

## Large-Small Firm Networks : A Foundation of the New Globalizing Economy in Korea\*

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### 1. Introduction : Globalization Through Networks

In these days, everyone in South Korea (thereafter, Korea) talks of 'globalization'. This is an effect of the current government taking up 'globalization' as its prime political slogan. Globalization, however, is not only a discursive construction, but a hard reality in that the wind of globalization bears down on all corners of the country. The economy is the area most strongly hit by the wind.

Korea is now the twelfth trading country: its 1994 exports amounted to 100 billion US dollars. Deeply engulfed in the world economy, the Korean economy is now faced with new harsh global challenges which are largely derived from 'unlimited competition under the new WTO regime'. To these challenges, Korea's leading actors, such as the government and large firms, respond with an offensive strategy to make its economy more rigorously globalized. Compared to the hitherto export strategy centred on cheap commodity trade, the globalization strategy is concen-

trated on creating the global circuit of production and circulation of Korean products upon a competitive domestic production base.

It has been apparent since the early 1990s that the production of new products like microelectronic goods and automobiles has incorporated, in one way or another, many elements of globalization. By virtue of this effort, the Korean export drive is now pitched towards the upper echelon of world product markets. Yet, the upgrading of trading status is not merely due to the new type of commodities *per se*, but to the new method in which they are produced and put into markets. Until some years ago, Korea's dominant export goods were textiles and electronics and they were produced by means of 'Bloody Taylorist' labour organization, without an organic division of labour with nearby local producers. In comparison, today's leading products like microelectronics are produced through a complex input-output matrix involving a great number of local producers under the control of conglomerate firms, called *Chaebols* in Korean, which operate their own globalized production and marketing networks. This implies that the competitiveness of new trade goods stems from their technical

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and social quality borne out of the inter-corporate networks which combine a series of heterogeneous skills, know-how, machines, organizations among different enterprises into a systematic production regime.

In the new social economy, where a social division of labour assumes a renewed importance (Sayer and Walker, 1992), a heart is interfirm relations. A firm is a social unit in which various productive forces, via capital-labour relations, amalgamate into a value-added entity such as a homogeneous commodity. Interfirm relations are a micro social system in which enterprises interact along a line of commodity chain, eventually forming a circular linkage integrating production and reproduction. Such collective entrepreneurial entity is called 'meta-enterprise' (Pedersen, et al., 1994, p.15). Instead of this somewhat theoretical term 'meta-enterprise', we prefer to use the term 'interfirm networks'. Interfirm networks are a series of units which are interconnected through varied social relations and through which are realized such things as commodity exchange, information exchange, exchange of social relations, subcontracting, mutual reliance on technical specifications or standards, a common labour force, a common language, a common location, a common social background and so on (Ibid, p. 10). Interfirm networks are therefore a condensation of various interactions among capital and labour, small and large firms, export/import agents, wholesalers, banks and government.

Returning to the Korean case, interfirm networks mainly refer to the relationship between large and small firms, each having their characteristic calibre which the other does not have. 'Large and small' does not only mean the difference in size, but connotes a set of enterprise differences in technology, manpower, organizational capacity, finance, marketing and even access to political power. Large-small firm networks are

constituted by these differentials which in turn create dynamic articulation between structure and agents, hierarchy and market, cooperation and competition (Cho, 1994b). This dynamic articulation is the very force which allows the Korean economy to be globalized in terms of Korean products' improved competitiveness in world markets. More precisely, the new globalizing economy of Korea becomes viable, among others, due to the enhanced role of a myriad of small firms<sup>1)</sup> within the extended production processes led by large firms in pursuit of global markets.

This paper examines the ways in which Korea's export oriented economy lays its new foundation for global competitiveness by deepening interfirm linkages within a national regulatory framework. Major foci are given on addressing the following questions: how and in what way have the networks emerged?; what are their internal structures?; what are the mechanisms underlying the networks and what is their function with regard to the globalization of Korean economy? To confirm the latter points, there will be a brief case review. Finally, some lesson for other countries will be drawn from Korea's large-small firm networks. The paper will also implicitly address the limits of the small-small firm network paradigm (i.e, the flexible specialization paradigm) as an alternative industrial development model.

## 2. The New Corporate Restructuring Giving Rise to Dense Interfirm Linkages

In the trajectory of Korea's economic development, the most important challenge came with the 1987 nation-wide labour disputes<sup>2)</sup>. Passing this crisis, the Korean economy came to face the unexpected problems mainly arising from high wages<sup>3)</sup>, labour militancy and labour shortage, plus the challenge from tougher

price and quality competition in world markets. These challenges were perceived to be strong enough to jeopardize the hitherto cheap wage production strategy and so stimulated commitment to developing new competitive strategies which should be less labour intensive, essentially technology and information based. Indeed, against these challenges, key economic players like the government and leading firms have reacted in a 'high-road' and 'offensive manner' (Sengenberger and Pyke, 1992; Leborgne, D. and A. Lipietz, 1992), by rigorously undertaking an extensive restructuring of existing technological processes and industrial relations. This is indicated by changing investment pattern and sectoral industrial growth. Regarding the investment pattern, the new branch like electrics/electronics, precision machine tools and transport equipment has received the largest pie: the share in total investment increased from 14.8% in 1987 to 31.9% in 1991. Consequently, industrial growth in this sector was so tremendous that the production index of 1992 had, on average, tripled from the benchmark of 1985. Furthermore, extensive process innovation has taken place around leading industries, due to concentrated investment on FA and R&D which expanded by 41.8% and 35.8% per annum between 1987 and 1992 respectively.

### 1) Large Firm Restructuring

The main initiator of product and process innovation is the large firms affiliated to conglomerate business groups called Chaebol in Korean (Hyundai, Samsung, Lucky Gold Star, to name a few). Since the early 1990s, most of them have sought to restructure their production organization into a global firm model imitating Japanese multinationals. They now compete with each other in taking a lead in the new industrial branch by using varied

means such as strategic alliance with foreign firms, organizational reshuffling through split up, merger and decentralization, job re-ordering and lean organization for team-work, set-up of overseas branches and extending into new business (notably producer service sector). The essence of large firm restructuring lies in new production processes which are highly complicated and fragmented. In the new processes there arise the great needs for not only the redemarcation of jobs along a new technological line in-house, but also an increased externalization of production processes and specialization among other firms. In general, the focus of corporate restructuring is shifting from the intrafirm fragmentation to the interfirm externalization and specialization.

Externalization takes place in such ways that large firms hand over the production lines dedicated to particular products to new subsidiary firms or internally split up technical firms, or subcontract part of production to designated small firms. A typical instance is the transfer of the business undertaken in house to small independent firms. Between 1989 and 1993, 196 large firms of 30 Chaebols transferred 7,288 kinds of their business to 2,796 small firms. The major type of transferred production has changed over the time from single-item parts to intermediate and final products: the former dropped from 56.3% to 23.9% in the years 1990-92, while the latter two types rose from 34.5% to 51.3% and from 9% to 17.8% respectively. The transfer, however, includes a set of facilities and services and is required to meet the conditions stipulated by the Law for Transfer of Large Firms' Business to Small Firms.<sup>4)</sup> On the other hand, as large enterprises engaged in the manufacturing of new commodities are increasingly out-sourcing, or farming out, externalization requires organic inter-corporate linkages. Such interfirm integration occurs sometimes

spontaneously, but, at the same time, is consciously forged especially through government intervention. Industrial Linkage-Making Promotion Act is a main institutional device to promote, monitor and sanction the cooperation between lead and follower firms involved in the interlinked line of industrial production. In 1993 there were 42 legally designated branches for industrial linkage promotion and 1,160 items of products were subject to the Act.

## 2) Mushrooming Small Firms and Dense Interfirm linkages

In keeping with large firm restructuring, what has developed can be highlighted by the fact that small enterprises have mushroomed and their role has significantly changed. New small firms come into being, sometimes as direct spin-offs from the main enterprises<sup>5)</sup>, while other firms have been attracted by the technological

and productive chances and the market opportunities which large enterprises create. Whatever way they come to exist, the profiles concerning small firm growth are splendid (see Table 1). Between 1985 and 1992, the number of small firms has increased by 1.71 times; the employment share by 1.35 times; the output share by 3.80 times; the value added share by 4.54 times. Thus the aspect associated with production performance is more outstanding. Within the category of small firms, the growth of small scale enterprises employing less than 50 workers is particularly phenomenal and this is markedly contrasted with the slow growth of large firms (see Table 2). Overall, Korea's corporate structure demonstrates a strong tendency to 'down-sizing': the number of employees per firm has reduced from 55.4 in 1985 to 37.5 in 1992.

Table 1. Increasing Weight of Small Firms

		1985(a)	1992(b)	b/a
establishment(numbers)	total	44,037	74,679	1.70
	SMF	42,950	73,657	1.71
	%	(97.5)	(98.6)	
employment(thousands)	total	2,438	2,801	1.15
	SMF	1,368	1,845	1.35
	%	(56.1)	(65.8)	
output(billion won)	total	77,033	226,817	2.94
	SMF	27,304	103,879	3.80
	%	(35.4)	(45.8)	
value added(billion won)	total	26,737	96,018	3.59
	SMF	10,059	45,662	4.54
	%	(37.6)	(47.6)	

Source : Ministry of Commerce and Trade, 1994, p.22.

Table 2. Changing Composition of Firms by Size

firms by size	number of establishment			employment		
	1985(a)(%)	1992(b)(%)	b/a	1985(a)(%)	1992(b)(%)	b/a
5-9	14,125(32.1)	27,128(36.3)	1.92	94,528(3.9)	181,981(6.5)	1.93
10-19	11,408(25.9)	21,288(23.5)	1.87	155,499(6.4)	288,410(10.3)	1.85
20-49	10,143(23.0)	16,997(22.8)	1.68	320,146(13.1)	521,764(18.6)	1.63
50-99	4,273(9.7)	5,256(7.0)	1.23	300,310(12.3)	361,498(12.9)	1.20
100-199	2,235(5.1)	2,256(7.0)	1.01	311,282(12.4)	311,794(11.1)	1.00
200-299	766(1.7)	732(1.0)	0.96	227,501(7.4)	179,186(6.4)	0.79
300+	1,087(2.5)	1,022(1.4)	0.94	1,070,304(7.4)	956,756(34.2)	0.89
total	44,037(100.0)	74,679(100.0)	1.70	2,437,997(100.0)	2,801,389(100.0)	1.15

Source : Office of Statistics, 1992.

However, of more significance in the small firm change is its changing role and function in the national industrial economy. The new role is largely regarding an essential ingredient of a consolidated and diversified industrial structure. This is indicated, among others, by the fact that small firms in general produce 70–80% of their output through subcontracting arrangements with other firms (Table 3). These figures are twice larger than those of the mid 1980s. It is also revealed that smaller firms are more engaged in subcontracting production than larger firms. The enlargement of subcontracting production is actually effected by the rapid proliferation of subcontracting firms. Subcontracting firms have increased from 53.1% in

1987 to 73.4% in 1992. Today's small firms in the electronics and machinery equipment sector are virtually all in subcontracting relationship with each other. Taken together, about 80 percent of small firms in all industrial branches produce over 80 percent of their output under subcontracting contract. In recent days, subcontracting relations permeate all sectors and firms. The average number of firms with which a firm subcontracts amounted to 15 in 1992 (Table 3). Small firms tend to subcontract with a less number of firms and mainly with smaller firms, whereas larger firms tend to subcontract with a larger number of firms and relatively more with large firms.

Table 3. Percentage of Subcontracting Output in Small Firm Production

firms by size	1978–80	1981–83	1984–86	1987–89	1990–91
5–19	17.7	28.5	43.3	51.3	84.9
20–99	25.1	38.5	40.5	48.8	73.5
100–300	21.1	33.0	40.3	47.0	71.2

Source : Ministry of Commerce and Trade, 1993.

Table 4. Increasing Percentages of Small Subcontracting Firms

	1983	1985	1987	1989	1991	1992
whole manufacturing	38.0	42.2	48.5	66.5	73.6	73.4
assembly metal manufacturing	51.5	56.2	66.0	72.0	83.3	83.7
machinery manufacturing	62.6	69.7	76.8	83.1	80.8	84.9

Source : Ministry of Commerce and Trade, 1994.

Table 5. Subcontracting Firms(SF) vs. Contracting Firms(CF) in Manufacturing : 1992

Firms by size	SF	CF	CF/SF	number of CF (%)					CF by size (%)		
				1	2–5	6–10	11–20	+21	small/ medium	large	mixed
5–9	17,833	8	12.3	43.6	25.0	13.9	5.2	70.9	11.5	17.5	17.6
10–19	15,348	15	12.0	30.0	26.3	18.8	12.9	53.1	11.6	35.3	35.3
20–49	12,709	16	12.4	28.0	22.7	18.0	18.9	42.6	15.3	42.1	42.1
50–99	3,981	95,389	24	11.5	23.5	18.4	20.4	26.2	34.0	12.6	53.4
100–199	1,647	84,020	51	9.4	16.4	13.5	15.3	45.4	25.7	11.6	63.7
200–299	497	28,090	57	8.5	19.6	9.3	15.9	46.7	22.2	19.1	58.7
total	52,015	790,563	15	12.0	33.2	23.8	16.9	44.1	54.0	12.7	33.33

Source : Korea Federation of Small Business, 1994.

The current tendency is towards subcontracting relations being more multiplied and more interconnected. This means that the new industrial economy of Korea is densely intertwined through the complex interfirm linkages of small firms around large firms. The new role of small firms is hence concerning the specialization which they perform in the network of batch production. In other words, the new role of small firms is specialized in one stage of the fragmented production processes which large firms operate.

In short, coupled with the externalization of large firms, the growth and changing role of small firms gives rise to a dense inter-corporate network. The network is borne out of the enhanced material and informational exchange and interaction across production departments, units, firms and spaces. However, Korea's corporate network has such a characteristic that it is woven by small firms around the node of large lead firms. This should be compared with the Piore and Sabel's model of flexible specialization which highlights small-small firm relations (Cho, 1994b).

### 3. The Networks Evolving Under Large-Small Firm Relations

Interfirm networks are not fixed entities but in a state of constant evolution (Pedersen, et al., 1994, p.10). Then, in what way have Korea's current large-small firm networks as an economic organization evolved and what makes the networks evolve?

Korea's interfirm networks have not only changed in conjunction with technological upgrade, but involve diverse subnetworks competing within an industrial system. What is noteworthy is that Korea's interfirm networks are shaped by large-small firm relations around the then current leading industries. To run a risk

of simplification, we define Korea's paradigmatic form of networks, particularly seen in microelectronics and automobiles, as evolving as follows :

(1) petty producer stage: at a very early stage of technological development, petty producers fabricate imported intermediate parts into coarse commodities (ex. radio) or low-tech components(ex. vacuum tubes); import substitution is a prime motive but the products without domestic demand are supplied to foreign producers, thus creating few local linkages.

(2) dependency stage: after some period of technological learning or through contract with MNCs, a few leading enterprises manufacture a set of commodity with a full range of knocked-down inputs and technologies and export most of products as an OEM commodity (ex. 70s' TV assembly, today's mobile telephone assembly); production lines are organized along a Taylorist line but main interfirm networks depend entirely on overseas actors.

(3) internalization stage: key technologies and know-how are still in foreign firms' hands, but some mature technologies are internalized by domestic large firms and there emerge a hoard of intermediate firms which supply hitherto imported inputs; subcontracting arrangements become an important part of assembly production, consequently giving rise to vertically integrated inter-firm networks; national brands start to appear in world markets.

(4) externalization stage: due to concerted effort for technological catch-up and autonomy, large firms succeed in not only modifying mass-production technologies in a new competitive form; large firms undertake the rationalization of production inhouse, but at the same time seek to externalize some stages of production processes, by means of transfer or putting out of them to small firms with niche production bases; production linkage and integration deepen vertically as well as

horizontally; some leading domestic firms begin to establish overseas branches and outlets.

(5) localization stage: in the further technical division of production among enterprises of different sizes, advanced firms are concentrated on the technically intensive aspects of production and on design and product development while pursuing global firm strategies; the production of standard commodities are handed over to hitherto subcontracting firms which rise to new leading firms, owing to their mastering of principal production technologies in collaboration with other small firms; networks are diversified and multi-layered within the framework of the new emerging division between domestic global firms and technically differentiated local firms.

(6) market-production division stage: a more mature form of interfirm relations evolves around a new division; the large-firm sector is devoted to shaping product innovation, new markets and financial transaction, whereas the small-firm sector is specialized in executing the diversified production for niche demand; networks resemble a system in which firms are interrelated to each other for sheer mutual complementarity, through an equal chain of respective competitive speciality.

To sum up, Korea's interfirm networks have evolved with two underlying tendencies: the scope of networks becomes larger and the form of networks becomes more diversified and diffused. What is more important is that both tendencies are geared to the translation of exogenous, high-level and scale-sensitive technological practices germane to large firms into endogenous, low-level and scope-sensitive productive practices conducted by small firms. In other words, Korea's network evolution appears to be directed towards the weight of networks being gradually embedded into the local production nexus. The current state of art in the networks,

as between stage 4 and stage 5, is constellated as functional to this process. Before examining this in more detail, let us consider what makes the networks function and move in this way.

Two conditions are deemed to be critical to the progressive evolution of Korea's interfirm network: one concerns the domestication or localization (or local mastering) of exogenous and innovative technologies within a national regulatory framework; the other relates to the diffusion and dissemination of niche-specific technologies into diverse small scale enterprises or production units.

As for technological adaptation, this is achieved by the way that, at the first stage, large firms introduce foreign technologies through joint ventures with multinationals and then convert these, through the national technological innovation system formed by the government and large firms, into new competitive technologies. The most successful instance of this is the case of semiconductor technology - Korea is the third semiconductor technology country, just next to U.S and Japan. Korea Industrial Bank (1991) reported that 93 percent of electronic firms adopted new products and new process technologies from foreign sources, but 90 % of them attempted to combine imported core technologies with their own technological capacity. Due to this effort, 90 percent of major components for domestic electronic appliances, such as camcorders, VCRs, audio and laser disc players, are now locally produced. With regard to network building, the collective effort of technological catch up lets the stage 3 network shift to the next.

For technological diffusion, varied institutional devices are a primary means: notably state policies aiming at promotion of small scale enterprise, protection of small scale industry, technology transfer, linkage-making promotion and fair subcontracting arrangement. As a compre-

hensive index, the proportion of small firms in the bank loan released to industry, which is heavily regulated by the government, had soared from 41% in 1986 to 58.3% in 1992. In addition, large firms' own effort to secure their linkage firms is also of great help to small firms being specialized in niche-technology-based production (see section 5 for more detail). Entrepreneurs' own effort for technical improvement is also important to absorb the technologies externalized from large firms. In short, the diffusion of niche technologies among small entrepreneurs is critical to rendering stage 4 network moving to the following.

#### 4. The Structure of Large-Small Firm Networks

Korea's dominant form of inter-firm networks is now shifting to stage 5, so there are many transitory and conflictory elements constituting the networks. Among others, both 'diversification and multi-stratification' are two key features of the networks in transition.

By the diversification of interfirm networks, we mean both the numerical increase of firms involved in inter-corporate linkages and the diversity of constituents of interfirm relations. The former is indicated by the fact that the percentage of firms subcontracting with more than 6 firms jumped from 49% to 59% between 1987 and 1991 and the number of firms subcontracted by an enterprise averaged 15 in 1992. This trend has been marked especially after the 1987 labour disputes which have brought the rigidity and weakness of subcontracting relationships with a limited number of firms into attention. On the other hand, by the diversity of network constituents, we indicate that more specialized agents and stages are involved into the globalizing circuit of large scale production. Currently large-small firm

networks comprise a wide spectrum of constituents ranging from conglomerates' R&D to housewives' piecework.

In parallel with this diversification, another trend emerges: interfirm linkages are hierarchically divided and multi-layered. At this point, diversification refers to the vertical deepening of subcontracting linkages along a hierarchy of large-small firm relations. Vertical deepening takes place in two directions.

One direction of deepening is the upward ramification of interfirm linkages. This results from large firms seeking to strengthen an organic link with strategically core firms and institutions to secure innovative inputs for production and to maintain their monopolistic stance in markets. Included in this linkage nexus are not only small subcontracting specialists who provide highly specialized materials, parts and know-how, but also foreign firms, government, university research institutions and in some cases, other conglomerate firms, with whom large lead firms form a broad strategic alliance functional to technological innovation and institutional domination. The other is the downward ramification of interfirm linkages. This occurs as subcontracting jobs go along a hierarchical interfirm network down to the second and third ranks of small firms in a technical division of labour. Much down the hierarchical link, the limbs of large firms production reach the workplace where piecework is carried out by hundreds of thousands of housewives or the elderly for low wage. Some of the subcontracting jobs at this level inherently suit small firm specific niche skills and organizational features. But the rest, which are likely to be technically less important and low-valued, exploit the ability of small firms to keep production cost low. At the lowest level of subcontracting chain, numerous jobbers produce a variety of commodities which in sequence enter the products manufactured by first and



second rank subcontracting firms. These lower rank subcontracting jobs are carried out outside the direct control of large lead firms, but they are linked, through a series of intermediate stages, to the circuit of global production led by large firms.

Putting together, within the array of Korea's production networks, two distinct types of linkages are observed. At the upper echelon of interfirm networks, linkages are formed by a horizontal integration between nuclei lead firms and a number of speciality firms, surrounded by support institutions, on the basis of relatively stable and long-term contract which allows for pursuing innovative production collectively. Let us call this type of linkages 'the first form of linkage'. On the other hand, at the lower echelon, linkages are shaped by the vertical disintegration between large and multifarious small scale firms and units including sweat-shops and households, formed on the basis of precarious contracts geared to securing a flexible supply of numerous niche specific but low value parts and products. In tandem with the first form of linkages, this type of linkages shall be called 'the second form of linkages'.

Two types of linkages are found across all industrial sectors, but the ways in which linkages are actually formed vary from a sector to another. This is largely because each sector requires different technological, locational labour and market conditions. What is more, large-small firm linkages are structured in the context of locality. But, as in the industrial sector, spatial linkages differ among localities, because each locality comprises an idiosyncratic constellation of technical practices, manpower, materials, markets, infrastructures, institutions and cultures. These industrial and locational conditions are fused together to create clusters of interfirm networks which are sectorally as well as spatially distinct. Elsewhere, the author examined a three archetypal

techno-spatial clusters<sup>6)</sup> which were combined together to shape the techno-spatial complex of Korea's new industrial system (see Cho, 1994b for more detail).

## 5. The Mechanisms Buttressing Large-Small Firm Linkages

The networking of large-small firm linkages is buttressed by many regulatory mechanisms, but the type of the mechanisms depends on the form of linkages. Overall two types of mechanisms are discerned: cooperation and competition. The former is the rule for the first form of interfirm linkages, while the latter is the rule for the second form.

As far as new growth industries like microelectronics and automobiles are concerned, it is critical for large 'set' firms to keep technical mutuality on a functional division of labour with numerous parts-supplier firms. Their primary concern is to secure the consistency and reliability of interfirm linkages. For this purpose, a variety of means are utilized. Of these, the most effective means are formulated and executed within the scheme of association which is organized to foster the spirit of cooperation between lead and follower firms. Most large firms in new leading industries like micro-electronics run so-called 'Hyupryukhoe' which means the 'Association for Cooperation', whose members are for the most part the first rank of small subcontracting firms. In 1994 it was reported that 103 conglomerate large firms maintain regular subcontracting business with 30,233 small firms, of which 18.3%, 5,529 firms were affiliated to 68 Hyupryukhoe (Korea Federation of Small Business, 1994b).

The means geared to cooperative interfirm networking are diverse, ranging from personal to institutional, hardware to software, short-term to long-term, profit to non-profit, technical to managerial in type. Among others, the most potent means is a sharing of technical knowledge

and productive objectives between interacting parties of large and small firms. The lead firm always seeks reliable delivery to conform with JIT production and quality as well as access to the specialized technological capabilities of the subcontracting unit. On the other hand, the subcontracting unit in dedicating its activities around that of the lead firm, gains financial and technical support and minimizes the extent of uncertainty it faces in both product and input markets (Nadvi and Schmitz, 1994).

Most of large firms operate task forces on every organizational level (group level, firm level, project level, team level) in charge of governing a whole range of sub-contract-related matters. Included in the governing package are price setting, design specification, technology upgrading, delivery conditions, even subcontracting firms' wages and so on. In order to assist small firms in meeting the requirements, large firms offer high-priced machines, raw materials, parts and finance and often send technicians to supervise technical quality. Nowadays large firm' helping device is further extended to allow for small firms' initiatives within the production framework of large firms. Examples include the mutual negotiation of technical specifications and standards, common facility use, joint R&D, joint skill training, cross-investment, joint export, joint overseas investment and so on. To encourage all these, value added communication networks are built among small firms around the command height of lead firms, through which regular production specifications are released to each other and discursive communications flow among actors.

However, many elements of cooperative linkages are derived from mutual trust and interpersonal respect based upon various social relationships like common schooling, regional and family background. Such interpersonal networks are

effectively reinforced by a shared corporate identity and loyalty within the nexus of associational relations between the large conglomerates and their smaller satellites. At a society-wide level, traditional cultural and institutional milieu is also facilitative of enriching cooperation beyond the rule of economic rationality. Interfirm linkages are subject to legal regulation and at some critical moment also to political mediation.

Cooperation works in articulation with competition. This is particularly evident in the second rank of interfirm linkages. The networking of competition-based linkages is driven by cost reduction motives and in some cases quality improvement purposes. Cost reduction motives largely reflect large firms' intent to avoid labour problems such as high wage and labour militancy. The production, farmed out according to these motives, consists of mainly the type of work which has lost its price competitiveness owing to rising wage cost or causes labour management problems. Competition is usually shaped, around the bid of subcontracting works which large firms offer, by small firms who make similar products.

Nowadays cost competition among small firms around large firms' subcontracting work is heavily checked by the government who is worried about its negative consequence for small producers. The instruments for this regulatory purpose are contained in the legal stipulations concerning 'minimum duration of contract', 'ban on arbitrary change of unit cost', 'fair terms of payment' such as payment method and bill clearing and the like. Unfair deals and contracts enforced by large firms are allowed to be taken to the Fair Deal Supervision Committee under the direct control of Prime Minister.

What is more, interfirm competition is now more oriented towards quality and technical improvement, after large leading firms come to appreciate the sheer impor-

tance of quality and technical competitiveness in world markets. A good example is design competition. By far, most iron or plastic moulding for electronics appliances, which is usually a high-skilled, design intensive and costly work, is mainly either imported from abroad or monopolized by large firms. Today, it is more common that most of moulding works are subcontracted to small specialist firms, but the subcontracted work is simply done according to the specifications of the model and design which large firms lend out. This practice is, therefore, called 'Design-Lending Contract'. This is gradually replaced by what is called 'Design-Acknowledged Contract'. This means that the design or plan prepared by subcontracting firms is handed in to large firms and then, after examination on the basis of competition, is acknowledged for contract. Thus, as institutional helps and interventions permeate interfirm relations, competition at depth internalizes many elements of institutional cooperation. Yet, at the bottom of subcontracting chain where piece-wage work is carried out in small workshops, competition driven by cost reduction motives is still vibrant.

## 6. Interfirm Networks As a Global-Local Transaction Regime

Large-small firm networks are a relational ensemble with its own collective identity. This ensemble encompasses two distinct sub-ensembles or segments. They are, in correspondence to the two forms of interfirm linkages, the large-firm segment and the small firm segment. Differences in firm size determine a series of enterprise differences in technical, social and political capability. Hence, one category of firms in size has their own specific mode of organization which the other category lacks.

In the large firm segment, where conglomerate enterprises predominate, production linkage covers a wide scope of

economic and extra-economic activities. A core is the multi-sectoral production regime of large firms, around which a global network for production and market is established. Large firms, through taking advantage of this network, are able not only to pursue innovation in design, software and production process in a strategically chosen domain, but also shape their own marketing and financial flow globally. Of more importance is that through the globalizing network of their strategic production, large firms connect the local economy from within to the global circuit of production (ex. export of more competitive commodities or overseas investment) and, the other way around, bring globally shaped forces, such as new technologies, new global demand, financial capital etc., into the local economy. In this sense, large firms are a key translator of globalization for the Korean economy.

In the small firm segment, where technically specified firms are emerging, diverse stages of batch production for large firms are carried out by a legion of small firms. The role of small firms in the extended production processes of large firms is mainly twofold. One is translate and apply new innovative know-how and concepts created by large firms (in)to the practical organization of production and thereby make new production relations embedded in the local social soil. The other is absorb local production nutrients, such as local skills, local labour, local materials and local cultural resources, into the new production for global markets (ex. supply of locally produced technical parts). Such role of small firms is derived from their niche specific skills and know-how embodied in labourers, flexible production system, human relations specific to small scale organization and the like. These elements, obviously absent in large firms, can fill the voids in the globalizing processes of production. In short, the globalization led by large firms can be

successfully launched, from within, through the 'localizing' role of small firms.

Global and local activities of large and small firms are intertwined through interfirm networks. Hence large-small firm networks are a regime in which globalization transacts with localization through the interplay between large and small firms (see Table 6). The globalization of Korean economy now on stage becomes feasible due to the good functioning of global-local transaction which takes place through interfirm networks. What is new in the large-small firm network is the enhanced role of small scale enterprises. Local and small firms function as a channel through which local (re)production resources are converted into production factors which end up as new products. Thus the globalization of Korean economy results from the micro-circuit of production formed by a myriad of small firms which functions around domestic global firms, from which the new global competitiveness of Korean products is borne out.

Table 7 provides a statistical synopsis of the different roles and functions of small and large firms in the globalization of Korean economy. What is shown is mainly two facts: the smaller enterprises are, the less the proportion of exporting enterprises becomes: the more exporting, the more the firm draws on foreign materials in production. This means that small scale firms are more devoted to using local resources and responding to local demand in which the subcontracting demand from large exporting firms is included. On the contrary, large firms are more specialized in producing for foreign markets by using more foreign resources.

Table 6. The Structure of Large-Small Firm Network as a Global-Local Transaction

domain of network	key players	organizational mode	function	valid theory
large firm segment	conglomerate groups large firms government foreign firms technicians producer service	global network multi-sectoral system house strategic alliance cooperation economies of scale dynamic flexibility	global sourcing/ marketing, global bargaining product/process innovation financial/market shaping	new competition
small firm segment	small and medium sized firms informal producers piece-wage worker local workshops local retailers	local network mono-sectoral batch system daily interaction competition economies of scope diversification	local sourcing/ marketing local connection niche production local reproduction	flexible specialization

Table 7. Different Roles of Firms by Size in Export

enterprise by size	proportion of exporting enterprises (%)	amount of export (billion won)	amount of domestic materials <sup>1)</sup> (billion won)	amount of overseas materials (billion won)	earning rate of foreign currency <sup>2)</sup> (%)
5-9	7.4	394	119	28	93.1
10-19	18.3	1,781	386	257	78.2
20-49	26.8	5,365	1,879	497	90.2
50-99	39.7	5,120	1,695	984	80.8
100-199	67.3	5,827	1,671	1,303	77.6
200-299	71.4	3,556	6,716	765	81.9
total	21.7	21,443		3,833	82.1

Note : 1) This is the amount of materials used for export commodity.

2) This is based on the following formula :

$$\text{earning rate of foreign currency} = \frac{\text{amount of export} - \text{amount of overseas materials in use}}{\text{amount of export}}$$

Source : Ministry of Commerce and Trade, 1994

## 7. A Case Review: the Kuro Export Industrial District in Seoul

What has been discussed will be confirmed by looking into a concrete case, the Kuro Export Industrial District in Seoul. Due to a limited space, we close up only essential features.

### 1) A Brief History of the Kuro Export Industrial District

Korea's export-oriented industrialization is said to set off in the Kuro Export Industrial District<sup>7)</sup> in Seoul which, on the basis of urban petty producers' initial undertaking, the government completed by means of urban planning in 1965. The district had produced 10 percent of Korean export products until 2 years ago. The district is often called a microcosm of Korean capitalism. In the history of this district, the most difficult challenge, like the Korean economy as a whole, came through in the 1987 labour dispute. What has happened since then may be condensed into one picture: the number of workers reduced by 24% from 73,195 in 1987 to 55,840 in 1992, while the number of establishments increased by 10% from 261 to 291. Its industrial composition has not been much

changed: electric/electronics and garments remain as two major industries, accounting for two thirds of the value added output of the district. Its export capacity, after reaching a peak of 4.2 billion US dollars in 1988, declined until 1991, but in 1993 returned to the 1988 level. The largest exporting sector is electric and electronics, accounting for 58.7% (3.2 billion dollars) of the 1993 export of the district and then followed by textiles, accounting for 27.8% (1.5 billion dollars).

### 2) Recent Industrial Restructuring and Changing Production System in the District

Looking into the recent changes in the district, we find that two kinds of restructuring at the level of production organization have taken place: relocation and in situ rationalization. With regard to 'relocation', 10 percent of total firms in the district are now operating foreign branch factories mainly in Southeast Asia, notably in China. In relation to 'in situ rationalization', two distinct but interrelated strategies are in use: intra-corporate rationalization and the externalization of production processes. For intra-corporate rationalization, FA (= factory automation) is a primary instrument: in 1992 almost 70% of firms were reported to operate

various systems of FA, though their technological levels differed from one factory to another. FA is believed to create a far-reaching effect leading to the enhancement of overall flexibility in production processes, job structure and employment relations. For externalization, varied forms of subcontracting is the most potent tool. This ranges from intra-firm subcontracting, usually taking a form of lending out production lines and machines to a team of independent workers, to farming out of whole production lot. Virtually all firms in the district have in one way or another subcontracting relations with other firms either within or without. Almost 40% of all subcontracts are made among enterprises around the district. The rest is mainly located in the Seoul metropolitan area within the 2 hours' drive limit. As a result, dense production networks, which were not that strong until the mid 1980s, came into being.

Overall, a district-wide production system has emerged. The most significant feature of the new system is the rapid growth of small scale enterprises<sup>8)</sup>. Since the 1987 dispute, small scale enterprises employing 1-49 workers has grown from 7.3% to 17.3% and small and medium sized firms as a whole have jumped from 56.0% to 72.8%. As a consequence, a tendency towards down-sizing is observed. This means that the production organization of the district has been greatly fragmented and that individual firms and production units are more interlinked to themselves, as compared with the past<sup>9)</sup>. Although the district seems under a strong pressure of dissolution due to high demand on more productive use of the land, the composition of production units within the district become much more complex and diversified. The production units included in the district range from large firm headquarters, R&D centres, hi-tech delivery centres to large factories, small leased factories, workshops and piece-

wage workers' production lines. Production linkages, though varying among industries, are more entrenched within the district, and at the same time are swiftly extending into the surrounding areas and overseas. This feature allows us to conclude that the district is changing from an enclave where discrete firms came to get together without linkages with outside, to an hub around which interacting linkages are being woven.

### 3) The Case of Gold Star Audio

(1) To confirm this conclusion, we examine the case of a large electronic assembly plant. The firm interviewed<sup>10)</sup> is the Gold Star Audio Co. Ltd. (=GSA) affiliated to the Lucky Gold Star Group, the 3rd largest conglomerate business group in Korea. Twenty-three of the forty-eight firms of this group are in electronics and produce virtually the whole spectrum of electronic goods. Of these electronics firms, GSA is among the smallest in size and its products are highly standardized in technology and mature in markets.

Under the conglomerate structure, an individual firm apparently operate within its own independent corporate organization, but their technical, financial and commercial activities are tied together by the interfirm managerial circuit of the conglomerate. Therefore, strategic activities, such as technological innovation, supply of hi-tech components, shaping new market outlets, joint ventures, bank loan, manpower exchange and the like, all take place at the group level.

(2) GSA was established in 1978, as a joint venture with a Japanese electronic company, but now it is completely independent and fully localized in terms of acquisition of major parts. Like other firms, GSA also has undertaken a sweeping restructuring of its internal managerial and productive system since the late 1980s. What is new is that an individual

firm is reconceptualized as what they call a Strategic Business Unit (i.e., GSA) constituting a new business branch chosen at the group level. This organizational innovation is basically tailored to a flatter and lean organizational model, with a view to upgrading corporate ability to cope with technical and market changes. In turn, GSA introduced a new production strategy called Market Linkage Production System. This is a new managerial system to organize a whole range of production flexibly in link with demand fluctuations.

In the new system of GSA, a core function is keep demand-supply links as flexible as possible. As a first step to this end, from the early 1990s onwards, GSA has reshaped its old Taylorist production processes through innovative technical enrichment, job re-demarcation, rearrangement and the like. As a result, previously thirty seven production lines, each deploying more than thirty workers, has now reduced into eight lines, each with eighteen workers. Production lines as such have been greatly modified. The most spectacular is the reorganization of previous straight production lines into U-shape lines. The new lines operate in a system of combining a flexible manufacturing system (ex. computer control system) with new work movement. In the new lines, an individual worker carries out two stages of job simultaneously - standing inside the U-shape line, a worker does a first-stage job on the line he/she comes to face and then turns around to the other side, finishing a second-stage job. Labour processes are the reiterating processes of these double activities. The current job load of an individual worker has enlarged almost twice from the previous production lines. To do this job, workers work standing up for ten hours a day, increasing productivity by double.

In addition, many parts of production have been externalized. GSA itself retains eight major lines of production in-house,

whereas seven lines have been handed over to four OEM firms, six lines to four full-processing subcontracting firms, and six and two lines to branch factories in Philippine and China respectively. Technical differences among these geographically dispersed firms are quite established. GSA's lines are technically most sophisticated. OEM firms are also technically specialized enough to produce a whole set of products with their own technologies, machines and manpower. But core materials, parts components and technologies, notably design and iron moulding, are provided by GSA. Full-processing subcontracting firms are also supplied from GSA with a whole range of productive resources including machines, technicians, and parts and materials<sup>11</sup>). Overseas branch plants produce mainly low-tech goods aiming at either plant-based local markets or exporting to the third countries. Overall, due to this extensive restructuring, GSA's workforce has now reduced by half from 2000 in 1992 to less than 1020 in 1994. Its productivity, however, had increased by 40 percent over the last two years and has been able to export almost 75 percent of its products.

(3) The distinct feature of new production system lies not simply with new production lines, but with the organizational capability to operate the lines through interfirm networks. The operation of new production lines requires the processes in which hundred thousand units of production flow across plants and sites via the complex input-output network of production, distribution and marketing. In other words, in order to keep the new system operating, it is critical to realize the flexible synchronization of material and informational flows among the production units involved. GSA procure 40 thousand varieties of components and parts for 40 kinds of products such as hi-fi music centres, cassette tape recorders, CD players and the like. Of 40 thousands components,

10 percent or so, which are mainly technical parts like semiconductor chips, are imported from Japan, Hongkong and Singapore. The rest of them are sourced out from local small subcontracting firms. Thus, in the light of GSA's production system, it seems that the stable management of procurement or purchasing linkages (i.e., network) is more important than the efficient operation of production lines per se. In fact, 60 percent of GSA's 1000 employees are involved in what they call 'indirect production', the largest group of which is the managerial staff for supervising material procurement, subcontracts, interfirm cooperation and the like. Of these, the core is the 'Material Task Force Team'.

In order to ensure stability in the linkage with numerous suppliers, GSA runs an association for encouraging cooperation<sup>12)</sup> with 229 subcontracting firms. Member firms are called 'Cooperative Firm' or 'Linkage Firm' and most of them are technically specialized. GSA, however, classifies these cooperative firms into three categories depending upon the technical contents of their products and maintains a differentiated linkage to each of these three category firms.

The first category, accounting for 45 percent of the 229 subcontracting firms, is mainly iron/plastic moulding specialists. They are mostly of small scale and have artisan skills necessary for sophisticated work like injection moulding; however their core technology like designing is still not advanced enough. Their moulding is no more than an execution of what the lead firm designed or conceptualized. Furthermore, their production, though often involving a mutual consultation on technical improvement, is usually arranged by an irregular order from GSA.

The second category, about 25 percent of the 229 firms, is mainly the assembler of plastic circuit boards(PCB). The PCB assembly machines, which are now widely

used, are high priced and fully automatized. Therefore, to operate these machines, new skilled operators, who are able to handle microelectronic technologies, are necessary, but a majority of workers become relatively de-skilled due to automation. The PCB is a critical hardware for electronic appliances and most products are supplied to the lead firm, GSA. Hence the lead firm maintains a close relation with these firms, so their production linkage is quite stable and constant. This category of subcontracting firms forms the core of cooperative firms, to whom GSA extends many helps like technical assistance, on-site service and financial subsidy.

The remainder, 30 percent, are chiefly producers of standardized products like resistors and inductors. These parts are sourced out through the selection of competitive goods produced by numerous small firms. Once the purchasing relationships between GSA and supplier firms are established, however, these tend to last for a certain length of period. Being members of the association for GSA, they have simultaneous supply contracts with other conglomerate electronics firms like Samsung Electronics Co. Ltd. and Daewoo Electronics.

Overall, cooperative firms are mostly technically competent and many of them have a bargaining with the lead firm upon their own capacity. Furthermore some of them establish simultaneous subcontracting relationships with other large firms. Hence it can be generally stated that, except some producers of standardized parts, cooperative firms are quasi-horizontally networked or, in Leborgne and Lipietz's(1992) term, 'vertically near integrated,' around the core of the lead firm.

Seen at a macro level, however, the interfirm network woven between GSA and its subcontracting firms functions in between the large firm segment and the small firm segment. The second and third



ranks of subcontracting are not directly regulated by GSA. But first-rank subcontracting firms, namely cooperation firms, have their own subcontracting relations with a number of other firms, particularly smaller scale firms. These firms are numerous and regulated indirectly through first-rank firms. These firms, however, play a very important role to absorb diverse resources from local markets. In Korea, there are many large scale open markets where all kinds of low-cost goods and services are available. For microelectronics products, there are a number of such markets in Seoul (notably, the Yongsan Electronic Market), in which small firms obtain their cheap quality materials. The lead firm absorbs the benefit created by these firms into its final commodities through subcontracting chains.

(4) As far as the mechanisms for making interfirm networks, GSA also uses two distinct regulatory mechanisms: competition and cooperation. The competition mechanisms are employed to keep parts procurement not much disrupted by labour unrest and price change. They are usually applied to the firms producing standard products. A typical tool drawing on competition mechanisms is a multiple-sourcing strategy to secure two or more sources in correspondence to a technical component. Competition takes place largely around 'low price' and 'better quality' among small firms. The former tends to be stimulated by large firms' cost reduction motives. But the terms of subcontracting with conglomerate firms like GSA are usually much favourable to small firms, compared with other cases. This means that cost competition, though still important<sup>13)</sup>, is much mitigated by quality competition which is a more positive sum game. This is demonstrated by the fact that GSA has recently upgraded the proportion of so-called Design-Acknowledged Contract to a range of 30-40%. Previously the Design-Lending Con-

tract prevailed.

Nowadays, GSA tend to rely more upon the cooperation mechanisms to keep stable supply links and to improve technical quality of products. To do this, GSA extends the category of 'cooperative firms', by increasing from 110 in 1987 through 160 in 1992 to 229 in 1994. The terms of subcontracting are now longer: usually 6 months or 1 year, depending upon the type of products. In the case of cooperative firms, the contract, once established, is subject to regular alternation but, as usual, lasts for some years. On the other hand, GSA operates on-line networks, called GISVAN (=Gold Star Information System of Value Added Network), between GSA and leading cooperative firms, through which daily and monthly information about production objects, parts in need, new model, new technical requirements and so on cross-flow between lead and follower firms. At the moment, 45 percent of cooperative firms now are in the on-line network. Cooperation on the part of follower firm goes together with GSA's helping hands such as provision of technical information, know-how, materials, equipment and finance.

(5) Geographically, cooperation firms are sensitive to geographical constraints in terms of access to their lead firm. This is confirmed by the fact that 84.7 percent of 229 supplier firms are located in the Seoul metropolitan area. Of the three category firms, those which are less subject to geographical constraints are the producers of standardized goods. Nevertheless, these firms are largely concentrated in the metropolitan area, from which they can obtain varied inputs and find alternative outlets for their products. The Kuro Export Industrial District is surrounded by a wide array of these firms nearby. Within the municipal bound of Seoul, the largest concentration (about 43 cooperative firms) is on Kuro(one of Seoul's 22 wards) where the Kuro district is located.

But within the Seoul metropolitan area, the largest concentration (about 40-50% of cooperative firms) is on Bucheon which another export industrial district is located 15km away from Kuro.

Inter-firm linkages within the district, on the other hand, are relatively weak as compared with those outside, yet there are 24 cooperative firms within the district. They are mainly the producers of standard products and moulding plants. To include indirect linkage firms, a good 60 percent of 86 small and medium sized electronic firms within the district are said to have various kinds of links, via a hierarchical chain of cross-subcontracting, to GSA. GSA also obtains numerous producer services (ex. packing, delivery, advertisement, repair, administration) necessary to its direct production from both within the district and its surroundings. What is more, GSA has nearby a plethora of production units which produce low cost micro components like jump leads used in PCB. Such firms are often the second and third rank enterprises who carry out the jobs farmed out either directly from large firms or from other subcontracting firms. In fact, the surrounding area of the Kuro Export Industrial District is famous for the heavy concentration of these small-scale workshop-like enterprises.

Overall, the district is emerging as an industrial hub which forms an important node of interfirm networks around large firms within the district. Within the district, industrial linkages deepen largely owing to the recently increasing concentration of diverse firms and activity units around the district. This deepening of interfirm networks connotes that the technological and production processes which used to be displaced from the district are now localized through the district. This confirms to us that the growing export of electronics products, which amounted to 3.2 billion dollars in 1993, from this district

is very much a result of thisqrqr localization process.

## 8. Conclusions

What lessons can we draw from Korea's large-small firm network? It is already well known that a key to Korea's economic miracle lies with a leading role of domestic large firms, namely the *Chaebols*. In the course of recent industrial restructuring, the innovative role of large firms has once again proved to be a constructive force, but this time its renewed role is largely catered to shaping a spearhead of the new globalizing economy of Korea. This experience implies that large scale and dynamic productive organizations are critically important for a national economy to gain its global competitiveness. However, the domain in which large firms perform comprises many variables which should be formulated and regulated at a level of macro economies. Therefore the positive role of large firms should be not spontaneously, but institutionally encouraged through regulatory efforts such as state acts to foster technical innovation, business transfer, interfirm cooperation and the like.

At the same time, it needs to be recognized that the success of recent industrial restructuring around new competitive industries is much in debt the progressive growth of small firms. In this sense it seems that Korea's recent globalization of economy results from the successful mobilization of production and reproduction resources into a local production system. The main vehicle of the mobilization is the micro circuit of production through which a plethora of small firms are connected to the globalizing production processes of domestic large firms. New emphasis should be, thus, placed on the new role of small enterprises, not only in terms of generat-

ing employment and income, but also an essential ingredient of a consolidated and diversified industrial structure. However, corresponding to the renewed role of large firms, the role of small firms is also to be created and regulated within the institutional framework which is aligned to reclaiming the exogenous and innovative forces brought in by large firms as adaptable to the local social soil. Technological enrichment, cooperative interfirm relation, better wage, vocational training are all critical to enlarging the new role of small firms.

What is more important is that the positive roles of both large and small firms are mutually reinforced through interacting enterprise networks. The positive functioning of Korea's large-small firm networks has led to the successful restructuring of the national economy. Large-small firm networks are a relational ensemble into which a myriad of production and service activities ranging from the conglomerates' R&D to housewives' piecemeal, are densely woven. Such complexity and diversity allow the interfirm network to function as a highly flexible system which evolves in synchronization with temporal and structural changes.

Considering all these implications, we should be careful in generalizing a small firm centred growth model as an alternative strategy. It would be a same fallacy to emphasize the large firm model as superior. In recent days, some negative aspects of the large-small firm networks emerge. These include, among others, new large-small firm divide in industrial organization, wage and skill differences between core and peripheral workers, an uneasy articulation between the global sector and the local sector in the national economy. In the real economy, small and large firms are not only necessary, but also complementary to each other in constituting an actual production regime full

of contradictory and diverse ingredients. Therefore, of importance is not the size of firm per se, but the ways which large and small firms are combined together in the country-specific technological, social and political context. "Theoretically to see beyond the narrow (micro-) concept like firm size, we need a more holistic approach and should progress towards an understanding of the political economy and social organization of enterprises" (Spath, 1994, p.294).

Finally, one crucial question arises: what is the limit to the large-small firm networks whose bright side we have seen so far? Despite its pressing importance, however, this paper has not offered any answer. It seems that to answer this, we should bring into light a series of problematics which influence the judging of whether the impact of interfirm networking is positive or negative. If so, this apparently deserves another paper.

## Endnotes

- 1) Small firms in this paper mean small and medium sized firms, unless otherwise state. In Korea small and medium sized firms are legally defined as firms employing less than 300 workers, though there are some exceptions for sectors like service where 30 workers are a divider.
- 2) Throughout 1987, a total of 3,749 labour disputes broke out and a total of 934,900 workers took part in the disputes.
- 3) The average wage index soared to 219.3 in 1990, as compared to 113.6 for U.S., 116.3 for Japan and 174.6 for Taiwan (1985=100).
- 4) The transfer comprises not only hardware items like machines/facilities, but also Software items like patents, organizational know-how and manpower, both accompanied by financial and institutional guarantees from either large firms or quasi-government organizations like Small and Medium Industry Promotion Corporation.
- 5) Over 60 percent of all existing Small enterprises are 10 years old or less. Half of all Small enterprises are set up by technicians who worked for other firms. Sectorally, most

of all these new firms are in the metal assembly, machinery equipment and industrial chemical sectors.

- 6) These include (1) Seoul region for high technology like micro-electronics (2) Ulsan for middle technology like motor-vehicles (3) Daegu for lower technology like textiles.
- 7) Here 'Industrial districts' simply mean urban industrial estates built through planning.
- 8) There were not many small firms in the district before, because of difficulties in meeting entry criteria, but recently the government has softened them whereby to permit to lend part of factories (or their sites) to other enterprises.
- 9) The industrial district started as an export platform which consisted of domestic large firms and foreign joint-venture firms with scant links with local producers.
- 10) The interview was carried out with a material procurement team of GSA in Kuro, twice during the first week of December, 1994.
- 11). However, the share of production by OEM and full processing subcontracting is usually around 20%, but changes from time between 30% and 10% according to market demand.
- 12) The Association formed at the group level is called 'Sungruckhoe (=the Association for Star Power). 49 firms of GSA's 229 subcontracting firms are members of this Association.
- 13) A GSA staff said that price (or cost) competition takes place now between Korean products and Chinese products. This means that if local products would be higher priced than the Chinese, then GSA should turn its outsourcing to overseas like China.

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