

## **SUBCONTRACTING AND OUTWARD PROCESSING TRADE AS A FORM OF NETWORKING IN HUNGARY**

M. SZANYI

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In international business practice, subcontracting is an unbalanced form of co-operation. It can bring serious negative effects for partners from less developed countries because of the strong one-sided dependence on the “developed” partner. International experience, e.g. in the *maquiladora* region suggests that degradation of corporate activities, low profitability, technological dependence, loss of own production and shrinking market presence of own products may characterise many firms, and even whole industries or regions. These firms, regions and industries often become isolated from the national economy. Therefore, potential positive modernisation effects may also be “locked” in the subcontracting firm not spreading in the economy.

Hungarian experience with subcontracting was somewhat different already in the 1970s and 1980s. Companies concluded subcontracts with more developed Western partners in order to gain access to up-to-date technology and know-how, new markets and new products. Many of them incorporated the acquired knowledge with success. During the 1990s subcontracting was the driving force of corporate modernisation, since former development sources (primarily state subsidies) dried up. Many firms chose the new option of adjustment strategy. The efforts of Hungarian companies to integrate into the international division of labour coincided with the substantial change of subcontracting deals on world markets. Subcontracting became a form of outsourcing and changed to a long-term, network-type of co-operation form with considerable knowledge transfer.

This study presents the results of an empirical survey. The Department of Business Economics of the Budapest University of Economics and Public Administration carried out two rounds of interviews in more than 300 companies both in 1996 and 1999. The survey revealed some new features of international subcontracting patterns and found some evidence of modernisation impacts subcontracting has on Hungarian corporate strategies.

**Keywords:** transition, corporate restructuring, international co-operation, technology transfer, knowledge transfer, outsourcing, subcontracting

**JEL classification index:** F23, L22, P33

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*Correspondence:* M. Szanyi, Institute for World Economics, Hungarian Academy of Sciences, Országház u. 30, H-1014 Budapest, Hungary. E-mail: szanyi@econ.core.hu

### INTRODUCTION: NETWORKING AS NEW FORM OF INTERNATIONAL CO-OPERATION

From time to time, economic development clusters around innovations that give room for stepwise changes instead of incremental growth. Changes of technology, organisation and business practice walks hand in hand. New types of business co-operation emerge, old ones feature new values.

The current wave of corporate co-operation started at least two decades ago, when large conglomerates began to slim down and trim their diversified portfolios. Mergers and acquisitions still influence the international business landscape. One major avenue of corporate restructuring is concentration on core competencies and expansion within the core business. The other is to complete the business line with various forms of networking. Today co-operation – the creation of business networks – is regarded as a suitable organisational innovation for the changed business hardware and software. While the economy of the 20th century was dominated by large, concentrated, hierarchically structured corporations, the 21st century will be ruled by co-operating business networks (Snow et al. 1992).

If international co-operation networks are the nucleus of 21st-century business, the chances for the emerging economies of Central and Eastern Europe to catch up will have to be re-evaluated in this context. Are they ready to join international production networks? What are the costs and benefits of joining such networks? Should economic policy promote integration, if yes, how? It may not be an exaggeration to say that the coincidence of these changes with at least potentially creative destruction of the old economic structure and regime brings unique opportunities to restructure the roles and ties of the Central and Eastern European economies in the international division of labour.

Many characteristics of networking have been discussed in the literature (Handy 1989; Moore 1993; Tully 1993; Morgan 1989, etc.), but a precise definition is still wanting. Authors agree that network development started because the old type of vertical corporate structure proved inefficient in keeping up with the accelerating technological development and the even speedier market changes. Traditional business partners started to establish more regular and strategic co-operation as a way of increasing flexibility and capital concentration. This was the case for R&D partnerships, production joint ventures and product-specialisation agreements. This set of co-operative links enabled participating firms to concentrate on their core activities without the risk of losing other, necessary activities in the value chain.

The essence of networking is flexibility. The participation of single companies is reduced to a minimum level of contribution. The value chain is not bur-

dened with capacities and competencies that are not required for a specific project. In this sense, co-operation is also occasional. Networks are often compared to the well-known Lego construction sets, where single bricks can be positioned in many different ways or not even used in certain structures (Dess et al. 1995). It is not the task of this paper to contribute to the general discussion of co-operative networks or offer a full set of the different types of network (joint R&D, franchise agreements, regional networks, etc.), it concentrates on a single type of network: outsourcing, or more specifically, subcontracting. The aim is to analyse subcontracting activity in Hungary from the angle of international production networks by evaluating whether subcontracting has the potential to act as a bridge for Hungarian firms to international production networks.

First, the paper presents some statistics to illustrate the dimensions and basic characteristics of subcontracting and outward processing trade (OPT)<sup>1</sup> in Hungary. Next, a hypothesis is formulated and examined using data from over 100 firms that perform subcontracting. The database was derived from a major research programme of the Business Economics Department of the Budapest University of Economics. Both in 1996 and 1999 more than 300 companies were asked about different aspects of their operation and business. The questionnaire did not target subcontracting explicitly, but it was possible to distinguish the subcontracting group of companies. The following analysis is therefore a by-product, so to speak, of the original research programme, which was entitled “Competing with the World”.

#### WHY SUBCONTRACTING IS TREATED AS A TYPE OF NETWORKING?

To show the relationship between subcontracting and networking, first we need to identify the main characteristics of co-operation networks and outsourcing.<sup>2</sup> There is still no widely accepted definition of networking, so the role and significance of some conclusions may vary between network types.<sup>3</sup>

<sup>1</sup> The legal regulations on OPT include a definition of the transactions covered by this category, but there is no clear definition for subcontracting. The two overlap to a large extent as both relate to international business transactions in which the subcontractor takes over some processing of production inputs delivered by the contracting partner and delivers the processed goods back to the country of origin. The differentiation is made on a conceptual basis: OPT is used as an international trade term, whereas subcontracting denotes a type of contract between business partners under specific circumstances, with effects on both parties.

<sup>2</sup> This section is based on the review of literature by Szabó (1998a, 1998b).

<sup>3</sup> According to Szabó (1998a, 1998b), networks facilitate co-ordination mechanisms that differ from market forces and corporate hierarchies. They are not, or not exclusively governed by contracts or money – mutual exchange – but by reciprocity. Benefits within networks are not

Network-type linkages may develop among partners through outsourcing. This practice emerged some ten years ago, when large multinational corporations started to contract external companies to run complete corporate functions. The most common practice was the outsourcing of IT services but – for instance – there were examples of externally deploying human resource management as well. A broader definition embraces the outward location of other non-functional types of activities: R&D projects, key elements in the production chain, security, cleaning and catering may be described as “outsourced”. In this paper the term is restricted to activities that have at least some strategic importance: the subcontracted activity is considered as an important part of the production process. In the course of outsourcing a company contracts an outside economic actor to perform a function that had been carried out in-house. Machinery and equipment, capacities and some knowledge are provided to the subcontractor (in the broader definition of outsourcing, the supply of equipment is usually not included). In the case of subcontracting there is a tight control of activities, including the supply of all production inputs, and this fact enables a comparison with outsourcing.

Outsourcing is a basic tool to reduce corporate activities to core competencies. Firms concentrate on what they do best (Buss 1995), on core competencies and core business (Hamel and Prahalad 1994). It is also suitable to flatten the organisation and reduce the hierarchical levels of decision-making, which increases flexibility. Outsourcing can increase the potential stock of assets, because firms may use the competence of others without the additional costs of stocking and maintaining the required assets. Production capacities as well as tangible assets can be utilised flexibly in response to demand. Besides, the staff and workers need not be high-cost regular employees: they can be hired temporarily from specialised agencies or the labour of other contractors can be used together with their production facilities. This flexible combination of capacities and competencies is the essence of outsourcing (and other network types). It increases the specialisation of firms, so that in effect it is “vertical disintegration” (Szabó 1998a). Access to additional capacities is also at the heart of traditional subcontracting co-operation.

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necessarily mutual: they are often indirect, instead the competencies of partners tend to be complementary to each other. Networks are open-ended and the propensity to co-operate efficiently is secured by the risk of replacing the partner. The quality of contributions to the network is also monitored by a kind of “watchdog” mechanism. This is necessary because the absence of contracts implies no due penalties for failures. Partners in networks develop social ties along their business contacts; they adjust to each other and begin to think and act in similar ways after a while. Functions, values and decisions are shared; administrative, financial and logistic structures are adjusted to enhance co-operation. The possession of “network-specific” assets may lock partners into the system: the barriers to exit may grow high in this structure, too.

In addition to increased flexibility, cost reduction is another objective and benefit of networking and outsourcing. Specialisation can also be a source of economies of scale. For example, outsourcers can use the same expensive equipment or knowledge to cater for several clients, thereby sharing (time-sharing) some of the costs. Bulk purchase may be another source of savings. Reducing the range of activities cuts the size of the corporation, which is another way of curtailing costs.

As a consequence of fierce competition, companies are more and more demanding with their partners, and not necessarily price will determine the outsourcing linkages. Quality, reliable delivery and rapid production changing abilities are the most valued attributes in subcontracting. Core companies often assist partners in improving these attributes by transferring technology and expertise (Antalóczy and Sass 1998). The new understanding of competitive strength of complete value chains puts pressure on weak links in the chain to catch up. Furthermore, integral, flexible co-operation among firms requires regular and intensive contacts between partners. Many strategic partners prepare new business projects together. The development of new products (including R&D), the penetration to new markets, the introduction of new services all require careful preparation based on teamwork.

Now it is time to examine the question whether subcontracting is a special form of outsourcing. First, let us see subcontracting. The author sees a sort of similarity in the rationale of subcontracting and outsourcing, which have many features in common, although there can be great differences between individual cases. Perhaps a more balanced statement would be to say that subcontracting is a type of outsourcing. The reasons for resorting to subcontracting are identical to those for outsourcing: cost reduction, cheaper labour, flexible use of capacities in line with market needs. In a way, subcontracting also fulfils the conditions of the narrow-sense definition of outsourcing. In outsourcing, the (sub)contractor receives materials and components that are the property of the partner and for a contracted fee performs a predefined procedure using these inputs. But why use this special form instead of normal subcontracting or FDI? The reason lies in the applicable tax and customs rules, which can provide additional cost advantages. The imported materials and other production inputs are usually transferred back to the country of origin (in a processed form), so the authorities provide full exemption from customs duty and VAT. These exemptions combined with cheap labour can provide the cost advantage over domestic production.

The history of subcontracting reveals several changes as clearly expressed in Antalóczy and Sass (1998). They argue that the early patterns (e.g. in Mexico) are hardly comparable with the current deals, because of the different world eco-

conomic environment. Competitive conditions were different in the 1970s. The activity of US-based multinationals in the Mexican *maquiladora* was very different from that of EU-based companies in Central Europe. The *maquiladora* effect itself has changed a lot since then. The earlier properties of subcontracting<sup>4</sup> do not apply. The way, how the advantages of low-cost production facilities are used, has changed. The author believes that the current patterns of subcontracting are influenced by the responses of international networking to recent global competitive challenges.

#### PATTERNS OF SUBCONTRACTING (OPT) IN HUNGARY

In Hungary, subcontracting has traditions from the 1970s. That time the goal of contractors was access to developed markets, technology development, and obtaining the right to manufacture competitive products. Initially subcontracting took place in light industries such as textiles, clothing, leather and shoes, like elsewhere in the world. It played a marginal role in the activity of the contractor firms and was regarded as the mentioned additional source of assets.

The trends in subcontracting changed 10–15 years ago. Networking features became stronger and EU regulations favoured internal co-operation schemes. Subcontracting by Mediterranean countries was promoted against other relations. The position of Central and Eastern European transition economies began to improve with the EU association agreements, leading to their larger scale in subcontracting networks involving EU-based firms. For Hungarian companies, this period in the early 1990s coincided with a severe liquidity crisis in the economy, which led to forced exit from some of their established markets. Many firms wanted to re-gain markets by subcontracting. Companies that had some experience of Western co-operation links were in a much more favourable situation and managed to stabilise their activity through subcontracting. An important precondition to successful adjustment was a smooth and possibly rapid privatisation. Companies that had links with Western partners skinned off the market, leaving only worse deals for less experienced candidates. Moreover, the new networking type of subcontracting required a minimum level of trust between partners that

<sup>4</sup> For a recent summary of the drawbacks of the *maquiladora* phenomenon, see Pellegrin (2000). The likeliest negative effects are strong dependence on powerful, developed partners implying low corporate income (inadequate to generate resources for investment and own-product development), technological dependency, isolation from other sectors and hence limited spillover effects, and reduction of corporate activity to a few simple processing tasks. In general, there is a fall in the chances of reducing dependence on partners and an absence of pull effects on the rest of the economy.

could develop only with time. Many companies did not survive long enough for their partners to build up the trust required for more sophisticated, better paying jobs.

From 1992–1993, the relative excess supply of companies willing to participate in subcontracting moderated because firms in worse financial condition retreated from the markets. At the same time, luckier companies were able to stabilise their financial positions and their co-operation links with Western partners.<sup>5</sup> The time span of contacts increased and the subcontracted processing tasks became more complicated producing higher added value and more income. Sometimes capital investments also occurred. Another important feature was the increase of the engineering industry's share in OPT turnover, along a decline of "traditional" light industries. Subcontracting became an engine of economic growth. OPT nowadays accounts for over 20% of Hungary's exports and its weight in manufacturing exports is even higher. The boom in subcontracting, illustrated by its role in exports, is shown in *Table 1*.

From 1997 the customs statistics indicate a decline of subcontracting in export performance. Several factors may have played a role in this process, but the real volume and importance of subcontracting did not change greatly. First, there is a strong exchange-rate bias because trade statistics were calculated in strong dollars whereas subcontracting was usually carried out in weaker European currencies (DEM, ATS, ITL). Second, the growing importance of customs-free zones is another source of statistical bias: by definition, OPT carried out in these areas is not recorded in customs statistics.

On the other hand, subcontracting gained new momentum after 1995. Using the rules applicable for customs-free zones, a large number of companies set up new facilities<sup>6</sup> for subcontracting-type of activities. Customs-free zones have almost the same advantages as those guaranteed in the OPT regulations. According to some estimates, the combined effect of subcontracting and customs-free zone turnover may be as much as 40% of total exports. If only registered OPT from customs-free zone turnover is counted, the result is a slight decline in the share of OPT over the past four years, as shown in *Table 2*. Nonetheless, we must not forget the even faster growth of total exports either.

<sup>5</sup> This means that firms with high dependency and unfavourable subcontracting conditions tended to exit, while others pursuing the new, more integral type of conditions in subcontracting contacts usually survived and managed to implement substantial adjustments and corporate restructuring.

<sup>6</sup> These are mainly affiliates of multinational companies that deployed certain parts of their production in Hungary through greenfield FDI. Though their activity is not recorded as subcontracting, it is essentially such trade.

Table 1  
Exports and OPT in the customs statistics (1992–1997)

	1992	1993	1994	1995	1996	1997
Exports (M USD)	10,705	8,907	10,588	12,867	12,859	14,044
Change of exports (previous year = 100)	–	83.2	118.9	121.5	100.0	109.2
Active subcontracting exports (M USD)	2,514	1,758	2,410	3,096	2,452	3,556
Change of subcontracting exports (previous year = 100)	–	69.9	137.1	128.5	111.5	103.0
Share of subcontracting in total exports	23.5	19.7	22.5	24.0	26.9	25.3

Source: Antalóczy and Sass (1998) based on Ministry of Industry and Trade data.

Table 2

Export of goods and the share of OPT (1996–1999)

	1996	1997	1998	1999	2000
Total export of goods (M USD)	15,704	19,100	23,005	25,013	28,092
Increase of exports (previous year = 100)	–	121.6	120.4	108.7	112.3
OPT export (M USD)	3,781	4,035	4,842	5,048	5,189
Increase of OPT export (M USD)	–	106.7	120.0	104.3	102.8
Share of OPT in total export of goods (%)	24.1	21.1	21.0	20.2	18.5

Source: The Statistical Yearbooks of Hungary, Central Statistical Office, Budapest.



Another important feature of Hungarian OPT can be illustrated with the help of the trade statistics: its balance is always positive, and it more and more contributes to reducing the trade deficit. This positive balance was between USD 521 and 739 million in 1996–1999 and its main component was the somewhat fluctuating aggregate subcontracting fee. There were exceptional peaks (e.g. in 1992, due to the war in Yugoslavia), in other years, the level dropped. The general tendency over the last decade has been a slow decline, for reasons of a statistical nature identified by Oláh (1998): the shift towards engineering increased automatically the value of processed materials and subassemblies in the calculations. The share of engineering in OPT increased from 20.6% to 41.8% between 1992 and 1997, while that of light industry fell from 63.1% to 43% (Antalóczy and Sass 1998). Empirical surveys also show that Hungarian subcontractors are usually not capable of maintaining even the nominal level of their fees. Gains from a devaluated Hungarian currency (HUF), for example, are shared between partners. Nonetheless, fees are still relatively high (28–30% of the contract value), because Hungarian firms are engaged in relatively higher value added activities, not simple assembly.

#### HYPOTHESES AND EMPIRICAL EVIDENCE

The Business Economics Department of the Budapest University of Economics launched a research programme in 1996 entitled “Competing with the World” and it was repeated in 1999.<sup>7</sup> Both surveys sampled over 300 companies, some of which were identical in the two rounds. The first sample included 50 companies that reported a share of at least 20% for subcontracting in their total sales revenue. In the second sample this number was 65. The 20% was taken as a threshold proportion, above which subcontracting was considered to be important in the firm’s activity. A share of more than 50% of turnover was defined as primary dependence on subcontracting. Over one third of the sample had regular subcontracting contacts. The prevalence of this type of activity in Hungary is confirmed by the fact that another 50 firms reported a smaller proportion of turnover earned in this way (less than 20%).

The questionnaires were not designed for research into our topic, so this paper is a by-product of the original research. However, interesting information

<sup>7</sup> The project was directed by Prof. Attila Chikán and Dr. Erzsébet Czakó. The aim of the two rounds of empirical surveys was to measure the advance of restructuring and modernisation of Hungarian manufacturing companies in the transition process. Research was also carried out on changes of competitive advantages of Hungary, and the new patterns of Hungary’s reintegration in international division of labour.

could be extracted from the answers, when we compared subcontractors' figures with total sample averages. The findings are summarised in the next section. First, information was collected about the circumstances in which companies chose subcontracting and whether this choice had been a deliberate strategic decision. Then the results of subcontracting were tested in the context of corporate strategy, by comparing them with a series of performance measures. The deeper analysis dealt with some special attributes of subcontracting, such as duration of cooperation arrangements, level of dependency, whether there were ownership links with foreign partners, determinants of export competitiveness, profitability of subcontracting, price trends, levels of technology and knowledge transfer. Comparisons of the sub-sample with sample averages followed along some further dimensions: size (more or less than 200 employees), the weight of subcontracting (20–50% of turnover or more), ownership (domestic or foreign), and branch (engineering or light industry). All groupings of the sub-sample enabled a relatively significant number of observations (between 23 and 53 out of a total of 115 companies in the two surveys).

The hypotheses were greatly influenced by the experience that Hungarian companies did not seem to suffer much from the usually mentioned negative consequences of subcontracting.<sup>8</sup> Companies looked satisfied with their subcontracting activity, which was a “part-time job” for many of them. Even firms that were strongly dependent on subcontracting stated that their basic expectations of revenue, profit, job security and technological development were met. No signs of “maquiladorisation” could be discerned. There might be several explanations. According to the assumption of our hypotheses, relatively favourable conditions of subcontracting emerged because Hungarian partners could join international production networks. The explanation is twofold. On the one hand, the nature and role of subcontracting was changing over time in the business strategies of large multinationals. On the other, Hungarian companies were able to provide the technical, human and business qualities that qualified them for joining international networks. This general picture can be translated into more specific and testable statements:

(1) Subcontracting becomes a longer lasting business link based on mutual if asymmetric division of benefits. The asymmetry is greater with subcontractors in weaker positions or working in crisis industries: some sections of light industry, loss-makers, or firms strongly dependent on subcontracting.

<sup>8</sup> As the questionnaire was not constructed for a survey of subcontracting, not all the hypotheses developed from the literature and the group variables could be tested.

(2) The asymmetric distribution of benefits does not mean that subcontractors cannot achieve their goals. Subcontractors may enjoy unilateral benefits of technology and knowledge transfers or access to markets and competitive products. The acquired knowledge and production capacities may enable subcontractors to develop quality products and penetrate to new markets with own products and brands. The most substantial obstacle to do so is probably the lack of adequate financial backing.

(3) Subcontracting links are in flux. Successful execution of processing or assembly tasks may bring chances to do more sophisticated, better-paying jobs. Parts of some classic subcontracting deals, like taking delivery of complete sets of production inputs from the contractor, may change and local sourcing be entrusted to the subcontractor. This improves bargaining positions and loosens dependence.

(4) The activity of subcontractors may become so integrated to international production networks that exit barriers arise. This applies especially if co-operation is strengthened by capital links, of which funding of joint ventures and foreign participation in privatisation (FDI) are the most influential types. Capital penetration is characteristic in engineering, but there are examples in light industry as well. It is typical in engineering because deepening co-operation there means a massive transfer of intangible assets necessary for the compatibility of production between the partners. The control of the knowledge transferred will be the most effective if there is some capital control. Another typical development in Hungary was greenfield investments for carrying out activities of subcontracting-type.

(5) Stable subcontracting links provided sufficient revenues for subcontractors until the mid-1990s. Thereafter, many subcontractors got locked into deeper co-operation, and they were unable to achieve increase in fees needed to offset the revaluation of the Hungarian currency. Prices and incomes dropped, although they remained high by international standards.

(6) In the bargaining process, Western partners often use the threat to move further East. However, there is little evidence of such cost-reducing moves. Activities of Hungarian subcontractors require a relatively high technology level and skilled, experienced, motivated labour, which are not easily available in potential competitor countries to the North-East or South-East of Hungary.

(7) A position at the high end of subcontracting may develop into that of a regular supplier. The most important precondition is the diversification of sales links by developing own products acceptable to several firms in the industry. The costs of such market penetration can be especially high for consumer goods.

(8) Empirical evidence suggests that most firms deliberately chose subcontracting. Even if there were external forces (e.g. loss of markets for own prod-

ucts), the companies usually prepared for this type of co-operation and saw subcontracting as a way to financial stability and modernisation. Firms that went into such co-operation as a last solution were less able to exploit its potential benefits. Many ceased to exist in the end. There were other firms, especially in engineering and plastics, which pursued subcontracting as an additional activity. Their usual goals were the better exploitation of capacities and knowledge transfer.

### SURVEY RESULTS

Market and institutional shocks hit subcontractors and other companies in very similar ways. The respondents identified market change as the most important shock. Not surprisingly, subcontractors were more sensitive to changes on foreign markets (they tended to be more export-oriented). Intensity of changes declines over time (*Table 3*). Firms did not differentiate between external forces and intra-company considerations as major strategy-shaping factors, although they may not have had the choice to respond to external threats. Subcontractors reported that they built quite intensively on foreign co-operation linkages. Small subcontracting firms and those subcontracted as an additional activity, were less sensitive to market shocks.

Subcontracting was deliberately chosen as one (seemingly the best) alternative for corporate adjustment.<sup>9</sup> This is clearly shown by the responses indicating that most subcontracting firms (more than the total sample average) recognised and actively responded to changes in their environment. Moreover, almost half of them stated that they acted proactively, not only foreseeing important changes but also preparing responses in advance. The most important notion was the carefully designed subcontracting activity (*Table 4*). We may state, therefore, that subcontracting was deliberately chosen from several alternatives and seen as an important element of corporate strategy. It was not a last resort seen as “a bad, but unavoidable decision, which harms companies”.

Firms, subcontractors and others alike, put much emphasis on qualitative factors as a source of successful strategies. The importance of qualitative factors increased over time, especially in subcontracting firms. The three most important factors of strategic success were product quality, reliable delivery and flex-

<sup>9</sup> It should be noted that many firms engaged in subcontracting as a last solution had gone out of business by the time of the second survey. This way there is a bias towards the more favourable side of subcontracting patterns for the early years of transition. The point here is not that subcontracting was the ultimate vehicle of corporate restructuring in Hungary, but that it was a possible option, used effectively by many firms. The strongly negative attitudes towards subcontracting root in earlier experience and should therefore be reconsidered.

Table 3  
Market changes and characteristics of shaping strategy

	Operation was influenced by competition on foreign markets	Operation was influenced by competition on domestic markets	Strategy was shaped according to external threats	Strategy was shaped according to own internal considerations	Strategy was based on foreign co-operation linkages
1996 total	3.0	3.6	4.0	3.9	3.6
1996 subcontractors	4.1	2.8	4.0	3.8	4.1
1999 total	2.9	3.4	n.d.	n.d.	n.d.
1999 subcontractors	3.7	2.6	n.d.	n.d.	n.d.
Small firms	3.7	2.7	3.8	4.0	4.0
Large companies	4.0	2.7	4.0	3.6	4.3
Main activity	4.0	2.6	4.2	4.1	4.5
Additional activity	3.6	2.8	3.8	3.6	3.8
Foreign firms	4.2	2.7	3.5	3.8	4.4
Light industries	3.9	2.0	4.0	3.5	4.3
Engineering	4.0	2.8	4.3	3.9	4.4

Note: Ranks on a 1–5 scale: 1 = not important, 5 = very important.

Table 4  
Types of adjustment strategy (% of valid responses)

	1996		1999	
	total	subcontractors	total	subcontractors
My company recognised threats always late	3	0	1	2
My company recognised threats but was unable to respond	14	14	9	9
My company recognised threats and responded reactively	41	39	40	32
My company foresaw threats and responded proactively	42	48	42	49
My company foresaw threats and tried to actively influence the environment	13	9	11	11

Note: For the different periods multiple answers were possible.

ible adjustment to demand. Somewhat surprising but very welcome was the high importance assigned to ethical behaviour. Correct and reliable business contacts played an important role (*Table 5*).

*Table 5*

Evaluation of aspects of corporate activity as a source of successful corporate strategy

	1996 total	1996 subcontractors	1999 total	1999 subcontractors
High product quality	3.4	3.4	3.6	3.7
Reliable delivery	3.5	3.4	3.5	3.7
Flexible adjustment to demand	3.5	3.4	3.7	3.7
Good company image	3.4	3.3	3.2	3.1
Lobbying at state authorities	2.5	2.3	2.6	2.5
Sales to government	2.4	2.2	2.5	2.3
Ethical behaviour	3.8	3.7	3.7	3.6
Skilled management	3.5	3.2	3.4	3.2
Updated management systems	3.1	2.8	3.1	3.0
High R&D expenditures	2.6	2.4	2.7	2.6
New product introduction	3.1	2.7	3.0	2.9
Close contact with consumers	3.4	3.1	3.4	3.2

*Note:* Ranks on a 1–5 scale: 1 = not important, 5 = very important.

*Table 6*

Corporate performance measures as compared with the most important competitor

	Profit/sales revenue	Profit/ assets	Market share	Technology level	Management quality	Product quality
1996 total	3.1	3.1	3.3	3.4	3.6	3.7
1996 subcontractor	3.4	3.4	3.3	3.5	3.6	3.7
1999 total	3.0	3.0	3.2	3.3	3.5	3.7
1999 subcontractors	3.2	3.2	3.3	3.4	3.3	3.9
Small firms	3.0	3.1	3.1	3.3	3.2	3.7
Large companies	3.6	3.5	3.6	3.6	3.6	4.0
Main activity	3.3	3.3	3.3	3.5	3.5	3.8
Additional activity	3.3	3.2	3.4	3.4	3.3	3.9
Foreign firms	3.6	3.4	3.8	4.1	3.8	3.9
Light industries	3.2	3.2	3.1	3.4	3.3	3.7
Engineering	3.3	3.3	3.4	3.4	3.5	4.0

*Note:* Ranks on a 1–5 scale: 1 = substantially worse, 5 = substantially better.

Since subcontracting was not seen as an unavoidable bad decision, it is not so surprising that subcontracting companies stood the competition and performed remarkably well. The figures in *Table 6* show no major differences among firms – the figures for subcontractors were around the sample averages except for an important measure: their profitability was clearly better both in 1996 and 1999.

However, there were big differences between the sub-groups of subcontractors. Large and foreign-owned firms reported above-average profits, while small firms tended not to reach the sample average<sup>10</sup> and performed worse by other indicators as well. Interestingly and somewhat contrary to the hypothesis, there was no striking difference between the firms of the two large manufacturing branches (especially profitability was similar in the two groups).

It may be concluded that subcontracting was beneficial to companies, at least in terms of income and profit generation. The figures in *Table 7* indicate that good performance and profitability were not the only outcomes attributable to subcontracting. Subcontracting firms reported more substantial positive changes of profitability, market share, productivity and product introduction than the sample average. This advantage narrowed over time, but in the period when stabilisation was most required, subcontracting was an important and useful tool for achieving such goals.

There are figures below 100 in *Table 7*, indicating deterioration in certain measures. The time required for product development became longer and customer disputes more frequent and serious. A possible explanation is the change of consumer attitude. Deterioration was reported in the sample average as well (subcontractors did not perform worse in these fields), so probably more demanding and rigorous clients appeared on the market. This means hardening market conditions rather than deterioration of product quality or other product or company characteristics.

The figures in *Table 7* show a slightly better picture for small firms. Their profitability and productivity improved faster than those of others. They also introduced more new products on the market, so their operation seems to have changed more than that of large companies. There are interesting differences between engineering and light industry as well. Increasing market share was more crucial to engineering subcontractors, but subcontractors of the light industry improved their profitability more. Product development in engineering was much more focused, but in general, the expected superior performance of engineering firms could not be clearly discerned.

<sup>10</sup> This is a well-known phenomenon with several possible explanations, and not specific to subcontracting firms only: profitability of small firms was lower in the total sample as well.

Table 7  
Changes of corporate performance measures

	Market share	Profitability	Productivity	Unit product cost	Time span of product development	Volume of production	Warranty costs	Time needed to settle consumer disputes	Number of customer complaints
1996 total	104	111	107	103	105	109	100	99	98
1996 subcontractors	110	110	110	101	104	110	99	100	95
1999 total	107	110	109	101	100	108	94	96	95
1999 subcontractors	111	114	110	103	95	116	91	95	96
Small firms	110	116	112	103	97	117	90	97	93
Large companies	112	108	109	101	101	110	100	98	98
Main activity	112	112	111	102	96	107	96	96	100
Additional activity	110	111	109	102	103	120	94	99	92
Foreign firms	114	112	111	99	90	102	90	90	91
Light industries	110	120	109	106	95	110	92	99	99
Engineering	116	111	113	103	98	120	95	96	95

Note: Previous year = 100, higher values = improvement, lower values = deterioration.



Table 8  
Access to credit and the firms' liquidity position

	Does your firm use bank credit?*	How easily do you obtain short-term credits?*	How easily do you obtain long-term credits?*	Did you apply for debt rescheduling during the past 3 years?***	Did you have default payment obligation during the past 3 years?***
1996 total	3.1	3.7	3.1	25	16
1996 subcontractors	2.8	3.4	3.0	30	25
1999 total	2.9	3.8	3.3	7	6
1999 subcontractors	2.6	3.7	3.1	13	13
Small firms	2.4	3.3	2.8	17	13
Large companies	3.1	3.8	3.3	14	23
Main activity	2.5	3.5	3.0	13	11
Additional activity.	2.9	2.6	3.2	9	9
Foreign firms	3.4	3.9	3.4	13	9
Light industries	2.0	3.5	2.7	8	12
Engineering	3.4	3.8	3.3	16	9

Note: \* Ranks on a 1-5 scale, \*\* % of valid cases.

The third group of performance questions related to corporate liquidity and access to credit. The financial status of companies depended heavily on the quality of their operation. Of the three sets of performance questions, this was the only one to produce the expected results: subcontracting firms clearly performed worse than the sample average (*Table 8*). Moreover, small firms in light industry applied for and received less credit (in accordance with the hypothesis). The liquidity position of subcontracting firms was also somewhat worse, except in the case of foreign-owned companies, but the situation improved over time – sample averages and subcontractors' data show clear improvement.

The questionnaire shed light on corporate R&D activity, often said to be neglected by subcontracting firms. In the light of the hypothesis, the problem has to be re-evaluated. If we accept that subcontracting enables Central European (Hungarian) firms to integrate into competitive international networks, we have to deal with FDI from this angle. R&D capacities are assets will therefore be valued and used in the interests of the whole network. Obviously, it goes against business rationality to run parallel facilities. Also, R&D activities are concentrated in specialised laboratories and research centres. Existing capacities of newly joined (acquired) items in the network have to be reshaped and their activities redesigned. This takes time. Mere discovery and evaluation of local capacities may take years. It has already been noted that participation and integration in international networks is a learning process for both sides, where trust and reliability have to develop. There is empirical evidence that R&D capacities at Hungarian firms are utilised, although activities are focused to fewer fields than before and used mostly for product development (in co-operation with the main R&D laboratories of the network).

The new and reshaped functions of R&D capacities were also observed in the sample. The most important positive message of *Table 9* is that both subcontractors and other companies did much more R&D in 1999 than in 1996, or at least the frequency of such activities increased considerably. The figures support the hypothesis: subcontractors were involved in less basic and applied research but engaged in more product and technology development and in changing production lines (test production and re-engineering).

Companies were also asked about their export performance. This is more important for subcontracting companies, because of their high export intensity. Export performance may say something about the success of the adjustment process of subcontractors, which was mentioned to be quick and thorough. The data in *Table 10* show rankings of the responses to the question "What was the most important competitive strength of your company in export activity?" The two outstanding responses were quality and use of existing good contacts with cus-

Table 9

R&amp;D activities (% of valid responses)

	1996 total	1996 subcontractors	1999 total	1999 subcontractors
Basic research	2	0	9	6
Applied research	16	7	18	9
Product development	40	41	52	53
Technology development	55	57	77	77
Production test, reengineering	23	30	36	41
Purchase of licence	13	7	14	3
Purchase of know-how	7	5	12	3
Education, training	36	36	51	38

Note: Multiple responses allowed.

Table 10

Importance of factors for export competitiveness

	Low price	Better services	Quick and flexible delivery	Quality	Good contacts	Better market knowledge
1996 total	3.4	3.1	3.8	4.3	4.1	3.5
1996 subcontractors	3.6	3.0	3.7	4.2	4.3	3.7
1999 total	3.6	3.4	3.9	4.3	4.2	3.6
1999 subcontractors	3.6	3.5	3.9	4.4	4.2	3.6

Note: Ranks on a 1–5 scale: 1 = not important, 5 = very important.

tomers. Quick and flexible terms of delivery was also ranked high, but surprisingly, low price was not mentioned as being of outstanding importance.

Self-evaluation of competitive strength compared with competitors matched with the information from the previous question. Product quality was ranked highest, and it seems to be the main competitive advantage of Hungarian firms. Subcontractors evaluated their performance slightly higher than the sample average, which is in line with the observation about their quick and thorough adjustment. Service companies gauged their performance as equal with major competitors (Table 11).

Additionally, Table 11 gives information about results or benefits of corporate adjustment and competitive strength: attainable prices and profit levels as compared with main competitors. Although firms did not state low price as a major

Table 11

Level of export competitiveness as compared with the main competitor

	Price level	Quality	Services	Profit share
1996 total	2.7	3.4	3.0	2.5
1996 subcontractors	2.8	3.5	3.0	2.6
1999 total	2.8	3.6	3.0	2.6
1999 subcontractors	3.0	3.8	3.0	2.7
Small firms	3.1	3.7	2.9	2.7
Large companies	2.8	3.6	3.2	2.6
Main activity	2.9	3.6	2.9	2.6
Additional activity	2.9	3.8	3.1	2.7
Foreign firms	2.6	3.4	3.1	2.7
Light industries	3.1	3.7	2.9	2.8
Engineering	2.8	3.7	3.0	2.5

Note: Ranks on a 1–5 scale: 1 = substantially worse, 5 = substantially better than that of the competitor.

Table 12

Perceived price indexes

	Increase of market price of the most important product of the firm	Increase of market price of the most important purchased product
1996 total	31	39
1996 subcontractors	29	36
1999 total	20	22
1999 subcontractors	12	16

Note: % in the year of survey.

competitive advantage, they estimated their prices to be lower than their competitors'. Somewhat surprisingly, small firms and firms in light industry indicated that their prices were slightly higher than the competitors'. These two groups of subcontracting companies used to be regarded as vulnerable and therefore badly paid. Firms in light industry remained consistent in reporting the highest profit share among the sub-groups. Profit of subcontractors and other firms was the same in the comparison with competitors.

There was also an opportunity to compare the firms' statements about input prices and prices achieved in sales. The comparison showed that input prices rose faster than output prices, but the difference of price indices was perceived to be narrower in 1999 (Table 12).

*Table 13* contains some information about the dependence of companies on suppliers and customers. Subcontractors sell a greater share of their turnover through long-term contracts, and this is not surprising: subcontracting implies that sales of products are not *ad hoc*. Interestingly, this share had dropped almost to the sample average by 1999. A plausible explanation is that the importance of subcontracting partners declined over time: firms successfully diversified their activities and developed their clientele. Nonetheless, we must treat the previous statement with care, because the structure of the sample also changed. Not surprisingly, large companies with substantial subcontracting activity and foreign-owned firms reported slightly higher values in this respect.

*Table 13*

Long-term sales contracts and dependence on suppliers or customers

	Approximate share of sales through long-term contracts (0–20 = 1... 80–100 = 5)	How many of your 5 most important suppliers could not be substituted in a short time?	How many of your 5 most important buyers could not be substituted in a short time?
1996 total	2.4	1.9	2.7
1996 subcontractors	3.1	1.4	3.1
1999 total	2.5	1.8	2.7
1999 subcontractors	2.7	1.6	2.1
Small firms	2.8	1.6	2.2
Large companies	3.1	1.4	2.9
Main activity	3.0	1.4	2.4
Additional activity	2.8	1.7	2.7
Foreign firms	3.0	1.1	2.5
Light industries	2.7	1.6	1.9
Engineering	2.7	1.7	2.8

The question about the substitution of customers and suppliers revealed that replacing suppliers is fairly easy for subcontractors as well whereas selling products is much more difficult. However, the “selling ability” of subcontractors improved significantly (by 1999 the 3.1 value fell to a relatively low 2.1). Large engineering firms seem to be more dependent on customers than small ones or the firms in light industry. This – again – contrasts the primary hypothesis that mostly the small firms of light industry depend on their partners.

## CONCLUSIONS

Clear evidence was found that many companies, especially the successful ones, had deliberately chosen subcontracting as an adjustment tool. It was not the only alternative, but probably one of the best under the unfavourable circumstances of the first transition years. Firms used subcontracting as a primary source for the needed modernisation of technology, competitive products and markets. Many firms integrated into international production networks. The majority of successful subcontracting companies implemented adjustment strategies in a proactive manner.

The expected modernisation effects came to reality in many cases. Knowledge transfer was also beneficial for the Western partners, who intended to rely on long-term contacts with the network members. Hungarian firms often had previous business contacts with these Western partners.

The modernisation effect could be shown by the fact that subcontracting firms underwent quicker and deeper adjustment than other companies in the sample. The most important areas of adjustment were new product development, improvement of quality and delivery, and an above average increase of productivity was also registered. Financial consequences of the successful strategies were also measured in the survey. Subcontracting firms reported higher profits than the total sample average.

Subcontracting meant reorganisation and not simple cuts in R&D. Among the surveyed companies, the emphasis has shifted from basic and applied research to product development. The contribution of scientists and engineers varied with the interests of the total network. The large-scale introduction of new products and technologies was a clear sign of fundamental production changes implemented in the first phase of transition. After basic restructuring, the process slowed considerably and the new production lines consolidated.

The survey supported the hypothesis that not low cost is the main competitive advantage of Hungarian subcontractors. The offered prices were not particularly low and companies considered product quality and flexibility of production to be the prime competitive advantage. An additional important success factor was the earlier established contacts ("traditional links") with customers.

The survey could not distinguish clearly the successful and less successful groups of subcontractors. However, some evidence was found that small firms in the light industry were not losers, for they achieved very good financial results. The distinguished groups of size, branch and ownership yielded mixed results in many respects and no clear-cut tendencies could be observed.

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