3 | 31,5 |
| Medium high | 26,2 | 26,6 | 23,9 | 23,2 | 31,5 | 26,5 |
| High (high tech) | 12,1 | 12,5 | 16,1 | 14,8 | 13,7 | 17,3 |
| Total | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 |
| Western Transdanubia | | | | | | |
| Low (labour intense) | 57,2 | 55,0 | 51,9 | 49,6 | 51,3 | 51,4 |
| Medium low | 14,6 | 15,8 | 15,7 | 16,6 | 17,2 | 17,4 |
| Medium high | 24,7 | 24,7 | 26,0 | 25,2 | 25,4 | 26,2 |
| High (high tech) | 3,5 | 4,4 | 6,4 | 8,6 | 6,2 | 5,0 |
| Total | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 |
| Southern Transdanubia | | | | | | |
| Low (labour intense) | 64,8 | 63,8 | 60,4 | 56,2 | 48,0 | 49,7 |
| Medium low | 17,1 | 15,9 | 15,3 | 15,6 | 15,3 | 15,6 |
| Medium high | 13,1 | 14,4 | 15,4 | 16,1 | 15,4 | 13,9 |
| High (high tech) | 5,0 | 5,9 | 8,8 | 12,1 | 21,4 | 20,7 |
| Total | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 |
| Northern Hungary | | | | | | |
| Low (labour intense) | 34,0 | 34,4 | 35,5 | 38,5 | 39,7 | 36,3 |
| Medium low | 34,9 | 33,9 | 33,1 | 32,6 | 30,0 | 32,8 |
| Medium high | 27,0 | 26,4 | 26,4 | 25,1 | 23,4 | 24,1 |
| High (high tech) | 4,0 | 5,3 | 5,0 | 3,9 | 6,9 | 6,8 |
| Total | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 |
| Northern Great Plains | | | | | | |
| Low (labour intense) | 57,3 | 60,7 | 60,0 | 59,1 | 57,9 | 58,4 |
| Medium low | 14,8 | 14,0 | 13,9 | 13,7 | 14,5 | 15,7 |
| Medium high | 19,6 | 18,9 | 18,9 | 20,2 | 20,3 | 20,4 |
| High (high tech) | 8,3 | 6,4 | 7,2 | 7,0 | 7,4 | 5,5 |
| Total | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 |
| Southern Great Plains | | | | | | |
| Low (labour intense) | 66,6 | 64,0 | 61,7 | 61,0 | 59,3 | 59,0 |
| Medium low | 17,5 | 18,4 | 19,8 | 21,2 | 20,8 | 20,4 |
| Medium high | 14,7 | 15,7 | 16,2 | 15,4 | 16,7 | 17,2 |
| High (high tech) | 1,2 | 1,9 | 2,3 | 2,4 | 3,1 | 3,4 |
| Total | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 |
| Hungary total | | | | | | |
| Low (labour intense) | 44,4 | 46,5 | 45,3 | 45,3 | 42,7 | 43,2 |
| Medium low | 20,8 | 21,7 | 21,4 | 21,9 | 22,2 | 22,3 |
| Medium high | 26,5 | 22,7 | 23,0 | 22,6 | 23,9 | 23,3 |
| High (high tech) | 8,3 | 9,1 | 10,3 | 10,1 | 11,2 | 11,2 |
| Total | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 |

Source: Ministry of Economics—State Tax Authority: Own calculations based on the tax returns of businesses using double-entry accounting.

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