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Miklós Szanyi

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



1014 Budapest, Orszagház u. 30.

Tel.: (36-1) 224-6760 • Fax:(36-1) 224-6761 • E-mail: [vki@vki.hu](mailto:vki@vki.hu)

## SUMMARY

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Outward processing trade as measured in the macroeconomic statistics became an important factor of Hungarian exports during the 1990s. Likewise, it played an important role in many Hungarian manufacturing companies in the form of subcontracting as a type of business contact. The basic characteristics of subcontracting changed very much during the past decade worldwide, and the relationship of partners in this form of cooperation became more balanced. Another distinct microeconomic development was the establishment of new types of cooperation networks. Outsourcing, for example, became a spreading form of cooperation. These two developments inspired the author to try and check if subcontracting can be interpreted as a special form of outsourcing. If this hypothesis proves true then the previous negative interpretations of subcontracting will also require reconsideration.

The study starts with a theoretical comparison of definitions, regulatory background and business effects of the two phenomena. Striking similarity in the rationale of the two was found. Besides, the real effects of subcontracting turned out to be rather advantageous for Hungarian manufacturing firms striving for the modernisation of their activity. The anecdotal evidence suggested that many Hungarian firms chose the development of subcontracting links with the more developed, well-established Western firms as a primary tool of receiving necessary modernisation inputs. They deliberately chose this option among several decision possibilities as the best one, and made it the basis of their long-term modernisation strategy. The many negative effect previously connected to subcontracting apparently did not apply to these firms. There was another group of companies engaged in subcontracting that achieved less success. Most of these companies entered or continued subcontracting as a last chance and had

basically no alternative options. They could usually not use this contact as a tool of modernisation, just as a means of short-run survival. Without the necessary adjustment and modernisation they soon had to exit markets.

The theoretical background and the anecdotal evidence suggested an interesting interpretation. The study states that subcontracting has become a major engine of modernisation and international integration for many Hungarian manufacturing firms. Subcontracting links themselves are rather a form of outsourcing, and provide the necessary durability, knowledge and technology transfer, market access that are associated with outsourcing in general. The second part of the study empirically tested this statement. The empirical survey used a sample of over 100 firms engaged in subcontracting while dynamic comparisons were also possible to make to some extent, since there were two separate observations.

The survey results largely proved the hypothesis. Subcontracting was taken by firms as a deliberately chosen essential part of their strategic modernisation efforts. It provided a large variety of pulling effects. As a business contract subcontracting was always considered a profitable one, implying that even the short-term profits were shared between partners. Subcontracting links showed substantial durability and development in the medium and long run providing a chance for companies to become regular supplier partners.

## INTRODUCTION

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Although parents always recall the differences between their accustomed way of life and what their children regard as normal, they do not usually say that the world has changed fundamentally, except in very rare periods. However, we seem to be in such a period now, when not only the means of production – the hardware – is changing quickly, but also the way of thinking, living and doing business. This change of business software is tightly bound to the hardware developments and indeed facilitates them. What is needed in software development? New technologies and production facilities incorporate enormous quantities of accelerated knowledge, both technical and commercial. The sophisticated production networks currently in use are suitable for mass customization rather than mass production. This makes for flexible production, but requires extensive accumulation of tangible and intangible capital: up-to-date machinery and the relevant marketing, financial and management knowledge. Even the largest corporations can no longer achieve this high concentration of competencies. The quality of cooperation among business entities has become the core issue of international competitiveness.

The current wave of corporate cooperation 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 greatly. 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. Cooperation – the creation of business networks – came to be regarded as a suitable organizational innovation for the changed business hardware and software. While the economy of the 20th century was dominated by large, con-

centrated, hierarchically structured corporations, that of the 21st century will be ruled by cooperating business networks.

If international cooperation networks will be 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 such integration, and if so, 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 at keeping up with the accelerating technological development and the even speedier market changes. Traditional business partners started to establish more regular and strategic cooperation as a way of increasing their flexibility and capital concentration. This was characteristic of R and D partnerships, production joint ventures and product-specialization agreements. This set of cooperation links enabled participating firms to concentrate on their core activities without risk of losing other, necessary activities in the value chain.

The essence of the network is its flexibility. The participation of single companies is reduced to the minimum level of contribution. The value chain is not burdened with capacities and competencies that are not required for a specific project. In this sense, cooperation 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 projects (DESS *et al.*, 1995). It is not the task of this paper to contribute to the general discussion of cooperative networks or offer a full set of the different types of network (joint R and 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 into the partnership of international production networks.

The paper presents first a set of statistics that illustrates the dimensions and basic characteristics of subcontracting and outward processing trade (OPT)<sup>1</sup> in Hungary. Next, a hypothesis is advanced and examined using data from over 100 firms that perform subcontracting. The database derives from a major research programme at the Business Economics Department of the Budapest University of Economics. Over 300 companies visited in 1996 and in 1999 were asked a set of questions about all aspects of their company and business. The questionnaires were not targeted at problems of subcontracting, but it was possible to distinguish the group that pursued such activity. The following analysis is therefore a by-product, so to speak, of the original research programme, which was entitled 'Competing in the World'.

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<sup>1</sup> The legal regulations on OPT include a definition of the transactions covered by the category, although no clear definition of subcontracting exists. The two overlap to a large extent, since both relate to international business transactions in which subcontractors take over some processing of production inputs delivered by their contracting partners and transfer all the processed goods back to their country of origin. The differentiation is made on a conceptual basis. OPT is used as an international trade category, while subcontracting denotes a type of contract between business partners in specific circumstances, with effects on both parties.

## 1. WHY SUBCONTRACTING IS TREATED AS A TYPE OF NETWORKING

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To reveal the relevance of the comparison with subcontracting, it is necessary first to identify the main characteristics of cooperation networks and the specific features of outsourcing.<sup>2</sup> Since there is no clear definition of networking and the objects of investigation were created spontaneously rather than according to definitions or regulations, the role and significance of certain features may vary widely between networks.<sup>3</sup>

Network-type linkages may develop among partners through outsourcing. This practice started some ten years ago, as large multinational corporations began contracting outsider companies to run some of their complete strategic functions. Most common was the outsourcing of informatics, but there were also examples in human resources. A broader definition of outsourcing embraces outward location of other, non-

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<sup>2</sup> This section is based largely on the review of the literature provided in Szabó (1998a and 1998b).

<sup>3</sup> According to Szabó (1998a and 1998b), networks form a type of coordination mechanism different from market forces and from corporate hierarchies. They are not, or not exclusively ruled by contracts or money – mutuality of exchanges – but by reciprocity (in the sense of Polányi). The exchange of benefits within the networks is not necessarily mutual. Often it is indirect and loose, and the competencies of the partners tend to be complementary to each other. Since networks are open ended, the propensity to cooperate efficiently is secured by the potential replacement of partners. The quality of the contributions made to the network is also monitored by some kind of watchdog mechanism. This is necessary because the absence of contracts means there are no potential penalties for failures. Partners in networks develop social ties alongside their business contacts. Partners adjust to each other, and after some time, begin to think and act in similar ways. Functions, values and decisions are shared and administrative, financial and logistic structures adjusted to enhance the cooperation. Possession of many 'network-specific' assets may also lock partners into the system: the barriers to exit may grow high in this structure too.

functional types of activity: R and D projects, key elements in the production chain, security, cleaning and catering may be described as 'outsourced'. The essence of outsourcing is that a company contracts an outside economic actor to perform a function that has been carried out in-house. This paper restricts the term to activities having some strategic importance. In cases of subcontracting, the subcontracted activity is usually an important part of the production process. 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.<sup>4</sup> In the case of subcontracting, it is precisely the tight control of activities, including the supply of all production inputs, which makes possible a comparison with outsourcing.

Outsourcing is a basic tool in the process of reducing activities to core competencies. Firms concentrate on what they do best (BUSS, 1995). It is also a suitable tool for flattening out the organization chart and reducing the levels of hierarchical decision making, which also increases flexibility. Outsourcing increases the potential stock of assets, because firms may use the competencies of others without the additional costs of stocking and maintaining the assets for doing so. Production capacities as well as tangible assets can be utilized flexibly according to demand. Furthermore, the staff and workers need not be high-cost regular employees. They can be hired sporadically from specialized 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 specialization of firms, so that in effect it is 'vertical disintegration' (SZABÓ, 1998a).

Because of the fierce competition, companies are becoming more demanding with their partners. The outsourcing link-

ages are not necessarily determined by price. Quality, reliable delivery and rapid production-changing abilities are the attributes most valued in subcontracting. Core companies often assist partners in improving these attributes by transferring technology and expertise. The new understanding of the competitive strength of complete value chains (PORTER, 1985) puts pressure on the weakest links in the chain to catch up. Furthermore, integral, flexible cooperation among firms requires regular, intensive contacts between the partners. The common tasks and goals set will change over time. Many strategic partners prepare for new business projects together. The development of new products (including R and D), penetration of new markets and the introduction of new services all require careful joint preparation and teamwork.

The other major goal of outsourcing is cost reduction. In broad terms, this means that even the biggest companies are not able to provide the whole range of products and services on any specific market. Since complete, full-range solutions compete on the markets, companies must specialize in the core activities in which they enjoy long-term competitive advantages (PORTER, 1985). Everything else is combined with the supply by other specialists. Specialization also induces important economies of scale. For example, outsourcers that have several clients can use the same expensive equipment or knowledge to cater for them all, so sharing (time-sharing) at least some of the costs. Bulk purchase may be another source of savings. The reduction in the extent of activities may also reduce the size of the corporation, which is another important way of reducing costs.

Another important area where important advantages can be achieved is human resource management. Occasional hiring of labour instead of regular full-time employment means a lot of cost saving, let alone the inconveniences of firing, of the adjustment to sophisticated regulations that are controlled by trade unions and governments, etc. But there is also another source of advantage: flexible use of labour and continual

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<sup>4</sup> There has been rapid inflation of the term. The term outsourcing is sometimes used for long-term trade contracts for the supply of certain parts or assemblies.

development of skills, according to current market demands. The rigidity of regular employment leads to clumsy reactions, slow changes in skills and education, or simply rigidity of working conditions and tasks. It is difficult and expensive for a firm with a certain workforce to change its structure, by putting more people onto one job currently in demand and taking them off others. Such changes can usually be carried out only through expensive, time-consuming re-training. Such problems are largely avoided by temporary hiring.

After that brief account of some aspects of networking and outsourcing, it is time to turn to the question of whether subcontracting can be regarded as a special form of outsourcing. First, let us define subcontracting. The author sees a similarity of rationale between subcontracting and outsourcing, which have many other features in common, although there are big differences between individual cases. Perhaps a more balanced statement would be to say that subcontracting was a type of outsourcing, but the real chances for developing strong networking linkages depended on many circumstances. Thus firms in Central Europe have an option to become part of competitive international production networks, but this option has conditions attached.

Most subcontracting can indeed be regarded as a type of outsourcing. The reasons for resorting to this special form of cooperation are identical to those for outsourcing, in the main, cost reduction, cheaper labour, and flexible use of capacities in line with market needs. Subcontracting in a way also fulfils the conditions of the narrow-sense definition of outsourcing. The contractor receives materials and components that are the property of the partner and pursues pre-defined processing on them for a contracted fee. But why use this special form instead of normal outsourcing or FDI? The reason lies in the special tax and customs concessions available, which provide additional cost advantages. Since the imported materials and other production inputs are transferred back entirely to the country of origin, in a proc-

essed form, the authorities provide full exemption from customs duty and VAT. These exemptions and the cheap labour provide the cost advantages over domestic production.

Antalóczy and Sass (1998), reviewing the literature on subcontracting, found that both the relative and the absolute wage levels were of primary importance. The quality and productivity of labour are decisive in comparison with other potential production sites, including both domestic production and other foreign locations. The sharp increase in subcontracting in Hungary was induced by a slow increase in real wages compared with productivity. Unit labour costs fell substantially in the first half of the 1990s in Hungary, while in other transition economies the opposite occurred (SZANYI, 1997).<sup>5</sup>

Other important factors for many businesses can be geographic location and transport costs. The higher ratio of value to weight of processed materials in an industry, the more likely it is that there will be scope for subcontracting, so long as the production can be divided into separable processing circles. In businesses with rapid market-driven changes or established tight production cooperation (e.g. in a 'just-in-time' system), spatial considerations may become very important.

There have been some changes during the history of subcontracting, as clearly expressed in Antalóczy and Sass (1998). They argue that the early patterns of subcontracting (e.g. in Mexico) are hardly comparable with the current deals, because of the different world economic 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 parameters of subcontracting<sup>6</sup> could

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<sup>5</sup> There was also a modest decline in unit labour costs in Poland.

<sup>6</sup> For a recent summary of the drawbacks of the *ma-*

not be maintained. There has been a change in the way the advantages of low-cost production facilities are utilized. The author believes that the current patterns of subcontracting are much influenced by the responses of international networking to recent global competitive challenges.

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

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Subcontracting in Hungary has traditions dating back to the 1970s. In that environment, the goal of the contractors was access to developed markets, technology development, and acquisition of the right to manufacture competitive products. Subcontracting initially took place mainly in light industries such as textiles, clothing, leather and shoes, as was the case elsewhere in the world. It played a marginal role in the activity of the contractor firms and was regarded as an additional source of the asset types mentioned. As the economic regulations were liberalized, they began to favour the development of Western ties and subcontracting linkages gained stability in many cases. These traditional contacts began after 1990 to play an important role in corporate adjustment strategies. Another important impact was access to revenues and development sources in succession to what central planning allocated to companies. Thus, even with at relatively low rates of pay, the arrangements were regarded as highly beneficial.

The trends in subcontracting changed 10–15 years ago. Networking features became stronger and EU regulations favoured internal cooperation schemes. Subcontracting by Mediterranean countries was promoted against other relations. The position of the CEE transition economies began to improve again with the EU association agreements, leading to larger-scale involvement. For Hungarian companies, this period in the early 1990s coincided with a severe liquidity crisis in the economy, which later led to massive exits from markets. This many firms attempted to avoid by trying subcontracting as a last resort. Companies that had some experience of Western cooperation links were in a much more favourable situation and able to stabilize their activity through subcontracting. Another important condition for successful adjustment was a smooth and if possible rapid process of privatization. Companies that had previous links with Western partners effectively creamed off the market, leaving only worse deals available for less experienced candidates. Moreover, the new networking type of subcontracting required a minimum level of trust between partners that could develop only with time. Many companies did not survive long enough for their partners to build up the trust required before they assigned to them more sophisticated, better paying jobs.<sup>7</sup>

From 1992–3, the relative oversupply of companies willing to participate in subcontracting eased, since those in worse financial condition were exiting from the markets. At the same time, luckier companies were able to stabilize their financial positions and their cooperation links with Western partners.<sup>8</sup> The durability of con-

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*quiladora* phenomenon, see Pellegrin (2000). The likeliest negative effects are strong dependency on powerful, developed partners, whose consequences may be low income levels (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 limiting dependency on partners and an absence of pull effects on the rest of the economy.

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<sup>7</sup> The mass scale exit of once-important, mainly state-owned or privatized firms started in 1992, when new bankruptcy legislation went into force. The law included an automatic trigger, whereby firms with overdue obligations had to file immediately for bankruptcy (liquidation or reorganization). Several thousand companies exited in this way during the 20-month period when the trigger was in effect.

<sup>8</sup> This means that firms with high dependency and unfavourable subcontracting conditions tended to exit, while others pursuing the new, more integral

facts increased and the processing tasks transferred became more complicated, producing higher added value and more income. Sometimes capital investments also occurred. Another important feature was the increase in the engineering industry's share of OPT turnover, with a decline in the share of traditional light industry. Subcontracting became an engine of economic growth. OPT nowadays accounts for over 20 per cent of Hungary's exports and the share of manufacturing exports is even higher. The boom in subcontracting, illustrated by its role in exports, is shown in *Table 1*.

Table 1  
Exports and OPT, based on customs statistics for the period 1992–7

	1992	1993	1994	1995	1996	1997
Exports (USD million)	10705	8907	10588	12867	12859	14044
Change in exports (previous year = 100)	-	83.2	118.9	121.5	100.0	109.2
Active subcontracting exports (USD million)	2514	1758	2410	3096	2452	3556
Change in subc. 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: Antaloczy and Sass (1998), based on Ministry of Hungarian Industry and Trade data.

The customs statistics show a decline in the role of subcontracting in export performance from 1997 onwards. In fact, several factors may have played a role in this, because the real volume and importance of subcontracting did not shrink greatly. There was a strong exchange-rate distortion, as the trade statistics were calculated in strong dollars, while subcontracting was carried out mainly on the basis of weaker European currencies (DEM, ATS, ITL). Another important factor was the growing importance of customs-free zones in the operation of subcontracting

type of conditions in subcontracting contacts usually survived and carried out substantial adjustments and corporate restructuring.

partners. OPT carried out in these areas is by definition not recorded in customs statistics.

In reality, subcontracting gained new momentum after 1995. Using the provisions of the customs-free zones, a large number of companies set up new facilities for subcontracting-type activities. Customs-free zones provide almost the same advantages as those guaranteed in the OPT regulations.<sup>9</sup> According to some estimates, the combined effect of subcontracting and customs-free zone turnover may be as much as 40 per cent of total exports. But if only the amount of registered OPT from customs-free zone turnover is added, the result is a slight decline in the

share of OPT over the past four years, as shown in *Table 2*. This is due to even faster growth in the total export turnover.

Table 2  
Exports of goods and the share of OPT, 1996–9

	1996	1997	1998	1999
Total goods exports (USD million)	15704	19100	23005	25013
Increase in exports (previous year = 100)	-	121.6	120.4	108.7
OPT exports (USD million)	3781	4035	4842	5048
Increase in OPT exports (USD million)	-	106.7	120.0	104.3
Share of OPT in total goods exports (%)	24.1	21.1	21.0	20.2

Source: [www.gm.hu/foreco/statistic/F970112/tablex0.htm](http://www.gm.hu/foreco/statistic/F970112/tablex0.htm)

<sup>9</sup> These are mainly affiliates of multinational companies that moved certain parts of their production to Hungary through greenfield FDI. Though their activity is not recorded as subcontracting, this is essentially such trade.



Another important feature of OPT can be illustrated by the trade statistics. The balance of OPT is always positive, so that it contributes to large and increasing extent to reducing the trade deficit. This positive balance was between USD 521 and 739 M USD between 1996 and 1999. The main contributor to this is the aggregate subcontracting fee, which fluctuated to some extent over the years. There were exceptional peaks (e.g. in 1992, due to the war in Yugoslavia), while 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 the processed materials and subassemblies in the calculations. The share of engineering in OPT increased from 20.6 per cent to 41.8 per cent between 1992 and 1997, while that of light industry fell from 63.1 per cent to 43 per cent (ANTALÓCZY AND SASS, 1998). Empirical surveys also show that Hungarian subcontractors are not usually capable of maintaining even the nominal level of their fees. Gains from the devaluation of the HUF, for example, are shared between the partners. Nonetheless, the level of fees is still relatively high (28–30 per cent of contract value), because Hungarian firms are engaged in relatively skilled activities, not simple assembly.

### 3. THE HYPOTHESIS AND DESCRIPTION OF THE EMPIRICAL SURVEY

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The Business Economics Department of the Budapest University of Economics organized a major research programme in 1996 entitled 'Competing in the World', which was repeated in 1999. Both surveys sampled over 300 companies, some of which were identical in the two runs. The first sample included 50 companies that reported a share of at least 20 per cent for subcontracting in their total sales revenue. In the second sam-

ple, they were 65. This was taken as a threshold proportion, above which subcontracting was said to be playing an important role in the firm's activity. A share of more than 50 per cent of turnover was defined as primary dependence on subcontracting. 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 per cent).

The questionnaires were not designed for researching into the present topic. This analysis can only be described as a by-product of the original research. However, many questions provided interesting information, when subcontractors' figures were compared with total sample averages. The findings are summarized in the next section. Information was collected first about the circumstances in which companies undertook this kind of business and whether the choice of it 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 durability of cooperation arrangements, level of dependency of partners, whether there were capital links with foreign partners, determinants of export competitiveness, profitability of subcontracting, price trends, and levels of technology and knowledge transfer. Comparisons of the sub-sample with sample averages were followed by further division of the sub-sample by size (more or less than 200 employees), the weight of subcontracting (20–50 per cent of turnover or more), ownership (domestic or foreign), and branch (engineering or light industry). All the divisions of the sub-sample produced relatively remarkable numbers of observations (between 23 and 53 out of a total of 115 companies in the two surveys).

As the questionnaires were not purpose-built for researching subcontracting, not all the hypotheses developed from the survey of literature and the statistical analysis could be tested. The leitmotiv of the hy-

pothesis was much influenced by the experience that companies did not seem to suffer much from the negative consequences that are regularly mentioned.<sup>10</sup> Companies seemed to be satisfied with their subcontracting activities, which for many were a 'part-time job'. Even firms that were strongly dependent on subcontracting stated that their basic expectations for revenues, profits, job security and technological development were met. No signs of 'maquiladorization' could be discerned. There might be several explanations for this. The hypothesis states that the relatively favourable conditions of subcontracting applied because Hungarian partners became part of international production networks. On the one hand, the nature and role of subcontracting were 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 belonging to the international networks. The general hypothesis can be translated into more specific and testable statements.

1. Subcontracting becomes a durable 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.
2. The asymmetric division of benefits need not mean that subcontractors cannot achieve their goals. Subcontractors may enjoy unilateral benefits in the form 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 new markets with their own products and brands. Perhaps the biggest obstacle here is 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 tasks. Parts of some classic subcontracting deals, like taking delivery of complete sets of production inputs, may change and local sourcing be entrusted to the subcontractor. This also improves bargaining positions and loosens dependence.
4. The activity of subcontractors may become integral to the international production network, so that exit barriers rise. This applies especially if cooperation is strengthened by capital links, of which funding of joint ventures and foreign participation in privatization (FDI) are the most effective types. Capital penetration is characteristic of engineering, but there are also examples in light industry. It is typical of engineering, because deepening cooperation there means a massive transfer of the intangible assets necessary for compatible production. Control of use of this knowledge is most effective if there is some capital control. Another typical development in Hungary was the establishment of greenfield investments for carrying out subcontracting-type activities.
5. Stable subcontracting links provided sufficient revenues for subcontractors until the mid-1990s. Thereafter, they tended to become locked into these arrangements by deeper cooperation. They were unable to achieve the increases in fees needed to offset the revaluation of the Hungarian currency. Prices and incomes declined, although they remain high by international standards.
6. Western partners often use in the bargaining process the threat to move further East. However, there is little evidence of such cost-reducing moves occurring. Hungarian subcontractors pursue jobs at the higher end of the range, which cannot be substituted for easily. Such activity requires a relatively

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<sup>10</sup> For a summary of these, see Pellegrin (2000).

high technology level and skilled, experienced, motivated labour 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 prime requirement is diversification of sales links by developing own products acceptable to several firms in the industry. The costs of market penetration can be especially high with consumer goods.
8. According to empirical surveys, the best subcontracting links for securing adequate income levels and substantial knowledge transfers develop directly with Austrian or German firms (not with an intermediary). French and Italian firms prefer looser, occasional links, with no major knowledge transfer and offer only simple, low-paid tasks. Intermediaries appear more frequently and their charges are usually deducted from the subcontracting fee.

financial stability and modernization. Firms that saw such cooperation as a last resort were less able to exploit its potential benefits. Many must have exited in the end. There were also many firms, especially in engineering and plastics, pursuing subcontracting as an additional activity. Their goals were mainly better use of capacity and knowledge transfer.

## 4. SURVEY RESULTS

Market and institutional shocks hit subcontractors and other companies in very similar ways. The form of shock identified as most important by respondents was market change. Subcontractors by definition were more sensitive to changes on foreign markets, since they tended to be export oriented. The intensity of the changes declined over time (*Table 3*). Firms did not differentiate between external forces and intra-company considerations as major strategy-shaping

Table 3  
Changes in markets and in the factors shaping strategy  
(scale from 1 = not important to 5 = highly important)

	Operation influenced by competition on foreign markets	Operation influenced by competition on domestic markets	Strategy shaped by external threats	Strategy shaped by intra-company considerations	Strategy based on foreign cooperation linkages
1996 total	3.0	3.6	4.0	3.9	3.6
1996 subcontracting	4.1	2.8	4.0	3.8	4.1
1999 total	2.9	3.4			
1999 subcontracting	3.7	2.6			
Small firms	3.7	2.7	3.8	4.0	4.0
Big firms	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 industry	3.9	2.0	4.0	3.5	4.3
Engineering	4.0	2.8	4.3	3.9	4.4

9. Empirical evidence suggests that most firms chose subcontracting deliberately. Even if there were external forces (e.g. loss of markets for own products), they usually prepared for this type of cooperation and saw such deals as a route to

factors. They may have had some choice of responses to strong external threats. Subcontractors reported that they built quite intensively on their foreign cooperation linkages. Of the sub-groups, small firms and those subcontracted as an additional activity

reported less intensive market shocks. They and foreign companies did not feel more intensive external threats when shaping their strategy than other subcontractors did. For small firms subcontracting in addition to other activities, existing cooperation links were also less important (Table 3).

Subcontracting was deliberately chosen as one (seemingly the best) alternative for corporate adjustment.<sup>11</sup> This is clearly shown by the responses indicating that most subcontracting firms (more than the total sample average) recognized and actively responded to changes in their environment. Moreover, almost half of them stated that they acted proactively, not only foreseeing important changes, but preparing their responses in advance. The most important part of their response was carefully designed subcontracting activity (Table 4). We may

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

	1996 total	1996 subcon- tracting	1999 total	1999 subcon- tracting
My firm always recognized threats late	3	0	1	2
My firm recognized threats but was unable to respond	14	14	9	9
My firm recognized threats and responded reactively	41	39	40	32
My firm foresaw threats and responded proactively	42	48	42	49
My firm foresaw threats and tried to influence its environment actively	13	9	11	11

\* For different periods, multiple answers were possible.

state, therefore, that subcontracting was deliberately chosen from several alternatives and seen as an important element of corporate strategy. It was not just a last resort, a bad, but unavoidable decision that harmed rather than helped companies.

<sup>11</sup> It should be noted that many firms engaged in subcontracting as a last resort had exited by the time of the survey, so that the conditions reflected show only one, more favourable side of subcontracting patterns during 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 rooted in earlier experience should therefore be reconsidered.

Firms, subcontractors and others alike, put much emphasis on qualitative factors as a source of successful strategies. The importance of these increased over time, especially with subcontracting firms. The three most important factors in strategic success were product quality, reliable delivery and flexible adjustment to demand. Somewhat surprising but very welcome was the high importance also given to ethical behaviour. Correct and reliable business contacts seem to play an important role (Table 5).

Since subcontracting was not regarded as an unavoidable bad decision, it is not so surprising that subcontracting companies withstood the competition and produced remarkably good performances. The figures in Table 6 show there were no major differences among firms – subcontractors also reached the sample averages except in two important measures. Their profitability was clearly better in both 1996 and 1999.

However, there were big differences between sub-groups. The big and the foreign-owned firms were especially likely to show above-average profits, while the small firms' profits tended not to

reach the sample average<sup>12</sup> and were inferior by most other performance measures as well. Big firms and foreign-owned firms, on the other hand, performed better. Interesting and somewhat contrary to the hypothesis was the absence of any striking difference between the firms in the two big manufacturing branches, especially in profitability.

<sup>12</sup> This is a widespread phenomenon with several possible explanations, but not specific to subcontracting firms. The profitability of small firms was lower in the total sample as well.

Table 5  
Aspects of corporate activity as a source of successful corporate strategy  
(scale from 1 = not important to 5 = highly important)

	1996 total	1996 sub- contracting	1999 total	1999 sub- contracting
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
Properly skilled management	3.5	3.2	3.4	3.2
Updated management systems	3.1	2.8	3.1	3.0
High R and D expenditures	2.6	2.4	2.7	2.6
New product introduction	3.1	2.7	3.0	2.9
Close contacts with consumers	3.4	3.1	3.4	3.2

Table 6  
Corporate performance measures compared to most important competitor  
(scale from 1 = not important to 5 = highly important)

	Profit/ sales reve- nue	Profit/ assets	Market share	Technol- ogy level	Manage- ment quality	Product quality
1996 total	3.1	3.1	3.3	3.4	3.6	3.7
1996 subcontracting	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 subcontracting	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
Big firms	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 industry	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

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

narrowed over time, but in the period when stabilization was most required, subcontracting was an important and useful tool for achieving such goals.

Table 7  
Changes in corporate performance measures  
(previous year = 100, higher values = improvement, lower values = deterioration)

	Market share	Profit- ability	Productiv- ity	Unit product cost	Duration of product develop- ment	Number of products produced	Warranty costs	Time needed to settle customer disputes	Number of customer disputes
1996 total	104	111	107	103	105	109	100	99	98
1996 subcontracting	110	110	110	101	104	110	99	100	95
1999 total	107	110	109	101	100	108	94	96	95
1999 subcontracting	111	114	110	103	95	116	91	95	96
Small firms	110	116	112	103	97	117	90	97	93
Big firms	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

outcomes attributable to subcontracting, which also contributed substantial improvements in the performance measures. Firms reported bigger positive changes in profitability, market share, productivity and product introduction than the sample average (containing the values for all companies). This advantage

There are also figures below 100 in Table 7, indicating deterioration in certain measures. The duration of product development became longer and customer disputes more frequent and serious. A possible explanation is change of consumers. Since the deterioration was reported in the sample average as well (subcontractors were not inferior in these aspects either), it can be suspected that more demanding and rigorous clients appeared on the markets. This meant hardening of 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 did. They also introduced a greater number of new products, so that their activity seems to have undergone deeper changes than that of big firms. Interesting differences can be seen between engineering and light industry as well. Increasing market share was more fundamental to engineering subcontractors, but those in light industry improved their profitability more. The product development in engineering was much more vigorous, but in general, the expected superior performance of engineering firms could not be clearly discerned.

The third group of performance questions related to corporate liquidity and access to credit. The financial status of companies must have depended heavily on the

quality of their activity. 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, which accords 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 showed clear improvement.

The questionnaire shed light on corporate R and D activity, often said to be neglected by subcontracting firms. In the light of the hypothesis, the problem has to be defined differently. Accepting that subcontracting is a way in which Central European (Hungarian) firms can become parts of competitive international networks means dealing with questions of FDI from this angle. R and D capacities are assets valued and used in the interests of the whole network. It is obviously irrational economically to run parallel facilities. R and D activities are also concentrated in specialized laboratories and research sites. 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 form a learning process for both sides,

Table 8  
Access to credit and the liquidity position of firms  
(ranked on a scale of 1–5, percentages of valid cases)

	Does your firm use bank credit?	How easily do you obtain short-term credits?	How easily do you obtain long-term credits?	Have you applied for debt rescheduling in the past three years?	Have you defaulted on a payment in the past three years?
1996 total	3.1	3.7	3.1	25	16
1996 subcontracting	2.8	3.4	3.0	30	25
1999 total	2.9	3.8	3.3	7	6
1999 subcontracting	2.6	3.7	3.1	13	13
Small firms	2.4	3.3	2.8	17	13
Big firms	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 industry	2.0	3.5	2.7	8	12
Engineering	3.4	3.8	3.3	16	9

where trust and reliability have to develop. There is much empirical evidence that R and D capacities at Hungarian firms are utilized, although activities are specialized in fewer fields and used mainly for product development, in cooperation with the main network R and D laboratories.

Table 9  
R and D activities  
(percentages of valid responses)\*

	1996 total	1996 subcon- tracting	1999 total	1999 subcon- tracting
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, retooling	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

\* Multiple responses allowed

The new and changed functions of R and D capacities were also registered in the sample. The most important positive message in *Table 9* is that subcontractors and other companies alike did much more R and D in 1999 than in 1996, or at least the frequency of such activities increased considerably. The figures supported the hypothesis: subcontractors did much less basic and applied research but were deeply involved in product and technology development and in changing production lines (test production and retooling).

*Table 10* contains information about the main reasons for (tasks of) product and technology changes. An interesting feature of the figures is that the frequency of new product or technology introduction was much

higher for subcontracting firms in 1996 than the sample average, but these exceptionally high values had declined strongly by 1999 to much below the average. An explanation for this shift may be the vigorous restructuring in the first half of the 1990s. It seems that restructuring of subcontractors' activities was stronger and quicker than that of other firms, which was a clear advantage.

As far as the reasons for activity changes are concerned, maintaining market share was the major one advanced. Product development occurred mainly within the same range of products. The approach to maintaining market share was to improve quality and introduce new products. New technologies were also introduced mainly to improve product quality. Increasing production flexibility and reducing costs were other important aspects. The goals of product and technology development did not differ strongly between subcontractors and other firms.

Companies were also asked about their

Table 10  
R and D activities  
(percentages of valid responses, rankings on a scale  
of 1 = minor reason, 5 = major reason)

	1996 total	1996 subcon- tracting	1999 total	1999 subcon- tracting
New product introduction	73	86	63	38
<i>Reasons:</i>				
Replace outdated product	2.5	2.9	2.7	2.8
Product mix development within same profile	3.5	3.7	3.8	3.8
Product mix development in new profile	2.6	2.7	2.9	3.1
Quality improvement	4.1	4.1	4.0	4.0
ISO standard introduction	3.0	2.8	3.0	2.9
Keeping market share	4.2	4.0	4.1	3.8
Increase market share	4.0	3.7	4.0	3.4
New technology introduction	56	77	59	48
<i>Reasons:</i>				
Enhance flexible production	3.6	4.0	3.6	3.8
Reduce production costs	4.0	3.9	3.9	4.0
ISO standard introduction	2.8	2.6	2.9	3.0
Improve work conditions	3.2	3.0	3.3	3.4
Limit environmental damage	3.1	2.4	3.2	2.9
Improve product quality	4.3	4.4	4.4	4.5

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 evaluated in the previous pages as exceptionally quick and thorough. The data in *Table 11* shows the rankings for the responses to the question ‘What was the most important competitive strength of your

question. The highest ranking went to product quality, which seems to be the main competitive advantage of Hungarian firms. Subcontractors evaluated their performance slightly higher than the sample average, which corroborates the observation about their quick, strong adjustment process. In terms of services, companies gauged their performance as equal with major competitors (*Table 12*).

Table 11  
Importance attached to factors behind export competitiveness  
(scale from 1 = not important to 5 = highly important)

	Low price	Better services	Quick flexible delivery	Quality	Good contacts	Better market knowledge
1996 total	3.4	3.1	3.8	4.3	4.1	3.5
1996 subcontracting	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 subcontracting	3.6	3.5	3.9	4.4	4.2	3.6
Small firms	3.4	3.3	3.9	4.2	3.9	3.6
Big firms	3.7	3.2	3.8	4.4	4.5	3.7
Main activity	3.5	3.5	3.9	4.3	4.1	3.5
Additional activity	3.7	3.0	3.8	4.2	4.3	3.7
Foreign firms	3.9	3.1	3.5	4.1	4.2	3.8
Light industry	3.7	3.9	4.0	4.5	4.2	3.7
Engineering	3.7	2.9	3.7	4.1	4.4	3.5

company in export activity?’ The two outstanding responses were quality and use of existing good contacts to customers. Quick and flexible terms of delivery was also ranked high, while services coupled to products (perhaps not relevant for many), and more surprisingly, low price was not mentioned as being of outstanding importance.

Subcontractors did not report values greatly different from the sample average and there were few differences among the sub-samples either. Quality seems to be slightly more important for big firms and for those in light industry than for others. Good traditional contacts, on the other hand, were used strongly by big engineering firms. Small firms reported significantly less weight to traditional contacts.

Self-evaluation of competitive strength compared with competitors produced matching information with the previous

Table 12  
Levels of export competitiveness compared with main competitor  
(scale from 1 = much worse to 5 = much better than competitor)

	Price level	Quality	Services	Profit share
1996 total	2.7	3.4	3.0	2.5
1996 subcontracting	2.8	3.5	3.0	2.6
1999 total	2.8	3.6	3.0	2.6
1999 subcontracting	3.0	3.8	3.0	2.7
Small firms	3.1	3.7	2.9	2.7
Big firms	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 industry	3.1	3.7	2.9	2.8
Engineering	2.8	3.7	3.0	2.5

The other half of Table 12 gives information about results or benefits of corporate adjustment and competitive strength: obtainable prices and profit levels compared with main competitors. Although firms did not state their major competitive advantage as low price, they estimated their prices as lower than their competitors’. A somewhat surprising feature was that small firms and firms in light industry indicated that their prices were slightly higher than competi-



tors'. These two groups of subcontracting companies were the ones that used to be regarded as especially vulnerable and therefore badly paid. Firms in light industry remained consistent in reporting the highest profit share among the sub-groups. Profits of subcontractors and other firms were the same in the comparison with competitors.

There is a chance to check firms' statements about achieved prices and compare them with production input prices. The comparison shows a general deterioration in the situation: input prices rose faster than output prices. However, the gap was felt to be narrower in 1999. In fact, there may not have been a real negative gap at that time at all (*Table 13*).

Table 13  
Price developments

	Increase in market price of main product (% in year of survey)	Increase in market price of main input product (% in year of survey)
1996 total	31	39
1996 subcontracting	29	36
1999 total	20	22
1999 subcontracting	12	16
Small firms	19	25
Big firms	20	26
Main activity	19	25
Additional activity	20	26
Foreign firms	26	27
Light industry	9	14
Engineering	14	18

The last table contains some information about the dependence of companies on suppliers and customers. With customers, subcontractors seem to sell a bigger share of their turnover through long-term contracts than other firms do. This is not surprising: subcontracting necessarily means that sales of products are not on *ad hoc*. Interestingly, by 1999 this share had declined almost to the sample average. No firm comment can be made on this, but a plausible explanation is that the importance of subcontracting partners declined over time: firms successfully diversified their activities and developed their clientele. But this maybe mainly because of the changing structure of the sample. Unsurprisingly, big firms with main subcontracting activity and foreign-owned firms reported slightly higher values.

The question about the replacement of customers and suppliers revealed to the important fact that replacing suppliers is very easy for subcontractors as well, while selling products is much more difficult. However, the position of subcontractors improved significantly in this respect, with the 3.1 value becoming a relatively low 2.1 by 1999. Large engineering firms seemed to be more dependent on their customers than small ones or firms in light industry. This is again contrary to the primary hypothesis that said that small firms of light industry were the most dependent from their partners.

Table 14  
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 five main suppliers could you not replace in the short run?	How many of your five main buyers could you not replace in the short run?
1996 total	2.4	1.9	2.7
1996 subcontracting	3.1	1.4	3.1
1999 total	2.5	1.8	2.7
1999 subcontracting	2.7	1.6	2.1
Small firms	2.8	1.6	2.2
Big firms	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 industry	2.7	1.6	1.9
Engineering	2.7	1.7	2.8

## CONCLUSIONS

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The empirical survey was a by-product of major questionnaire surveys about various aspects of corporate activity. No parts of the questionnaires were designed especially for research into subcontracting. Consequently, many of the research hypotheses could not even be addressed and others were tested in a rather poor form. However, a few important statements could be proved, with the help of the big sample of 115 observations. The validity of some other statements was seriously questioned.

Clear evidence was found that many companies, especially successful ones, had deliberately chosen subcontracting as an adjustment tool. It was not the only alternative, but most probably the best under the rather unfavourable circumstances in the first years of transition. Firms tried to use this as a primary source for necessary modernization inputs: technology, competitive products and markets. Many of them became in this way part of international production networks. The majority of successful subcontracting companies prepared their adjustment strategies in a proactive manner.

The expected modernization effects were achieved in most cases. The knowledge transfer was also beneficial to Western partners intending to build on long-term contacts with members of their networks. These partners were often ones with which Hungarian firms had traditional business contacts.

The modernization effect was measured by the fact that subcontracting firms showed quicker and deeper adjustment than other companies in the sample. The most important areas of adjustment were new product development, improvements of quality and delivery conditions, but an above average increase of productivity was also achieved. The financial consequences of the successful strategies were also measured in

the survey. Subcontracting firms reported higher profits, than the total sample average.

Subcontracting meant a reorganization of R and D, not simply a reduction in it. The emphasis shifted from basic and applied research to product development. The contribution of scientists and engineers was used differently, in line with the interests of the total network. The large-scale introduction of new products and technologies was also a clear sign of the fundamental changes in production carried out in the first phase of transition. After the basic restructuring had been carried out, the process slowed considerably and new production lines consolidated.

The survey supported the hypothesis that the main competitive advantage of Hungarian subcontractors is not low prices. Their prices were not especially low and companies considered the quality of their products and the flexibility of their production to be the primary competitive advantages. The third important factor in their success was the established traditional contacts with customers (obviously subcontracting partners).

The survey failed to separate clearly the groups of subcontractors in advantageous or disadvantageous positions. However, much evidence was found that small firms in light industry were not the losers in subcontracting, for they achieved very good financial results. The groups broken down by size, branch and ownership characteristics yielded mixed results on the various questions. No clear-cut tendencies were observed.

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