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POLICY RESEARCH WORKING PAPER

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Colombia's Small and Medium-Size Exporters and Their Support Systems

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Small and medium-sized Colombian firms have claimed an increasing share of total manufactured exports in the past decade and show signs of being competitive. Policy steps to strengthen their potential include support to useful industry associations, to trade fairs, and to training activities for both entrepreneurs and their workers.

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Summary findings

Berry and Escandon evaluate the role of dynamic small and medium-size manufacturing enterprises and entrepreneurs (SMEs) in Colombia's development. They also evaluate SME policy in Colombia, especially as it affects the country's export potential.

The SME sector has received little attention from Colombia's policymakers despite its substantial weight in manufacturing, its importance as a seedbed for important future companies, and its demonstrated capacity to grow rapidly under favorable circumstances. After the recent shift to a more open economy, people are asking how the sector will fare under the more intense competition to come. Recent changes in Columbia reflect strong pressure from those outside the traditional elite — especially the somewhat marginalized class of SMEs — to play a greater role in the political process.

Berry and Escandon interviewed entrepreneurs from 125 SMEs — all of them exporters — in the garments, leather goods, and nonelectrical machinery sectors. Some had been exporting for many years; many had begun to do so only in the late 1980s. Firms typically employed up to several hundred workers but average size at start-up was small (a median of eight workers). The leather goods industry is mainly export-oriented; the other two sell mainly in the domestic market, although all but a few were exporting. Nearly three-quarters of entrepreneurs had some university training (90 percent in the machinery industry).

Most exports were to nearby or easily accessible (same-language) countries. International marketing was handled mainly by the private sector, but the public sector and other nonfirm organizations play a facilitating role in that process, especially for very small firms and first-time exporters. Trade fairs have been especially useful to the leather goods and nonelectrical machinery industries.

Collective support mechanisms — mainly industry associations, especially for smaller firms and the leather goods industry — have helped firms develop technological capabilities (in finishing and design, for example, workplace organization, and the use of sophisticated equipment). Education and training — especially "learning by doing" — have helped improve productivity.

This paper — a product of the Finance and Private Sector Development Division, Policy Research Department — is part of a larger effort in the department to examine the impact of proactive intervention on SME performance. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Daniele Evans, room N9-055, extension 38526 (48 pages). December 1994.

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1. OBJECTIVES AND ORGANIZATION

This study has two main goals. The first is to evaluate the role and potential of dynamic small and medium enterprises (SMEs) in Colombia's present and future development. The SME sector has received little serious attention from policymakers in spite of its substantial weight in the manufacturing sector; its demonstrated capacity to grow rapidly under favourable circumstances and to provide the seedbed for many of the important companies of the future (Cortes et al, 1983; Gomez and Villaveces, 1979). Further, the recent political "opening" via the Constitutional Conference and related changes in Colombia's political process reflect strong pressure from those outside the traditional elite to play a greater role; many SME entrepreneurs belong to this previously somewhat marginalized class[1]. The recent policy shift towards a more open economy has raised the question of how the sector will fare under the more intense competition to come.

Our second goal is to evaluate SME policy in Colombia, especially the micro-level policy relevant to SME export potential. Over the previous decades some modest initiatives have been taken to assist the sector, such as the creation of the Corporacion Financiera Popular (CFP). But in general the sector received short shrift from the government. In the present liberalization phase, it is clear that SME exports should play a greater role than before. It is also widely believed that, if they are to live up to potential, SMEs now needs more coherent policy support than they received in the past, when the domestic markets were relatively highly protected.

Particular attention is directed in this study to the areas of marketing, technological, and financial support systems. Whereas large firms typically have both the resources and the capacity to explore and to exploit opportunities available in the market, SMEs are in a less advantageous position; most lack those resources/skills, and may therefore benefit significantly from support systems--both private and public networks external to the firm--to complement their own efforts. This study explores how well such systems have supported Colombian SMEs in the past, and examines what changes may be needed.

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[1] Marginalized at least from the centers of economic and political power, though not low-income relative to the population as a whole.

Section 2 of this report provides a brief overview of the country and sectoral settings for SME export activity. Section 3 provides an overview of each sector, with a look at who the exporters are and how successful they have been. Section 4 reviews the mechanisms that the sample SME exporters have used to penetrate export markets and considers some of the ways in which the government might improve marketing support systems. Section 5 looks at mechanisms and policies relevant to SME acquisition of technological capacity. Section 6, presents overall conclusions and policy recommendations.

2. SMEs IN COLOMBIA: POLICY AND INSTITUTIONAL SETTING

Modern industrialization in Colombia began around the turn of the century, when major advances, financed largely from coffee earnings, occurred in textiles and several other industries. Another push was provided by the Great Depression and the Second World War, both of which provided natural protection for domestic producers.

After the war, import-substituting industrialization became the central goal of government policy in Colombia as in most other Latin countries. A partial shift occurred in the late 1960s (principally in 1967 with Decreto 444) as a floating exchange rate was adopted, the Export Promotion Board (PROEXPO) created, and other steps taken to diminish the policy bias against exports. The policy changes of the late 1960s were followed by a dozen years of quite good growth. The 1980s saw an economic slowdown, although Colombia and Chile have been the only two Latin American countries able to register significant growth since 1980. Colombia has had 51 percent growth over the 1980-1992 period and 20 percent growth in per capita terms. Of particular concern has been the less successful evolution of manufacturing--3 percent growth from 1980-84, 17 percent between 1984-88, and just 16 percent from 1988-92.

Towards the end of the 1980s, Colombia initiated a series of trade regime reforms. The new program constitutes a dramatic break with the past, with 1992 year-end tariff levels down to around 15 percent for most final products, 10 percent for intermediate goods, 5 percent for basic raw materials and zero for much of the machinery industry (Arango, 1992, 222). Subsidies have been reduced, especially those to exports, and increasingly concentrated on new export items; moreover, they are expected to be eliminated soon. Another important part of the overall reform package is a major attempt to eliminate unnecessary regulations, which have made importing and exporting cumbersome and slow. This red tape has been a major problem for SMEs, especially those doing a fair amount of importing and aspiring to export.

Manufactured exports grew rapidly during the 1970s, from US$59 million in 1970 to just over $800 million in 1980 (World Bank, World Tables, 1989-90 Edition, 186-87) or from 4 percent of manufacturing output to 10.4 percent. There was a sharp decline in manufactured exports in the early 1980s to a low of under $600 million in 1983, partly due to sharp increases in foreign exchange revenues during the late 1970s from drugs, higher coffee prices, and, to a lesser degree, fuel exports. These developments set the stage for an exchange rate appreciation which impacted negatively on other exports, including manufactures, and increased import penetration in the domestic market. The export low of the early 1980s was followed by fairly continuous growth (around 17 percent per year in current dollar terms) to over $1.5 billion by 1990.

In the 1950s and 1960s, growth was fastest among the larger firms and plants. During the 1970s, SME employment grew rapidly both in the aggregate and at the firm level, reversing the pattern of the previous several decades. Cortes et al (1983, Chapter 6) attribute this SME boom to a combination of availability of entrepreneurial skills, many of them honed through experience as employees in other firms; a fall in the real wage levels of both white and blue collar workers in the early 1970s; better access to imported machinery and raw materials; an effective local market for second-hand machinery (much of it imported); and an expanding domestic market as both employment levels and per capita incomes rose quickly. During the difficult 1980s there was an absolute decline in employment in plants of 200 workers or more, almost no change in those with 50-199 workers, and some increase in the smaller plants of 10-49 workers (Table 1).

Permanent employment in small and medium plants of 10-199 workers is about the same as in larger ones; their subcontracting activity is probably somewhat greater. Therefore, the total direct plus subcontracted employment is greater in small and medium industry than in large industry. Data for the 1980s indicate very little difference between SMEs and large enterprises in the share of output exported directly (8 percent vs. 10 percent in the late 1980s).[2] The SME share of direct manufacturing exports was a significant 30-35 percent during the 1980s. If, as seems likely, a higher share of small firm production is exported indirectly than in the case of larger firms, the SME share in total exports would probably be at least 40 percent. This prominent role follows in part from the prevalence of smaller plants in some of the more export-oriented industries such as garments.

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[2] Direct exports are undertaken by the producing firm itself, as opposed to an intermediary. During the 1980s, the contribution of small plants to total exports rose markedly and that of medium ones fell. The export/value of production ratio for small plants jumped from 2.6 percent between 1981-83 to 11.2 percent from 1988-90, while that of medium plants stayed about the same, and that of the large ones also rose. By the end of the 1980s, small plants thus had the highest export ratio and medium-scale plants the lowest. (In these figures, small plants are defined as those with 10-49 and medium as those with 50-199 workers).

3. SUBSECTOR AND SAMPLE CHARACTERISTICS

This study focuses on the three industries -- garments, leather products (other than shoes), and non-electrical machinery products. Interviews with SME firms were undertaken in the cities of Bogota (71 firms), Medellin (27 firms), and Bucaramanga (27 firms). Bogota and Medellin are the country's largest cities and most important industrial centers, while Bucaramanga is middle-sized, with an important history as a metal products center as well as significance in the garments industry.

Firms were considered candidates for inclusion in the survey if they had exported or were currently exporting and if present size fell in the range of 10 to a few hundred workers. The few relatively large firms included in the samples had typically been small or medium in size in the recent past. With the advice and assistance of the broad-based industry association ACOPI, and the footwear and garments associations, (ASOCUEROS and ASOCONFECCIONES), firms to be interviewed were selected principally from the national Directory of Exporters, 1991. Appointments were requested with the owner or manager of the firm. Some firms were dropped from the sample when it was ascertained that they did not meet one or another of the criteria established with respect to export experience, size, or products. A few others were discarded after part or all of the interview when it became clear that the quality of the information obtained was low. The sample includes a significant share of the total number of SME direct exporters in the leather goods and non-electrical machinery industries (probably over half and about a third, respectively), and a smaller share of those in the garment industry. The high share of interviews undertaken in Bogota could be a source of non-representativeness, and we attempt to keep this possibility in mind in the analysis.

While the three industrial sectors examined in depth in this study vary widely in many respects, several features are more or less common to all of them:

* SME firms produce the bulk of output in each sector. Even when very small firms are not taken into account, the output of large plants (200 or more workers) ranges only between a quarter (garments and non-electrical machinery) and a third (leather goods) of the sector total as of 1990.

* Each sector had generated some exports in the 1970s, though less for the leather goods firms than for those in the other two sectors. In all three cases, exports dropped in the first half of the 1980s, and the most recent period of growth began in 1987. For these sectors, as for manufactured exports as a whole, there is considerable short-run sensitivity to movements of the real effective exchange rate.
* SME producers are probably responsible for a majority, or at the very least a significant share, of exports in all three sectors. The share of their output which is exported, directly by the SMEs or through intermediaries, may also be higher than that of larger firms in the same industries.
* Nevertheless, it is true for most SME exporters, as for most large exporters, that the domestic market is the main base for sales. Only 18 of 121 firms (15 percent) exported 80 percent or more of their sales and 38 (31 percent) exported half or more. Leather was an exception, as 19 of 34 firms exported at least half of their sales.
* Although the present size of the sampled exporters varies fairly widely within a range 20 to several hundred workers, these SMEs started small: only 14 of 106 firms began with more than 20 workers and nearly two-thirds started with less than 10.
* In each industry, the major raw material is supplied by a domestic industry characterized by a marked degree of oligopoly, high prices, and, most notably in the case of leather goods, quality problems. Each of these exporting industries has thus been negatively affected by the protection enjoyed by the large producers in upstream industries.
* The educational level of the entrepreneurs is high, especially in the machinery sector. Overall, nearly three-quarters have university training and 21 of 122 have attained a post-graduate level of education.

3.1 Colombia's Leather Goods Industry and its Exporters

As recently as thirty years ago, Colombia's production of leather goods for local consumption was carried out by artisans using simple sewing machines and tables, most often located in a corner of the house. Luggage and harnesses for draft animals were the main products. The industry remains dominated by small and medium plants in its export activity as well as in production. Of an estimated 4807 establishments in 1991, only four had 200 or more workers. Total employment, reached 9,000-11,000 by early 1993[3] about two-thirds employed in plants of less than 50 workers. The main items of production and export are women's handbags, luggage, and "maroquineria", which together represent about 76 percent of sales (Salmon, 1990, 119). During 1974-88, output growth averaged just 1.9 percent per year and registered employment actually fell subsequently the industry received. Exports rose from under US $14 million in 1984 to $106 million in 1991.

The sector's increasingly outward orientation has brought the export/output ratio up to about 50 percent (compared to about 10 percent for manufacturing as a whole), making this the most export-oriented three-digit sector of Colombian manufacturing. The share of output exported directly is higher in the larger plants than in SMEs, although this relationship might be reversed when indirect exports are taken into account. Some interviewees noted that it was impossible to compete in the domestic market with an "army" of very small firms, which have the advantages of lower labour costs and almost no fixed costs.

Colombia has a long history as an important producer of cattle, and has exported both hides (in an earlier era) and leather in significant quantities. Exports of leather goods, primarily luggage, began in the

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[3] Official DANE statistics (which in theory cover plants with 10 permanent workers or more but in practice miss some of the smaller plants in the 10-25 worker range) show a continuous employment decline from 1981-85, followed by a rapid increase, especially marked in 1990 (the last year for which data are available) at over 30 percent. Total employment in the sector, including the many people engaged in "microenterprise," has probably followed the same general pattern. If the figure of 8,000 is a good estimate for 1988, the share of employment in plants with less than 50 workers was about two-thirds at that time, although it may have fallen a little since then as plants expanded.

Employment in the Leather Goods (Excluding Shoes) Industry, By Size of Plant, 1981-90

Year	Small	Medium	Large	Total
1981	926	1,847	473	3,246
1985	693	1,508	256	2,457
1988	898	2,069	691	3,674
1989	987	2,396	256	3,639
1990	895	2,525	1,327	4,807

Source: DANE, Anuarios de Industria Manufacturera.

early 1970s, yet much of the better quality leather continued to be exported in bulk. In terms of international competitiveness, the Colombian hides/leather/leather goods industry appears to be at a critical juncture. Up to this point it has managed to penetrate export markets on the basis of trial and error, luck, and a lot of entrepreneurial spirit.

The industry now confronts important opportunities which, in the judgment of Salmon Associates (1990, 129), in a study carried out as part of the World Bank's Colombian Industrial Restructuring and Development Project, can be taken advantage of only through a decided government effort at restructuring and development. The level of opportunity is high because of the considerable installed capacity, the experience acquired in the last few years, and the state of the international market. Colombia is considered more competitive in leather goods production than in hides or leather. US importers consider Colombia the best producer of leather goods in the region, at an intermediate level of price and quality between that of Europe and the Far East. They tend to blame delivery problems on the transportation system that Colombians have to use, while they are generally impressed with the producers' desire to export and their ability to produce the styles required in the U.S. market at competitive prices (Salmon Associates, 1990, 193).

A total of 34 firms were interviewed for this study, 28 in Bogota, 3 in Medellin and 3 in Bucaramanga. Their main products are briefcases, wallets, ladies' handbags, luggage, and a few other items. Some produce shoes as well, but the survey excluded any firm that specialized in shoes. The surveyed firms sell an average of 55 percent of their output abroad directly (close to the 51 percent reported in the 1990 industrial survey). Eighteen (or 53 percent) of the firms exported 70 percent or more of their output directly, and eight exported essentially all of their output (95 percent or more). Many of the younger firms were founded with the express purpose of exporting; of those founded in 1988 or later, only one delayed as long as two years before exporting[4], and six of 11 exported at least 70 percent of output, probably reaching this level much faster than their predecessors.

The oldest three firms date from the 1940s and a total of five predate the 1970s, only two of which have over 50 workers at present. Six date from the 1970s, 16 from the 1980s, and seven from the 1990s. Size at start-up has been small, averaging just 7.4 workers. Nearly two-thirds of the firms began operations

[4] This conclusion cannot be derived from the statistics alone, since a criterion for entering the sample was having participated in international markets; young firms which had not done so would thus not appear in the sample. But discussions with interviewees, together with the ease of finding young firms already exporting, suggest that there has been a change. One intriguing feature of these recently founded firms is that many reported exporting first in the year after founding, rather than in the same year. It may be that in many cases the year of founding in the legal sense precedes production by 6-12 months.

with less than 10 workers and only four of 29 started with 20 or more workers (Table 2). Current average size is 55 workers; only 6 firms have less than 20 workers and nine have more than 100. Reported sales for 1991 averaged 618 million pesos (somewhat more than one million US dollars at the current exchange rate), with a range from 20 million to 2,500 million pesos. Nearly all of the firms visited had computers, facsimile machines, an accounting department, rugs, and someone who spoke English, even when the proprietor had only a primary or secondary education.

Subcontracting is quite common among SME leather goods producers, especially the smaller ones, and tends to be reciprocal. Often the SME contractor is interested in subcontracting part of its output to very small "satellite" establishments because the latter have lower labour costs, perhaps due mainly to lower fringe benefits. On the other side, the need to control the process is often cited as a factor limiting the extent of subcontracting. Twenty-five of the 34 sampled firms subcontract. Those subcontracting for the whole item arranged an average of 34 percent of their production in that way, while the (partially overlapping) group reporting the subcontracting of parts and processes arranged an average of 43.5 percent of their production in this way. Nearly all of the contracting firms are themselves engaged in subcontracting or have been in the past.[5] Only five of the nine firms with 100 or more workers use subcontractors, whereas 20 of the other 25 do so.[6] All the firms engage in some form of quality control/monitoring, all but one visit the plants of the subcontractors, and about half provide some form of training.

Two-thirds (23) of the owners have at least some university education--six incomplete, 13 complete, and four with post-graduate training. Six have primary and five have secondary-level education (complete or incomplete). Four of the six with primary education founded their firms before 1975, two now have over 200 workers, while the rest are small (averaging 21 workers). One was a struggling micro-entrepreneur in 1974, when a visit from an American stimulated him to try to export in spite of the tedious bureaucracy involved. Sales are now at $2.6 million.[7] The educational level of the more recent founders tends to be higher; six of the seven who started firms in the 1990s have completed university (and one went on to post-graduate trading), while the other had completed a secondary education. Though start-up size was below the

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[5] This is true of 22 of the 25 firms that subcontract work out.

[6] The data do not suggest any clear pattern of graduation from subcontracting. Of the nine largest firms, three currently subcontract, and one other did so in the past. A few other firms have subcontracted before but were not doing so at the time of the survey, although some might do so again.

[7] Each of the three brothers involved in this enterprise has a primary education; they are advised/assisted by two friends with higher levels of education. The entrepreneur also runs a 40 fanageda farm using the concept of recycling and integrated self sufficiency. The farm's success has been facilitated by non-formal education also.

average for the earlier cohorts and for entrepreneurs with primary education, it has been small even for the well-educated recent firm founders.

3.2 The Garments Industry and Its Exporters

Colombia's garments sector has shown periodic bursts of dynamism, closely tied to its export performance. Output grew rapidly during the 1970s, stagnated in the early 1980s, and did well again over 1984-90. The trajectory of factory employment has been rather different: after rising by about 70 percent from 1971 to 1980, it fluctuated with no net increase over the 1980s. Labour productivity increases made a major contribution to output growth during both the 1970s and the 1980s. Although it was somewhat faster in the former than in the latter (39 percent between 1973-80 vs. 29 percent between 1980-1987), in this recent period it has accounted for all of the output growth that did occur in the factory sector.

As in other countries, there is a heavy representation of both small and medium factories and of very small, family-sized establishments.[8] The production of garments is a low-wage, labour–intensive process. In 1990 average remuneration was only about half that of manufacturing as a whole. About 80 percent of garment workers were women in 1987, compared with 30.5 percent in manufacturing as a whole. The average level of fixed assets per plant was 9.5 million pesos (under US $40,000 at 1987 exchange rates) versus 101 million in manufacturing and 170 million in textiles (Arango, 1992, 162); a small plant might get started for under US$20,000.[9]

It is also a sector with marked export orientation. This is an industry which has "been there" before.[10] Exports fell from US $113.6 million in 1980 to $40 million in 1983 before following the trend of world trade back up to $449.2 million in 1991, 14 percent of manufactured exports (Arango, 1992, 178). Since 1988, garment exports have systematically exceeded those of textiles, once Colombia's main manufactured export. After 20 years in the market, Colombia is now achieving some recognition as a reliable garment supplier. Arango (1992, 146) estimates that, at perhaps two-thirds that of the Asian NICs, labour productivity is high enough to make the industry competitive internationally, given a wage rate (about US $0.75 per hour) that

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[8] While DANE data show 1053 plants with 10 or more workers the Chamber of Commerce uses a figure of 6000 plants in total and the industry association (ASOCONFECCIONES) says there are 12000, a figure consistent with the Economic Census data of 1990.

[9] The reported output/capital ratio is twice as high in garments as in manufacturing as a whole, and the capital/labour ratio is only one-seventh as high as in 1987, down from one-fourth in 1973 (Arango, 1992, 74). Whereas the capital/labour ratio was 59 percent as high in the small as the large in 1973, this ratio was up to 89 percent by 1987.

[10] For a discussion of the factors in this decline, see Morawetz (1981).

is only one-third to one-half as high as in those countries and lower than in most of the countries of Latin America. In 1987, exports of textiles and garments received a subsidy equal to 9.57 percent of value, but during negotiations with the United States this was dropped for fear of "anti-dumping" duties being applied (Arango, 1992, 195).

Size structure has changed considerably over the last several decades. The number of plants with 200 workers or more remained flat through the 1970s, then fell in the 1980s. The industry has seen the emergence of a new group of small and medium entrepreneurs with high entrepreneurial spirit spread around the country. The share of output from small plants (<50 workers) rose from 18-19 percent in 1981 to over 30 percent by 1986, and has stayed in that neighbourhood since then[11], while the share of large plants slipped from 44 percent in 1981 to 30 percent in 1988 before recovering to 33.5 percent in 1990 (Arango, 1992, 41). Employment shares moved in the same direction but less sharply. The industry is relatively decentralized, with medium-sized cities such as Manizales (30 percent), Barranquilla (almost 20 percent) and Pereira (over 10 percent) all exporting significant shares of their output. Production in Colombia's three largest cities is dedicated to the domestic market; only 2.9 percent of sales of Bogota plants went abroad and 2.2 percent of those of Medellin (Arango, 1992, 80).

Productivity trends indicate that SMEs in this sector have been progressing satisfactorily, perhaps even rapidly. Available data imply an increase in labour productivity of 80.1 percent or 4.3 percent per year from 1973 to 1987 (output having risen by 120.5 percent and employment by only 22.4 percent). The increase was fastest in the medium-sized firms, but also fast in the small and less so in the large (Table 3). Real wages have risen especially rapidly in the smaller plants; remuneration per worker rose by 56 percent

[11] Beginning in 1988 the Encuesta Anual Manufacturera reported large levels of output in plants with less than 10 permanent workers but more than 10 in total. (For the criteria now in use see DANE 1992, 212, 226). In each year from 1988-90, this category had 9-13 percent of total value-added in the sector. At the same time, relatively small numbers of workers were reported for this category (around 1 percent of the total), although their number increased rapidly. The very high implicit level of labour productivity means that the plants in question must use mainly temporary workers, or subcontract to satellites whose output winds up in these figures while the labour inputs do not. We are not yet sure whether the figures reflect a dramatic increase in the importance of this category (perhaps a rapid growth of subcontractors) or are a statistical illusion in the sense that comparable numbers of firms were present before but simply not counted. The output and employment figures given in the text exclude these figures for plants with less than 10 permanent workers.

from 1973 to 1990 while those in large plants rose by only 18 percent.[12] By 1987 there was only a small gap in wages (excluding fringe benefits).[13]

Forty-seven garment exporters were surveyed, 27 in Bogota, 10 in Medellin and 10 in Bucaramanga. The largest number were founded in the 1980s (24), a few before the 1970s, and 12 in that decade. About two-thirds of the sampled firms began with less than ten workers, and over a third with less than five (Table 4). The average size at present is 134 workers; the median is sixty.[14] Eight firms have reached a level of 200 workers or more; none of these was less than ten years old and the average age was twenty-three.

The importance of the export market to these firms varies widely. Exports average 28 percent of sales, with 19 of 44 exporting firms exporting just 1-10 percent of sales, the same number exporting 11-60 percent, four exporting 61-80 percent, and just two exceeding 80 percent (with one of these at 100 percent).[15] Only four of the 47 firms began to export before 1980, although 19 were founded before that date. Another eight started to export during 1980-87, but the great bulk (33 of 45) began in the burst of activity from 1988 to the present. Just four of the 47 firms began exporting the year they were founded, four more one year later, and three more two years later. In general it would appear that few of the garment firms we surveyed were created with the explicit and primary plan of exporting.

Nearly two-thirds of the sampled firms (29 of 47) subcontract work out. Subcontracting is no doubt encouraged by Colombia's inflexible labour legislation on firing and seniority, though how important this factor is in relation to others is less clear. Most of these (21) do so only for specific processes (including assembly, embroidery and sewing), but often on a substantial scale.[16] Of the eight firms subcontracting

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[12] The increase in average wages of 27 percent between 1973-86 was much greater than the 5.2 percent for manufacturing as a whole.

[13] At one-half the level of wages, the fringes are lower than in other sectors of Colombian manufacturing, where in 1989 the average ratio was 83 percent.

[14] Sales ranged from about US $15,000 (10 million pesos) to US $25 million (15,000 million pesos), averaging $1.5 million (or about $1.1 million without the largest firm).

[15] Two firms did not export in 1992, citing the unpromising international market (due to the peso revaluation of 3 percent and the world economic recession) and the need to protect their position in the domestic market against imports as the liberalization proceeds.

[16] SENA, through the National Textile Center (Centro Nacional Textil) in Medellin and other branches of SENA, is the main external source of training for the textile and garment industries. It provides training for workers, supervisors, and technicians in the repair and maintenance of garment equipment, although the latter service

whole items, four contracted 80-100 percent of their output; they represent an arrangement in which "satellite workshops" handle the production while design, marketing and finance are handled by the "company." As in leather goods, firms that use subcontractors typically also act as subcontractors themselves.

Education levels of the entrepreneurs are high. Only two had as little as primary education, four had some secondary, and 9 completed secondary school; the other 32 had been to university, with 19 completing university and six going on to the post graduate level. Owners of recently-founded firms have higher levels of education than those of older ones; the share with a university degree was 40 percent for firms founded before 1980 and 61 percent for the more recent ones. The fact that 26 percent of owners' fathers had some university education indicates that these entrepreneurs come from relatively high socio-economic strata. Both firm size at start-up and present size are related positively to level of education; mean and median start-up sizes were 5.5 and 3 workers for entrepreneurs with primary and secondary levels, compared to 16.2 and 8 for those with university. Mean and median current sizes are 82 and 52 for the former group, compared with 156 and 62 for the university-educated people.

3.3 The Non-electrical Machinery Industry and its Exporters

The non-electrical machinery industry in Colombia is not highly developed or dynamic, and it accounts for less than 2 percent of total manufacturing value-added. The output trend in this industry was strong during the 1970s, but dipped in the early 1980s. Employment fell by about 10 percent between 1981 and 1984, then grew rapidly through 1988; in 1990 it was 12 percent higher than the 1981 level.

Exports from this sector reached US $39 million in 1980, but then fell sharply to a low of $12 million in 1984, levelled off in the $20 million range between 1987 and 1990, and then jumped sharply in 1991 to 72 million. The export-to-output ratio was a high 18 percent in 1977 (when it was lower only than wood and leather products (Ibid, 15) but fell to 7.3 percent in 1986, far below a number of other industries and just about equal to the all-manufacturing average. Exporting is difficult because the various subindustries specialize in machinery to meet national and even local needs. Potential exporters therefore often have to study the needs of foreign buyers from scratch, especially when the buyers are from developed countries.

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periodically runs the risk of becoming obsolete as the equipment available becomes outdated (Arango, 1992. 161). The distributors of the main lines of machinery also have schools for "tecnicos" and provide technical assistance to firms too small to have a maintenance specialist in house. The garment firms themselves provide little systematic training (Boston Consulting Group, 1989, 91) and relatively few use SENA services. There are widespread complaints of a lack of trained supervisors and quality control workers. Leading exporters have typically received assistance in this area from their buyers (loc cit).

The industry is dominated by SMEs, which accounted for about 70-75 percent of employment and 60-65 percent of production during the 1980s (Table 9). In 1990, small plants with 10-49 workers accounte for 35.7 percent of industry employment, medium plants (50-199 workers) accounted for 40.3 percent, and the remaining 24 percent came from plants with 200 or more workers.

A total of 44 firms were surveyed, 30 of these in Bogota, seven in Medellin and seven in Bucaramanga. Eight had been founded before 1960 (two in the 1940s), another nine in the 1960s, 10 in the 1970s, 16 in the 1980s, and two in the 1990s. Most began with less than 10 workers (23 of 38 reporting this datum) and nearly half with five or less; mean start-up size was about 12 workers. Average size at present is about 130 workers, with only six firms having less than 20, 20 having less than 50 workers, and eight having more than 200 (Table 5). The typical firm in the sample started quite small and grew over ten-fold to reach medium size. Average sales were about US $3 million. Nine of 30 firms engaged with subcontractors undertake training as part of the arrangement.

Of 41 responses, five firms indicated that they are no longer exporting directly. Including these, nearly 70 percent of the firms were exporting less than 20 percent of their production. Only three were exporting more than half (another two were at 50 percent), with the highest coming in at 90 percent. The mean export share was 17.2 percent and the median less than 15 percent. There was considerable volatility in the export/sales ratio.

Only three firms had been exporting from the time they were founded and one other from within a year of that time. These firms were founded with the intent of satisfying a foreign demand that they already knew about. For the 26 firms founded before 1980, the average delay between the time of founding and the time that exporting began was 15.6 years. Even for those established between 1980 and 1984, the average wait was 8.4 years. It thus appears that, with the exception of those firms founded with foreign capital, the firms were established with only local demand in mind. Firms starting with less than five workers took significantly longer to enter export markets (an average of 19 years) than did larger ones (9.6 years). And firms with less than 25 workers had much lower direct exports/sales ratios (averaging 3.5 percent) than did the large ones (18.2 percent for those with 100 workers and up, 23.1 percent for those with 50-99 workers and 20.4 percent for those with 25-49 workers.[17]

The level of education of entrepreneurs among this group of exporting firms is very high indeed; 88 percent (36 of 41) have had university training. A high percentage are engineers (13) or

[17] No firm with less than 30 workers had a ratio of over 10 percent, though one of these had a 50 percent ratio in 1992.

administration/accounting graduates (12). The educational level of this group is much higher than that reported 14 years ago for metalworking SMEs in general (Cortes et al, Chap. 4), suggesting that there may be a significant relationship between educational level and the capacity to export. Of 16 firms with 100 or more workers at present, only one entrepreneur had not completed university; among the smaller firms eight of 25 entrepreneurs fell in that category.

4. THE MARKETING SUPPORT SYSTEM FOR SME EXPORTERS

The lack of effective channels for selling in world markets is a general problem for all but a few industries in Colombia and small firms face a special challenge. Some focus their exports on nearby countries, where demand may be similar to their own domestic market. Others begin as subcontractors for larger firms or other intermediaries. Those who attempt direct marketing in industrial countries are likely to face the biggest challenge.

The evidence from our sampled firms in the leather goods, garments, and non-electrical machinery industries points to a number of general features with respect to foreign marketing:

* Marketing is basically handled by the private sector, although the relative roles of the firms themselves and of foreign buyers vary by sector.
* Support from the state and other external providers has been at least reasonably important in all three sectors (more so for garments and leather goods than for machinery), especially for those firms which started small and for the earlier exporters.
* Fairs have been a particularly valuable contribution of external agents in the leather goods and machinery cases.
* SMEs in these three industries have done a substantial share of their export business with nearby or otherwise accessible countries (including all of Latin America in that definition). In the case of non-electrical machinery, this pattern may hold true in the future as well. In the other two industries, however, the major future export potential lies in the developed countries.
* Subcontracting has been an important method of market entry for many smaller firms, especially those involved in leather goods.

5.1 International Marketing of SME Leather Goods Producers

The earlier exporting firms (most of whom began to sell abroad in the 1970s) were founded to supply the domestic market, while a significant share of the the newer ones have had the external market in mind from the start. For firms founded in the early 1970s, the mean time elapsed before exporting began was more than 12 years. The average delay had fallen to 3.6 years for those firms starting up between 1980 and

1984. The early 1980s seem to have marked a sort of watershed, after which firms were founded with a view to exporting. A general problem for leather goods exporters, especially those aiming at the industrial country markets, is differences in taste between Colombian and foreign customers; in many items the former prefer a shinier ("glitzier") product, while the latter prefer something more subdued in character.

The United States is the main single market for the leather goods firms in our sample, listed first by 16 firms compared with seven firms listing Venezuela as their main market, five listing other Spanish-speaking countries, and five reporting one of several other other countries. Private channels were used by virtually all the firms as they entered the export market, with around two-thirds reporting that both their efforts and those of foreign buyers were central to the establishment of initial export channels. On a scale of 1 (least important) to 5 (most important), these received average ratings of 4.0 and 3.5 respectively. Support from public or other nonprofit agencies received an average score of 2.5; subcontracting relationships with larger exporters, received an average of 2.1 (see Table 6). The most common channel for initial exports was a visiting foreign buyer (in 12 of 27 cases[18]), while the firm's export office was the main channel in eight cases, and seven firms subcontracted with a larger exporter. The early exporters, whether to nearby Latin markets or to more distant developed country ones, appear to have made their first contacts in generally more informal ways than have later cohorts. Family frequency played a role, even in the case of the larger of the US oriented firms in the group, while the other first contact in the US was made by the seller's trip.

The subcontracting route was used disproportionately by firms that started exporting recently (all the users date from 1989 or after) and by small firms. It accounted for nearly half of the first-export activity of the group of firms that started with less than five workers, and was judged by those firms to be of equal importance to their own marketing efforts, and more important than identification by foreign buyers or support from public and other non-profit agencies. The greater prominence of subcontracting as a path to independent exporter status in the last few years may signal that the subcontracting network is becoming considerably denser possibly as a result of accumulated experience in exporting.

While the average score of 4.0 highlights the importance firms typically accord to their own marketing efforts, it is clear that other agents complement those efforts in important ways. In at least two-thirds of first sales abroad, the producer appears to have been the more passive party; the initiative of the buyer was central in 13 of 31 cases. Friends, business contacts and family acted as the catalyst in six cases,

[18] In one of these cases the channel was a buyer's local purchasing office rather than a visiting buyer.

and a state agency in just one. In only six (or about 20 percent) of first export cases did contacts appear attributable to clearly positive action by the firm (such as business trips and partners or agents abroad).

Although nearly all export contacts occurred through private channels, the state and the industry association were important in setting the stage for those contacts. Fairs, especially those in Colombia, were the most cited venue for first contacts with buyers (15 of 33 cases) and are even more important vis a vis the currently three largest buyers (19 of 33). Organization of trade fairs is judged to be the state's major contribution to SME export penetration (receiving 18 scores of 4 or 5). Helping the firms to participate in fairs abroad is also very important (15 such scores), while other types of assistance are of modest importance (Table 7). Organization of fairs was particularly important to firms that started small, receiving an average importance of 4.3 among those firms starting with less than five workers, 3.3 for those starting with 5-9 workers, and 2.4 for the larger ones.

The main beneficiaries of public support appear to be the firms whose export activity was launched as part of the export expansion from 1984 through the rest of the decade; these are the first firms created with a view to immediate participation (directly or indirectly) in exporting. On average this group rated public sector or NPA support at 3.0, contrasted to just 1.6 for the earliest group to export and 1.8 for those starting to export in the 1990s -- with the decline in scores for the latter group presumably signalling the increased "thickness" of the private market place.

5.2 The Marketing Support System for SME Garment Producers

Even though Colombia's garment industry had a considerable presence in international markets as of the late 1970s, only four of the sampled firms were exporting during that earlier boom. As in the case of leather goods, the industrial country markets must be distinguished from those of Colombia's Latin American neighbors. The main markets cited by the exporters are the United States (the main market for 13 of 45 firms), Venezuela (9), Puerto Rico (5), and the nearby Dutch Antilles (4). The preponderance of markets in Latin America is striking, with 22 firms citing these markets as most important, compared to 17 citing the USA, UK, and Canada together.

For about half of the firms, the main channel for early exports was a visiting buyer; in 18 cases (45 percent) it was primarily due to the marketing efforts of the firm, and in three cases, subcontracting with a large exporter was the channel. Visiting foreign buyers played the key role for nearly two-thirds of those firms starting with seven workers or less, but for only 12 percent of those that started larger. For the larger firms, the main factor was the firm's own direct marketing efforts consistent with these patterns, on a 1 to 5 scale.

As in garment exporters scored their own efforts and the initiative of buyers (both rated at 3.74) higher than outside (including state) support, which scored 2.36 (see Table 8). Still, such support received scores of 3, 4,or 5 from 40 percent of firms and 4 or 5 from over half of those starting with 2-4 workers. Subcontracting rated a 4 or 5 from only 3 of 36 responding firms; all of these started with 2-4 workers. Direct marketing efforts were important for all start-up size categories, although somewhat more so for the largest firms. The role of the foreign buyer was most important to firms that started small.

Among the different types of state or other external support, although none of the individual types of assistance was ranked highly by a majority of firms, about half of the firms (24 of 47) assigned a rank of 4 or 5 to at least one of them. -- and nine of 15 firms starting with less than five workers assigned at least one form of assistance a 4 or 5. Provision of information on commercial opportunities was ranked most highly, with a score of 2.04, although 15 of 47 firms rated it 4 or 5. The next most important forms of support were facilitation of participation in trade fairs abroad (scoring 1.60 overall, with 14 scores of 4 or 5), organization of fairs at home (1.51 and 13), and sending buyers (1.04 and 7) (Table 9).

Early exporters, like the firms that started small, disproportionately valued public support -- although even for them buyer and direct initiatives were more important. Four of eight sampled firms that entered before 1983, began to export in the 1970s and another four in 1981-82. Three of these eight have the US as their main market. Larger than the average sample firms, they got into exporting mainly due to their own initiative, with their first contracts established by a visit to a buyer, "searching," and a trip to a fair, respectively. The five firms who currently sell mainly in Latin America relied more on the initiative of visiting buyers. All eight put a lot of stock in the marketing support they received, regardless of the source of their original export initiative. The assistance they valued most highly includes information on opportunities, local fairs, and assistance with participating in fairs abroad. To the extent that these firms are representative of the first wave of what has led to the current boom, one might conclude that assistance targeted to these early exporters was highly productive.

5.3 Marketing Support for SME Producers of Non-electrical Machinery

Unlike leather items and garments, which Colombia exports both to developed countries (mainly North America) and to countries in its own region, the great bulk of non-electrical machinery exports go to other Latin American countries. The main markets are nearby Ecuador and Venezuela (16 and 15 mentions, respectively, as main market) with Peru cited by five firms, a miscellany of other Latin countries by seven, and the United States by just one firm.

Just seven firms (17 percent of those reporting) exported more than 40 percent of output in the last year, compared to 56 percent of the garment firms and 36 percent of the leather goods exporters. Foreign

markets are not the primary focus of these non-electrical machinery producers, and entry into them has taken time.

Direct marketing plays an unusually prominent role in this industry probably because of both the heterogenous product mix and the proximity of the main markets. It is complemented by the organization of fairs and the initiative of foreign buyers, although the latter is clearly less important than in the other two industries studied In penetrating foreign markets, sample respondents assigned their own marketing efforts an average score of 4.1 (with 77 percent rating them at 4 or 5), compared to 3.1 (45 percent rating at 4 or 5) for identification by a foreign buyer, 2.3 (and 28 percent) for state/other support, and 1.2 (and 3 percent) for subcontracting (Table 10).[19] The contribution of state/other non-profit agencies is significantly greater for those firms that started with less than 5 workers.[20] The contact leading to first export was most frequently established either on a business trip, accounting for 13 of 40 responses (32.5 percent) or at a trade fair--12 (30 percent). The external assistance most appreciated was help participating in fairs abroad (20 ranked this 4 or 5, and the average score was 2.77); organization of fairs at home (17 ranked this 4 or 5 and another 10 ranked it a 3, with an average score of 2.82); and provision of information on market opportunities, which a significant 10 firms rated 4 or 5 (Table 11). One quarter of firms reported no help at all. External assistance in the marketing area has been disproportionately useful to the firms that started small.[21]

5.4 Marketing Summary

Although a firm's direct efforts and identification by foreign buyers or export agents are in each case more important, support from public and other non-profit agencies appears to have been of considerable importance in the export marketing of the three industries considered, especially to the firms which started small. Fairs were most valuable in the machinery industry and the leather goods industry, where the participation of the industry association (ASOCUEROS--discussed in more detail in Section 6 below) was important. Information on export opportunities was important to both garments and machinery manufacturers. The opportunity to subcontract was important to firms that started small in the leather goods sector, but these relationships appear to have developed on their own with little public sector involvement in the process.

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[19]Just two firms rated subcontracting as high as 4 and another two gave it a 3.

[20] They rate it at 2.80, with 50 percent assigning 4 or 5. These ratings fall to just 1.6 (20 percent assigning 4 or 5) for those firms starting with 20 or more workers.

[21] Seven of 10 firms starting with 2-4 workers assigned at least one 4 or 5, with this ratio falling to 60 percent for the middle groups and 40 percent (2 of 5) for those starting with more than 20 workers.

6. The Technological Support System for SME Exporters

The relatively exacting demands of international markets pose a serious challenge to SMEs aspiring to export success. Technology acquisition can involve a costly search and the need to tailor information to the specific needs of the firm. Effective collective action may be impeded both by the firm-specific character of some needs and the risk of inter-firm spillover of information which is not firm-specific.[22]

This section looks at how technology acquisition, adaptation, and use has proceeded in the three subsectors under discussion, and at the potential role of government and other support systems in contributing to a more effective process. Our survey data provide some insights into the sources of productivity gains in SMEs[23], the contribution of public support agencies in that regard, and the challenges facing the firms in question. Several points stand out:

* In all three industries, firms report significant gains in technological capacity, especially in design and finishing, as well as in workplace organization and equipment.

* Firm founders report that they and their partners have played key roles in improving the firms' technological capacity, usually rating their own efforts above those of external sources (private or public).

* Private channels have been the main source of the technical information on which these SMEs have relied for their productivity gains. Among these private channels, foreign buyers were especially important in the leather goods sector, equipment suppliers in garments, and technical literature in non-electrical machinery.

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[22]Also of great importance, especially to SMEs because of their more limited in-house capabilities, is a strong training system with enough flexibility of deal effectively with the changing needs of private sector clients. SENA, one of Latin America's largest and oldest vocational training institutes, has been the country's main purveyor of worker training and also participates in provision of technical assistance. Its funding, mainly from a 2 percent payroll tax, gave it financial resources of 56 billion pesos (US $187 million) in 1988 and allowed its more than 8,000 employees to provide training to a large number of people. When the number of people who took any course, short or long, is added together, the 1988 total is 840,000. Since many people took several courses, the number of "beneficiaries" would be much less than this, but still impressive.

[23] The aggregate data presented and discussed in Section 3 reveal strongly rising labour productivity among SME garment producers during the 1980s. Trends are less clear in the other two sectors.

* Public sector institutions, of which SENA is the principal one in this area, have made a contribution through training of workers, provision of courses, and in limited degrees in other ways.
* Subcontracting is an important aspect of the organization of production in all three industries. Although it has not reached the level of development seen in some other countries. It makes a significant contribution to cost control, flexibility, and sometimes quality.
* Education and training play important roles in productivity enhancement; learning by doing is very important.
* Collective support mechanisms have played a significant role in the leather goods industry and (more recently) in garments, and perhaps to a lesser degree in the non-electrical machinery case as well.

6.1 Technological Support for Leather Goods Firms

It is not surprising that the Colombian leather goods industry lags behind some of its competitors on the technological front, given its artisan character of just 20 years ago and its modest size and development until the last few years. Among the sampled firms, sales per worker were mainly in the US $3,000-15,000 range, with the median a little over $5,000. Though these data may not provide a very accurate proxy for labour productivity, the tendency for the larger firms and for those with more educated entrepreneurs (substantially overlapping groups) to have higher sales per worker stands out.[24] (Table 12) There is also a marked tendency for the high-productivity firms to have higher exports/sales ratios, ranging from over 90 percent for the four most productive firms to just over a third for the 10 least productive ones.[25]

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[24] Productivity figures by level of entrepreneur's education are presented in Table 18. By size of firm they are:

Size (number of workers)	Median
>100	10.75 (8)
50-99	5.7 (6)
20-49	2.9 (10)
<20	3.1 (1)

Children of the earlier, generally less-well-educated entrepreneurs very often go on to university, specialize abroad, attend the better fairs in in the United States and Europe (rather than the local ones) to learn about current fashion trends, to identify technological advances and to advance commercial contacts. Even when not employed full time in their father's firms, they have an impact through their ability to assimilate and transfer knowledge.

The sampled firms reported considerable advances in each of four technology-related areas addressed in the interviews. Seventy-nine percent of firms indicated significant or major progress in the area of finishing, 73.5 percent did so in terms of design, 65 percent in workplace organization and 41 percent in terms of sophistication of equipment. The firms rated their own efforts as very important to the technological advances they have achieved, with learning by the entrepreneur and learning by the workers each rated at an average of around 4 (on a scale of 1 to 5), both at time of entry into the international market and over the life of the firm. Prior knowledge/skills of the entrepreneur were also considered important (3.9 over the life of the firm and 3.6 at entry into the international market), while prior knowledge/skills of workers were a little less so (3.5 and 3.2).

The firm founder rates his own contribution to the process of technological upgrading highly relative to other specific sources. Nearly all respondents (94 percent) considered their role of at least some importance, and the average score they assigned to it (4.34) was well above that of other sources (Table 13). Partners are also commonly mentioned, suggesting that their selection may often have something to do with their technical knowledge and skills. The other most frequently cited private sources are equipment suppliers (not suprisingly, especially helpful as firms upgraded equipment sophistication), foreign buyers (especially helpful for design), similar firms, and the technical literature. Only eight firms (all relatively large) had received help from private consultants, especially on improvements in workplace organization. Among users of these various types of support, foreign buyers and similar firms were given especially high ratings (both at close to 4). The public and industry association agencies, taken together, were of moderate importance;

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[25] The figures are:

Sales/ Worker (Thousands of dollars)	Exports/Sales
>20	91.2 (4)
10-20	70.0 (4)
5-9.9	56.5 (6)
<5	37.1 (10)

among them the industry association (ASOCUEROS) was cited most often. Only four firms mentioned SENA, and the average rating they gave it was just 1.75.[26] Public/non-profit sources (in this case the industry association was the dominant source) were relatively important for those starting smallest (average score of 3) and decreasingly so with start-up size.

Twenty-one of 34 firms had participated in courses which provided relevant technological information for their business. ASOCUEROS was responsible for 9 of these, in a wide range of areas including dyeing, design, management of raw materials, display, taxes, labour legislation, production, machine-working, marketing, and creative design. ACOPI, the industry-wide association for small and medium producers, also provided relevant courses. A total of half of the firms received some sort of technical assistance (including courses) from non-governmental associations; just two firms mentioned SENA courses. Note that the role of ASOCUEROS in the technology area is very different from that of the associations in the other two industries. Only one firm in the machinery sector took such a course (from FEDEMETAL) while only three firms in the garmet sector did so (from ASCONFECCIONES). ASOCUEROS (with funding from the export bank, PROEXPO) has vigorously sought out international technical cooperation. A German expert who visited a number of plants preaching the advantages of better machine layout, avoiding waste of raw materials, and not doing unnecessary operations, was surprised to return a few months later and see the seriousness with which his recommendations had been taken.

The experience of one entrepreneur, an industrial engineer who started his firm two years ago is typical. Originally he was unpersuaded of the need for technical assistance, given his technical training and experience in the plant of his parents, but then decided to take advantage of the German expert. He later concluded that the knowledge he had acquired in the formal educational system had been superficial, or at least not very helpful in dealing with the issues he faced in the business. Indeed, much of the benefit of a higher level of education may have to do with the capacity to recognize the existence of certain production and other problems, and to know how to search for the solutions.

In 1993 ASOCUEROS and BANCOLDEX (formerly PROEXPO) plan to focus their efforts on a group of 20 medium-sized exporters, including the provision of assistance for participation in large international fairs. Support will be terminated for those firms that no longer need it and/or which can be better assisted in other ways. Group support will be provided to the more experienced producers, who will be presented in the various fairs as a consortium with a supply potential for given items at pre-agreed prices;

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[26] Three firms assigned a 5 to least one of these agencies, five others at least a 4, and four others a 3, so about one-third valued at least one of these at 3 or higher.

this program represents an attempt to compete effectively for the large orders which come from big stores in the U.S. and Europe prices.

Internally, ASOCUEROS plans to work with SENA in 1993 to train workers and technicians. The absence of qualified workers forces small firms to do their own training, which is expensive and time-consuming, and which forces them to disregard other priority matters like better plant layout, work organization, and improvement of equipment. This eight-month program will be carried out in Bucaramanga, Bogota, and Medellin with the technical cooperation of the Italian government, and will be directed especially at unemployed persons and a few workers currently employed in the industry. A center will be built in Bogota, filling a long-standing need--half of all the leather goods firms are located in Bogota. This SENA support for the training of leather goods workers reverses a past policy of neglect.[27] The Italian assistance will be in the areas of production, environmental control, and above all design, since this is key to a greater entry of Colombian products in the best boutiques around the world.

Yet for all of this seeming surge in activity, except for its indirect contribution (through ASOCUEROS) to the fairs and other elements of support provided by that association, the state has to this point been little involved in the process of technological development in the lether products industry, nor have the universities. The role of ASOCUEORS, however, does appear to have been a positive one. Although the sector has perservered, its growth over the past two decades has probably been significantly slower than it might have been.

6.2 Technological Support for the Garment Industry

The garment industry's main technological advances in recent years have been in design, measurement, and cutting, complemented by mechanization in lay out and manipulation of the fabric (Arango, 1992, 157). At this point, the firms design the great bulk of their products--an average of 86 percent of exports and 88 percent of domestic sales. About two-thirds of the sample firms design everything they sell; just four firms do no designing at all. Computer Assisted Design (CAD) has begun to generalize; cutting by computer remains very expensive. There has been little change in the sewing aspect of the production process.

In the areas of design, finishing, and workplace organization, at least three-quarters of firms interviewed indicate that they achieved significant or major improvements, and just over half report

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[27] Some interviewees reported that SENA people not only did not provide them with support but argued against ASOCUEROS receiving international technical assistance on the grounds that they (SENA) were in a position to supply it. Recently, in the context of seminars presented by the Italian technicians, they have changed that view.

achieving such improvements in equipment sophistication. On-the-job learning by the entrepreneur and workers is viewed as the most important source of advance (with scores of 4.5 and 3.9 respectively over the life of the firm); previous capacities of these two groups are also important. Indeed, for firms that started small, such learning was much more important than previous knowledge/skills.

External private sources are also quite important in the process of technological advance, especially equipment suppliers, information from magazines and other literature, similar firms, foreign buyers, and private consultants (Table 14). Nearly all firms drew on one or more of these sources, and nearly three-quarters rated one or more of them at a 4 or 5 level. The public sector, industry association, and other NGO sources of assistance were distinctly less important, with less than half of the firms reporting benefits and just 21 percent assigning a score of at least at 4 to one such source.[28] The industry association, ASOCONFECCIONES, is dominant among this category and has had significant influence. Unlike the leather goods case, ASOCONFECCIONES and other NGOs have thus far not been of particular help to firms that started small, although this, too, may in part reflect the fact that ASOCONFECCIONES is a relatively new institution.

In design, the main outside sources of progress were foreign buyers and international style magazines[29]. For both equipment improvement and in finishing equipment, suppliers were the most frequently cited source, followed in the latter case by private consultants (mentioned five times). SENA was cited as a source of assistance by only one firm in the area of design and by one in workplace organization.[30] A large majority of respondents (76 percent) had taken courses relevant to the business. SENA was the chief

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[28] This result is consistent with the views of the Boston Consulting Group (1989, 93) which notes that there is not a well developed system of technical support for this industry in Colombia. The opportunity to get technical assistance from foreign buyers is considered to have been essential to the export success of quite a few firms. Although the National Textile Center provides some technical assistance, most of it no doubt goes to the textile industry and that which reaches the garment sector probably goes mainly to the larger firms.

[29] In this and in most areas the partners are cited often as important sources. Whether they are best viewed as an outside source depends on the case.

[30] SENA, through the National Textile Center (Centro Nacional Textil) in Medellin and other branches of SENA, is the main external source of training for the textile and garment industries. It provides training for workers, supervisors, and technicians in the repair and maintenance of garment equipment, although the latter service periodically runs the risk of becoming obsolete as the equipment available becomes outdated (Arango, 1992, 161). The distributors of the main lines of machinery also have schools for "tecnicos" and provide technical assistance to firms too small to have a maintenance specialist in house. The garment firms themselves provide little systematic training (Boston Consulting Group, 1989, 91) and relatively few use SENA services. There are widespread complaints of a lack of trained supervisors and quality control workers. Leading exporters have typically received assistance in this area from their buyers (loc cit).

source of such courses (26 percent), followed by ACOPI (14 percent) and ASOCONFECCIONES (9 percent).

Although its impact to date on SMEs in the garment industry has been less than that of ASOCUEROS in the leather industry, ASOCONFECCIONES is nonetheless an institution of considerable interest. At this time it has 435 affiliates, of which about 60 percent are medium-sized, 35 percent small, and 5 percent large. Its present staff is 15 people but it hopes to grow both in membership and in services rendered. One of the reasons for its founding in 1985 was to pressure the textile oligopoly, which charged more than world-market prices for textile materials and was criticized for low quality and inopportune deliveries.

In 1990, at about the time the country was opting for a more open trading system, ASOCONFECCIONES' new president (well known for his professional experience in a garment firm) opted to refocus the institution on the modernization and technological upgrading of the industry. His objective is a "mental opening-up" on the part of the entrepreneurs in this sector, so that they will be able to take advantage of the new outward orientation of the economic system. In pursuit of this objective, the institution has become much more active in supporting participation in fairs and trips abroad for the entrepreneurs, and in organizing seminars and courses, including some on techniques for the presentation of one's wares at fairs. ASOCONFECCIONES is collaborating in the reorganization of SENA for the transmission of non-formal firm training, and to that end has brought consultants from France, Canada, and the United States. Various other agreements signed in 1991 or 1992 include one with UNDP to improve the transmission of technology to the workers, technicians, and managers; one with COLCIENCIAS to establish a center for Information, Services, and Technological Transfer; one with a university for the training of industrial engineers specializing in garments; and one with a Dutch firm for the promotion of Colombian clothing items in Holland. ASOCONFECCIONES also provides information on foreign markets, legal advice, and a sort of labour exchange. In short, this now appears to be a dynamic organization, whose impact on the industry will be worth watching over the next decade.

6.3 Technological Support for Non-electrical Machinery SMEs

Although not operating at technical levels comparable to their counterparts in Brazil and Venezuela, for example, Colombia's SME machinery industry is more skill-based and technically sophisticated than the leather goods or garments sectors. Most firms in this industry design their own products; among the sampled firms the average was 85 percent of sales. Of exported items, 23 firms design all of them, and only eight design less than 50 percent. Achievement of export quality products is complicated by the fact that the

domestic market prefers a lower quality, cheaper item. Most firms do take the technological challenge seriously in this industry, however, as reflected in the high share of those sampled who indicated progress and/or concern. The area of greatest progress on the technological front has been finishing, with 37 firms (84 percent of the total) reporting significant or major improvements; the comparable figures for design, workplace organization, and equipment sophistication were 73 percent, 66 percent, and 61 percent, respectively. The technological demands of this industry may explain the importance owners assign to learning, both by themselves and, almost equally, by the workers. Learning by owners and workers as a source of technological capability received average scores of 4.6 and 4.3 respectively, the highest of the three industries studied.[31]

The most important outside source of assistance was the technical literature; 91 percent of firms used it and 77 percent rated it at least a 4 in terms of importance (Table 15). Equipment suppliers and local buyers were next in importance, followed by private consultants (though not for the smaller firms) and foreign buyers. The relative importance of the technical literature and private consultants in this industry reflects its engineering character; the role of the literature may also reflect the relative lack of other sources and the need for a high level of effort from the firm itself. Buyers also were an important source of capacity, especially for design and finishing.

Public sector and other non-profit sources were of much less significance, though they have played some role. Approximately one-third of firms had drawn on the industrial association or other NGO for assistance and about one-third had drawn on a public technology support agency (normally SENA). Smaller firms make greater use of these agencies. Thus, 7 of 24 firms with less than 100 workers (at present) rated industry association support at 4 or 5, compared to just 1 of 18 firms with 100 or more workers; when SENA and other public agencies are added, such mentions totalled 16 for the first group of firms and 5 for the second.[32] SENA's main contribution has been in the creation and provision of courses with specific technical themes and in the preparation of workers and technicians. Sixty-one percent of the firms have used courses relevant to the operation and improvement of the firm; 40 percent of these were provided by SENA, covering soldering, foundry-work, modern machinery, business administration, systems, quality, industrial mechanics

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[31] The question that generated this response probes the relative importance of learning on the job versus knowledge and skills of the entrepreneur and workers before joining the firm as well as help from external agents. The high score in question is thus not unambiguous evidence of technological complexity, although it seems quite consistent with such complexity.

[32] Those firms starting with less than five workers had above average recourse to these agencies, especially to SENA, while those starting with 20 or more had below average, although the relationship is not monotonic.

and electrical systems.[33] Other courses were given by the machinery suppliers, industrial organizations, and private consultants.

Both FEDEMETAL and COPIME play important roles in the metalworking industry. FEDEMETAL, established in 1955, is a federation of metalworking enterprises. It tends to be dominated by large and medium-scale enterprises. COPIME was established in 1963 to unify the SMEs in the metalworking industry, protect their interests, and assist in their development; by 1990 it had 250 members manages in the purchase and marketing of raw materials and machinery, provides financial assistance to its members, seminars on production technology and management techniques, and the introduction of new products and new technologies through its bulletins activities are concentrated in the Bogota area.

6.4 Technology Summary

Technological capacity is very important for SME exporters in each of the three industries analyzed, and reaching satisfactory technical levels can be a serious challenge. Firms deal with this challenge mainly through their own efforts, and by drawing on other private sector agents.

The contribution of public sector agencies has been modest, although in the case of leather goods, the industry association has become more important in recent years. Public institutions have not been able to respond to the rapid increases in the potential pay-off to effective support in cases like leather goods, nor have they been able to mount programs of the size and focus that industries like leather goods and non-electrical machinery could benefit from. Though interesting plans and projects are now under way in the technological support area realism dictates, that not too much be expected of a system that has not performed very adeptly in the past.[34] Various types of collaboration with healthy industry associations will probably be one of the better bets; a major effort in the area of technology support centers is probably less likely.

Subcontracting is common among Colombia's machinery-producing SMEs, but is much less prevalent than in countries like Japan, Taiwan, and Korea. Of the 44 firms in our survey, 30 subcontract for the services of generally small shops, mainly just for specfic tasks (e.g. poverty work). For the firms involved, these tasks account for and average of 15.6 percent of total production costs. Nine of 30 firms engaged with subcontractors undertake training as part of the arrangement.

7. Overview and Policy Conclusions

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[33] As in the garment sector, this institution is cited more often by Medellin (60 percent of those citing courses) and Bucaramanga (50 percent) firms than those of Bogota (33 percent).

[34] Countries like Korea closed the gap in various industries by fostering and supporting ties between the universities/technical institutes and the private sector, and by making massive use of foreign experts and production licenses.

In each of the three manufacturing industries reviewed here, SMEs play a major role in output, employment, and exports. In both garments and non-electrical machinery, there were significant exports as far back as the 1970s, while in leather goods the main export boom came in the later 1980s. The sampled firms typically started small, many of them quite a few years back, and grew more or less gradually over the years. Both at present and even more in its earlier years, the typical SME sold mainly in the domestic market, with exports coming along as a possibility after it reached a certain age, size, and business capacity.

It is clear that both macro and micro factors are important determinants of export capacity in the three industries reviewed. The real exchange rate is central, as demonstrated by the timing of export growth and decline in sectors like garments (growth in the 1970s, collapse in the early 1980s, and growth again since the mid-1980s).

Micro determinants of export capacity also matter. The surveys, together with other types of information, indicate that the small and medium firms in these industries have faced a number of difficult problems in the areas of marketing, technology, and finance. They also have experienced some degree of harassment and extortion by uncooperative or dishonest people in the public agencies with which they interface, the problem of unreliability of some of the firms with which they do business, and the absence of a judicial system that can help limit such abuses.[35] Their knowledge and skills in the area of international marketing are limited, as is their access to information and assistance on the technology fronts.

Private agents have provided the support that is most valued by firms in establishing marketing contacts and providing technological information and assistance (see Table 16 for summary figures). The contribution of the public sector and industry associations has mainly taken the form of facilitating interactions among private agents. It has been more useful on the marketing side, moderately so on the technology/productivity side. Some firms, especially those that were smaller at start-up, indicate that support from public sector and other institutions has been important at various phases of their growth and development as exporters. At the same time, many firms have complained of the lack of better support services, and of counterproductive practices (such has harassment) by certain public institutions. They consider their own efforts to be the most important factor in any success they have had in the technological and international marketing areas. Against this overall background, it is not hard to imagine a more effective support system for providing useful and timely assistance to Colombia's SME exporters. The firm-level evidence, the views of outsiders, and comparisons with other countries where support systems are more developed, all suggest that the process of penetrating export markets could have been faster and more

[35]A longer background paper (available on request) examines financial, regulatory and other constraints.

successful for many firms had the support system been stronger and more complete. In addition, it is likely that the firms that have survived the challenges to become exporters are a rather atypical subset of a larger group that has failed to reach that goal.

A key issue is whether existing agencies have the competence and professionalism to provide support with reasonable effectiveness. The most important public agencies from the perspective of marketing and technology support are PROEXPO (now BANCOLDEX) and SENA. The former is generally credited with acceptable performance in the area of export finance, but has been less impressive in export promotion and the study and pursuit of international markets. SENA is a more controversial institution and is currently in the midst of a major reform. Although a number of its courses benefit SME exporters, it does not appear by itself to have had the capacity and flexibility to either identify or fill SME needs at a very satisfactory level.

Given the strengths and weaknesses of the public sector in Colombia, the industry associations, which are closer to private firms have a potentially significant role to play. The most active industry association in the three industries has been ASOCUEROS, the association of leather producers. Its overall dynamism and competence, and the fact that it has not been captured by the interests of larger firms, may owe something to the fact that there is a strong mutuality of interest between the larger and the smaller leather firms. There are very few large or long-established firms in this industry, and subcontracting is an important aspect of competitiveness to all of them. Moreover, the industry is very export-oriented, so positive spillovers are sought by all. ASOCUEROS' has served as interlocutor between the industry and the government, and as collaborator with certain public sector agencies. Its planned collaboration with SENA in the training of workers is designed to assure that such training corresponds to what the sector needs rather what SENA might feel most able to supply.

More broadly support for the development of specific subsectoral industry associations with the capacity to help SMEs deserves consideration. Such associations can get closer to the producers than any government agency and are therefore likely to better reflect their needs and to be more dynamic in the pursuit of those needs. They can often provide public agencies with much-needed collaboration in the design and execution of some of their functions. Government can foster such associations in a variety of ways, including a willingness to take them seriously, a willingness to collaborate with them, and perhaps some forms of subsidies to get them started or to initiate specific new activities.

In many of the more detailed suggestions with which this study concludes, an active industry association might be expected to play a role, either taking charge or acting as a partner to the relevant public institution.

- Such clearly valuable undertakings as organizing local fairs and helping small entrepreneurs attend foreign fairs could be increased by, for example, allocating more resources to them.

- Worker training is an area in which the public sector may be useful. Very small firms have difficulty meeting their needs in- house, as reflected clearly in the surveys, especially in the case of the leather goods industry. The experience so far is that neither SENA nor any other training institutions has been very successful in meeting SME's worker training needs either.

- Collaboration between an industry association and the public training/technical support agency that is now beginning between SENA and both ASOCUEROS and ASOCONFECCIONES it may provide a model for some other industries that have many potential SME exporters.

- The potential assistance of private consultants to SME exporters should be improved, including part-time people like university teachers and researchers, and foreign experts. This may involve the preparation of lists of candidates, the subsidization of a firm's first contact with or use of consultants, and so on.

- The recently established subcontracting exchanges should be monitored to see how they work. Such institutions have not normally been central to the evolution of well-functioning subcontracting arrangements in those countries that have them, so caution should be the order of the day.

- Since both microeconomic and macroeconomic considerations are important to the success of SME exporters (as well as other exporters), better coordination of policy in those two realms would be welcome. Whether the best that can be hoped for is that microeconomic policy-makers have a good idea of where the economy is going and what policy criteria the macroeconomic decision-makers will be using over the next few years, or whether one can seriously countenance some degree of policy integration and the simultaneity it implies, remains to be seen.

Bibliography

Boston Consulting Group (1989). Programa de Reestructuracion del Sector Textil y Confeccion: Resumen. London.

Cortes, Mariluz, Albert Berry, and Ashfaq Ishaq (1983). Success in Small and Medium-Scale Enterprises: The Evidence From Colombia. Oxford University Press.

Departamento Administrativo Nacional de Estadistica (1992). Boletin de Estadistica Mensual, #473, Agosto.

Departamento Nacional de Planeacion (1993). Colombia: Evolucion del Comercio Exterior en 1992. Documento DNP-UPE-DNX. Bogota, Planeacion Nacional.

Escandon, Jose Francisco (1982). "Analisis de los Factores que han influido en el desarrollo de P.M.E., una interpretacion historica" Revista Coyuntura Economica, Agosto.

Gomez, Hernando, and Ricardo Villaveces (1979). La Pequena y Mediana Industria en el Desarrollo Colombiano. Bogota, La Carreta.

Japan International Cooperation Industry (JICA) (1990). The Development of Micro, Small, and Medium Scale Industries in the Republic of Colombia, Bogota.

Kurt Salmon Associates, Inc. (1990). Un Programa de Reconversion y Desarrollo Sectorial para la Industria Colombiana de la Curtimbre, el Calzado y las Manufacturas de Cuero: Informe Final. Washington, D.C. A Report to the World Bank.

Misas, Gabriel (1988). "Estructura de Mercado y Conducta de las Empresas." Bogota, FONADE.

Morawetz, David (1981). Why the Emperor's New Clothes Are Not Made in Colombia. Oxford University Press.

Schultz, Hans (1991). "El Financiamiento de la Pequena y Mediana Industria." Paper presented at the Seminar on the Financing of Small and Medium Industry in Latin America and the Caribbean, October, 1991.

Todd, John (1972). "Efficiency and Plant Size in Colombian Manufacturing." Ph.D. dissertation, Yale University.

Tybout, James (1983). "Credit Rationing and Industrial Growth in Colombia: A Micro Econometric Analysis." Ph.D. Dissertation, University of Wisconsin.

World Bank (1991). Colombia:Industrial Competition and Performance.

Table 1

Size Structure of Colombian Manufacturing, 1970-90

Year	Establishment	Employment ('000)	Paid Employment ('000)	Employment by Size of Establishment (Number of Workers)					
				<10	10-49	50-99	100-199	200-499	500 and up
1970	7459	347.1	338.8	18,126	71,877	45,659	49,300	---162,197---	
1975	6354	456.8	450.5	4,230	90,074	60,456	71,458	---230,605---	
1979	6763	516.7	509.2	5,588	90,929	68,143	78,475	---273,537----	
1980	6850	508.5							
1981	6792	493.5							
1982	7067	481.1							
1983[b]	6249	465.1							
1988	7244	483.0	475.3	2,553	107,152	67,672	77,559	101,363	126,663
1989	7586	492.7	484.9	3,827	108,857	68,445	79,804	107,885	123,854
1990	7533	496.2	488.8	4,765	104,731	71,332	79,159	108,865	126,941
1990-Census (permanent workers only)		530.0[a]		na	164,470	72,609	81,681	102,134	134,579
1990-Census (All workers)		622.0[a]		na	181,363	68,445	94,534	121,451	156,326

a) Less than the sum of the other figures in the row since we have adjusted that total down by about 28,000 (permanent workers row) or 31,000 (total workers row) to exclude plants that would have more than 10 workers in total (i.e.including the temporary ones) but less than 10 permanent workers. This figure excludes all workers in plants of less than 10 workers.

b) The sharp drop in the number of establishments and most or all of the decline in the number of workers reported in 1983 is due to exclusion of a group of previously included firms--those with less than 10 workers but having had 10 or more the previous year.

Table 2

Present and Initial Size of Sample Leather Goods Firms[a]

Initial Size (Workers)	All	Current Size <20	20-49	50-74	75-99	100-200	>200	Average Start	Now
<5	9	3	3	1	0	0	2	3.4	66
5-9	9	1	6	0	1	1	0	7.0	49
10-20	7	0	1	1	1	2	2	14.7	126
>20	4	0	1	1	1	1	0	49	73
na	5	2	0	2	0	0	1	na	111
All	34	6	11	5	3	4	5	7.4[b]	55.5[b]

a) Data include one firm which started in 1991 with 110 workers and for which current size was not reported, but is assumed to be the same. Also there were three recently founded firms for which start-up size was not reported but a figure for two years before the survey was; these figures were taken as start-up levels.

b) Includes firms with data for both start-up size and current size, including in the former the three where start-up size was estimated as reported in note (a) above.

Table 3

Productivity and Wage Trends in the Garment Industry by Plant Size

Year	Labour Productivity (000 of 1973 pesos)				Average Wages (000 of 1973 pesos)				Average Labour Costs[a] (000 of 1973 pesos)			
	Small	Medium	Large	All	Small	Medium	Large	All	Small	Medium	Large	All
1973	29.8	38.1	49.3	40.4	10.5	13.9	17.0	14.3	13.0	17.5	23.1	18.7
1980	40.1	51.4	75.5	56.2	14.0	15.7	20.5	16.8	18.6	21.9	30.7	23.9
1987	54.9	76.1	77.2	72.7	16.8	18.4	15.5	17.4	24.3	27.6	25.0	26.1
1990	na	na	na	na	16.4	17.6	20.1	18.0	23.8	26.6	31.1	27.1
1987	1.84	2.00	1.57	1.80	1.60	1.33	0.91	1.22	1.87	1.58	1.08	1.4
1987/ 1973	1.84	2.00	1:57	1.80	1.60	1.33	0.91	1.22	1.87	1.58	1.08	1.4
1990/ 1973	na	.a	na	na	1.56	1.27	1.18	1.26	2.15	1.52	1.35	1.45

a) Wages paid plus all fringe benefits.

Note: Since there may be many temprory workers in this industry, it is possible that the reported wages per worker are seriously upward biased for the smaller plants.

Table 4

Present and Initial Size of Sample Garment Firms, by Period of Founding

Period of Founding and Initial Size	Present Size (Number of Workers) <20	20-49	50-74	75-99	100-200	>200	All	Average Size Start	Now
Pre-1980									
Initial Size									
<5		1	1	2	1		5	2.4	86
5-9		2	2		1		5	7.6	80
10-20			1	2	1	1	5	14	177
>20						2	2	25.5	775
na						2	2	NA	650
All		3	4	4	3	5	19	10	240
1980-84									
Initial Size									
<5	3	2	1	1	1		8	2.6	56
5-9		4	1				5	7	59
10-20			1				1	10	35
>20		1			1	1	3	36.7	143
na		1	1				2	na	44
All	3	9	3	1	2	1	19	10.4	68.6
1987-1992									
Initial Size									
<5	2						2	2.5	6
5-9		2	1				3	7	36
10-20		1				1	2	13	64
>20					1		1	120	150
na			1				1	na	35
All	3	3	1	0	2	0	9	21.5	48.2
All									
Initial Size									
<5	5	3	2	3	2		15	2.53	60
5-9		8	4	0	1		13	7.2	62
10-20	1	1	1	2	2	1	8	13.25	131

Table 5

Present and Initial Size of Sample Non-Eletrical Machinery Firms, by Period of Founding

Period of Founding and Initial Size	Present Size (Number of Workers)							Average Size	
	All	<20	20-49	50-74	75-99	100-200	>200	Start	Now
Pre-1980									
Initial size									
<5	7	2	2	1	2			2.9	4.7
5-9	7	0	1	0	0	3	3	6.9	197
10-20	8	0	2	1	0	3	2	15.1	255
>20	1	0					1	32	230
na	3		0	1			2	na	187
All	26	2	5	3	2	6	8	9.3	174
1980 and on									
Initial size									
<5	3	1	1		1			3.0	41
5-9	6	1	5					5.5	27
10-20	3	1	2					13.3	35
>20	3			1	1	1		50	79
na	3					2	1	na	135
All	18	3	8	1	2	3	1	15.5	57
								9.0	42[a]
Whole Sample									
Initial size									
<5	10	3	3	1	3	0	3	2.9	45
5-9	13	1	6	0	0	3	3	6.2	119
10-20	11	1	4	1	0	3	2	14.6	178
>20	4			1	1	1	1	45.5	203
na	6	1	1		1	1	2	na	161
All	44	5	14	3	5	8	8	11.9	130
									125[a]

Table 6

Relative Importance of Selected Factors in Facilitating Initial Access of Small and Medium Leather Goods Producers to Export Markets, by Size of Firm at Start-up and by Year of First Export

Factor, Start-up Size of Firm, and Year of First Export		Average Score Among All Respondants	Firms Assigning a Score of				Count
			3	4	5	(Percent) 4 or 5	
Full Sample							
Direct Efforts by the	All	3.97	6	4	18	66.7	33
Firm to Contact Foreign	2-4	3.22	2	1	2	33.3	9
Buyers or Export Agents	5-9	4.11	2	0	6	66.7	9
	10+	4.57	2	1	8	81.8	11
	na	4.50	0	2	2	100.0	4
Identification of the	All	3.47	5	10	9	59.4	32
Firm by Foreign Buyers	2-4	2.67	1	1	2	33.3	9
of Export agents	5-9	4.13	1	2	4	75.0	8
	10+	3.67	3	6	1	63.6	11
	na	3.75	0	1	2	75.0	4
Support by Public or	All	2.47	9	5	3	27.9	32
Non-Profit Agencies	2-4	3.00	3	2	1	33.3	9
	5-9	2.22	1	3	0	33.3	9
	10+	2.20	4	0	2	20.0	10
	na	1.50	1	0	0	0.0	4
Subcontracting	All	2.10	3	4	3	23.3	30
Relationship with	2-4	3.22	1	3	2	55.6	9
Larger Exporters	5-9	1.88	1	1	0	12.5	8
	10+	1.44	1	0	0	11.1	9
	na	1.50	1	0	0	0.0	4
First Export 1982 or Earlier							
Direct Efforts by the	All	4.00	1	0	3	60.0	5
Firm to Contact Foreign	2-4	4.00	0	0	2	66.7	3
Buyers or Export Agents	5-9						
	10+	3.00	1	0	0	0.0	1
	na	5.00	0	0	1	100.0	1
Identification of the	All	3.40	0	1	5	60.0	5
Firm by Foreign Buyers	2-4	2.67	0	0	1	33.3	3
of Export agents	5-9						
	10+	4.00	0	1	0	33.3	1
	na	5.00	0	0	1	100.0	1
Support by Public or	All	1.60	1	0	0	20.0	5

Table 6 (contd)

Relative Importance of Selected Factors in Facilitating Initial Access of Small and Medium Leather Goods Producers to Export Markets, by Size of Firm at Start-up and by Year of First Export

Factor, Start-up Size of Firm, and Year of First Export		Average Score Among All Respondants	Firms Assigning a Score of				Count
			3	4	5	4 or 5	
			(Percent)				
First Export Between 1984 and 1989							
Direct Efforts by the	All	4.57	2	2	10	100.0	14
Firm to Contact Foreign	2-4	3.67	2	0	1	100.0	3
Buyers or Export Agents	5-9	5.00	0	0	3	100.0	3
	10+	4.83	0	1	5	100.0	6
	na	4.50	0	1	1	100.0	2
Identification of the	All	3.47	3	6	2	57.1	14
Firm by Foreign Buyers	2-4	3.33	1	0	1	33.3	3
of Export agents	5-9	4.67	0	2	1	100.0	3
	10+	3.16	2	3	0	83.3	6
	na	2.50	0	1	0	50.0	2
Support by Public or	All	3.00	4	4	2	42.9	14
Non-Profit Agencies	2-4	3.00	0	2	0	66.7	3
	5-9	4.33	1	2	0	66.7	3
	10+	3.33	3	0	2	33.3	6
	na	1.00	0	0	0	0.0	2
Subcontracting	All	1.92	0	1	2	23.0	13
Relationship with	2-4	3.33	0	1	1	33.3	3
Larger Exporters	5-9	1.50	0	0	0	0.0	2
	10+	1.67	0	0	1	16.7	6
	na	1.00	0	0	0	0.0	2
First Export 1990 or Later							
Direct Efforts by the	All	3.46	2	2	10	100.0	13
Firm to Contact Foreign	2-4	2.00	0	1	0	33.3	3
Buyers or Export Agents	5-9	4.00	0	0	3	75.0	4
	10+	5.00	0	0	2	100.0	2
	na	3.25	3	1	0	25.0	4
Identification of the	All	3.67	3	3	4	53.8	12
Firm by Foreign Buyers	2-4	3.33	0	0	2	66.7	3
of Export agents	5-9	4.00	0	1	1	66.7	3
	10+	4.50	0	1	1	66.7	2
	na	3.25	3	1	0	25.0	4
Support by Public or	All	1.83	3	1	0	7.7	12
Non-Profit Agencies	2-4	2.67	2	0	0	0.0	3

Table 7

Relative Usefulness of Various Types of Support From Public or Other Non-Profit Agencies to SMI Leather Exporting Firms in Penetrating Export Markets, by Year of First Export

Type of Support	Year of First Export	Percentage of Firms Using Service	Average Score for Firms Using Service	Average Score (All Firms)	Firms Assigning a Score of				Count (Percent)
					3	4	5	4 or 5	
Information on Export Marketing Opportunities	All	41.2	2.93	1.80	10	2	0	5.9	34
	To 1982	80.0	2.75	2.40	3			0	5
	1984-89	50.0	3.00	2.00	5	1	0	7.1	14
	1990-92	15.3	1.46	1.07	2			0	13
Send Buyers to the Firm	All	14.7	2.40	1.21		1		2.9	34
	To 1982	40.0	2.00	1.40				0	5
	1984-89	14.3	3.00	1.29	0	1	0	7.1	14
	1990-92	0.0	-	1.00				0	13
Help to Identify Export Agents	All	5.9	2.0	1.06		1		2.9	34
Organized Fair at Home	All	67.6	4.13	3.12	1	7	11	52.9	34
	To 1982	80.0	4.75	4.00		1	3	80.0	5
	1984-89	71.4	3.91	3.08	1	3	3	42.9	14
	1990-92	53.8	3.90	2.56		3	3	46.1	13
All	2-4	100.0	4.22	4.22	0	3	5	88.9	9
	5-9	71.4	4.60	3.58	0	2	3	71.4	7
	10+	60.0	4.00	2.80	2	2	2	40.0	10
	na	37.5	4.50	2.56	0	1	1	37.5	8
Facilitated Participation in Fair(s) Abroad	All	52.9	4.29	2.74	2	6	9	46.9	33
	To 1982	80.0	4.50	3.80		2	2	80.0	5
	1984-89	71.4	3.80	3.00	2	3	4	50.0	14
	1990-92	15.4	5.0	1.68			2	16.7	13
All	2-4	66.7	4.50	3.33	0	3	3	66.7	9
	5-9	42.8	4.50	2.50	0	0	2	42.9	7
	10+	60.0	4.14	2.89	2	2	3	50.0	10
	na	37.5	4.67	2.38	0	1	2	37.5	8
Assisted in Marketing, Research, or Exploration of Opportunities	All	14.7	4.00	1.46	2	2	2	12.1	33
	To 1982	20.0	3.00	1.40	1			0	5
	1984-89	21.4	4.67	1.79	1	1		7.7	13
	1990-92	0.0	-	1.00			1	7.7	13

Table 8

Relative Importance of Selected Factors in Facilitating SMI Garment Firms' Initial Access to Export Markets

Factor and Start-up Size of firm		Average Score	Firms Assigning a Score of				Count
			3	4	5	(Percent) 4 or 5	
Direct Efforts by the Firm to Contact Foreign Buyers or Export Agents	All	3.74	6	5	23	60.9	46
	2-4	3.87	4		8	53.3	15
	5-9	3.62	1	3	5	61.5	13
	10-20	4.50	0	0	7	87.5	8
	>20	3.67	1	1	2	50.0	6
	na	2.75	0	1	1	50.0	4
Identification of the Firm by Foreign Buyers or Export Agents	All	3.74	6	12	19	66.0	47
	2-4	3.93	1	6	6	80.0	15
	5-9	3.77	3	3	5	61.5	13
	10-20	3.25	1	1	3	50.0	8
	>20	3.00	1	2	1	50.0	6
	na	4.80	0	0	4	80.0	5
Support by Pubic or Non-profit Agencies	All	2.36	4	8	6	31.1	45
	2-4	3.20	1	3	5	53.3	15
	5-9	2.08	1	3	0	25.0	12
	10-20	1.75	0	0	1	12.5	8
	>20	2.83	2	2	0	33.3	6
	na	1.00	0	0	0	0	4
Subcontracting Relationship With Larger Exporters	All	1.42	2	2	1	8.3	36
	2-4	1.86	1	2	1	21.4	14
	5-9	1.09	0	0	0	0	11
	10-20	1.00	0	0	0	0	5
	>20	1.67	1	0	0	33.3	3
	na	1.05	0	0	0	0	3

Table 9

Relative Usefulness of Various Types of Support From Public or Other Non-Profit Agencies to the SMI Garment Exporting Firm in Penetrating Export Markets, by Start-up Size of the Firm

Type of Support, Initial Size and Year of First Export		Percent of Firms Using Service	Average Score of Firms Using Service	Firms Average Score All Firms	Firms Assigning a Score of 3 (Percentage)	4 (Percentage)	5 (Percentage)	4 or 5 (Percentage)	Number of Firms
Information on Export Marketing Opportunities	All	59.6	3.43	2.45	6	10	5	31.9	47
	<5	80.0	3.42	2.94	2	3	4	46.7	15
	5-9	53.8	3.14	2.15	5	1	0	7.7	13
	10-20	37.5	3.00	1.75	2			25.0	8
	>20	83.3	4.00	3.50	1	3	1	66.7	6
	na	20.0	4.00	1.60	1			20.0	5
	To 1982	87.5	4.00	3.63	1	2	3	62.5	8
	1984 & on	53.8	3.23	2.20	5	8	2	25.6	39
Sent Buyers to the Firm	All	34.0	3.06	1.70	4	5	2	14.9	47
	<5	46.7	3.71	2.27	2	2	2	26.7	15
	5-9	23.0	1.33	1.08			0	0.0	13
	10-20	25.0	2.00	1.25	1			0.0	8
	>20	50.0	3.67	2.33	1	2		60.0	6
	na	20.0	4.00	1.60	1			20.0	5
	To 1982	75.0	3.33	2.75	2	3	0	37.5	8
	1984 & on	25.6	2.90	1.49	2	2	2	50.0	39
Organized Fair at Home	All	49.3	3.94	2.45	2	6	7	27.7	47
	<5	44.7	4.00	2.34		3	3	40.0	15
	5-9	35.8	4.00	2.07		2	1	23.1	13
	10-20	25.0	3.50	1.63			1	12.5	8
	>20	33.3	3.50	1.83	1	1		16.7	6
	na	60.0	4.33	3.00	1		2	40.0	5
	To 1982	87.5	3.86	3.50	1	2	3	62.5	8
	1984 & on	28.2	4.00	1.85	1	4	4	20.5	39
Facilitated Participation in Fair(s) Abroad	All	40.4	3.95	2.19	2	6	8	29.8	47
	<5	33.3	4.20	2.07	1	2	2	26.7	15
	5-9	38.5	4.00	2.15		2	2	30.8	13
	10-20	37.5	4.00	2.13			2	25.0	8
	>20	50.0	3.00	2.00		2		33.3	6
	na	60.0	4.33	3.00	1		2	40.0	5
	To 1982	87.5	3.86	3.50	1	2	3	62.5	8

Table 10

Relative Importance of Selected Factors in Facilitating Initial Access of Small and Medium Non-Electrical Machinery Firms to Export Markets

Percent of Firms Factor and Start-up Size of firm		Average Score	(Percentage) Assigning a Score of 4	5	4 or 5	Count
Direct Efforts by the Firm to Contact Foreign Buyers or Export Agents	All	4.09	25.0	52.3	77.3	44
	2-4	4.10	20.0	60.0	80.0	10
	5-9	3.85	30.8	38.5	69.3	13
	10-19	4.30	30.0	60.0	90.0	10
	20&up	4.40	20.0	60.0	80.0	5
	na	4.00	16.7	50.0	67.7	6
Identification of the Firm by Foreign Buyers or Export Agents	All	3.09	22.7	22.7	45.4	44
	2-4	3.50	20.0	40.0	60.0	10
	5-9	2.54	15.4	15.4	30.8	13
	10-19	3.30	30.0	20.0	50.0	10
	20&up	2.80	20.0	20.0	40.0	5
	na	3.50	33.3	16.7	50.0	6
Support by Public or Non-profit Agencies	All	2.33	16.3	11.6	27.9	44
	2-4	2.80	20.0	30.0	50.0	10
	5-9	2.23	7.7	7.7	15.5	13
	10-19	2.44	33.3	0.0	33.3	10
	20&up	1.60	20.0	0.0	20.0	5
	na	2.17	0.0	16.7	16.7	6
Subcontracting Relationship With Larger Exporters	All	1.17	2.9	0.0	2.9	44
	2-4	1.12	0.0	0.0	0.0	10
	5-9	1.00	0.0	0.0	0.0	13
	10-19	1.25	0.0	0.0	0.0	10
	20&up	1.00	0.0	0.0	0.0	5
	na	1.60	20.0	0.0	20.0	6

Table 11

Relative Usefulness of Various Types of Support From Public or Other Non-Profit Agencies to the Non-Electrical Machinery SMI Exporter Firm in Penetrating Export Markets

Type of Support		Percent of Firms Using Service	Average Score Among Users	Average Score	Firms Assigning a Score of (Percent)			
					3	4	5	4 or 5
Information on Export Marketing Opportunities	All	40.9	3.22	1.91	1	7	3	20.5
Sent Buyers to the Firm	All	31.8	2.64	1.52	6	4	0	9.1
Organized Fair at Home	All	63.6	3.86	2.82	10	8	9	38.6
Facilitated Participation in Fair(s) Abroad	All	56.8	4.12	2.77	3	10	10	45.5
Assisted in Marketing or Research or Exploration	All	18.1	3.37	1.43	2	5	0	11.4

Table 12

Level of Entrepreneur's Education and Labour Productivity in Small and Medium Leather Goods Exporters

Level of Entrepreneur's Education	Labour Productivity[a] (Thousands of Dollars) mean	median
Post-graduate	15.7 (3)	20.9
University complete	8.8 (10)	5.4
University incomplete	6.5 (4)	5.3
Secondary complete	5.8 (2)	)
Secondary incomplete	4.1 (2)	) 4.2
Primary	9.1 (4)	)

(a) Proxied by sales per worker.

( ) Number of firms in parentheses.

Table 13

Usage and Ranking of Sources of Technological Improvements by SMI Leather Goods Firms

Source of Improvement	Percent of Firms Reporting Benefits	Average Score Among Firms Reporting Benefits	Averge Score Among All Firms
Founder	94.1	4.34	4.15
Partner	55.9	3.95	2.65
Equpipment Suppliers	64.7	3.45	2.59
Domestic Buyers	38.2	3.15	1.82
Foreign Buyers	58.8	3.95	2.74
Similar firms	47.1	3.94	2.39
Technical Literature	55.9	3.53	2.41
Private Consultants	23.5	3.25	1.53
Industrial Association or other NGO	50.0	3.24	2.12
Public Tech--nology Agency	11.8	1.75	1.09

Table 14

Usage and Ranking of Sources of Technological Improvements by SMI Garment Exporters

Source of Improvement	Percent of Firms Reporting Benefits	Average Score Among Firms Reporting Benefits	Average Score Among All Firms	Percent of All Firms Assigning 4 or 5
Own Efforts				
Founder	93.5	4.40	4.18	80.4
Partner	89.1	4.02	3.70	47.4
External Private Sources				
Equipment Suppliers	76.1	4.03	2.96	47.8
Domestic Buyers	32.6	3.60	1.85	10.9
Foreign Buyers	41.3	3.58	2.07	19.6
Similar firms	45.6	3.52	2.15	21.7
Technical Literature	54.3	3.32	2.26	28.3
Private Consultants	39.1	3.39	1.93	15.2
External Private Source	93.5	4.12	3.91	73.9
Public and Non-Profit Sources				
Industrial Association or other NGO	37.0	3.82	2.04	21.7
Public Tech--nology Agency	19.6	2.55	1.30	4.3
Public or NGO agency	47.8	3.36	2.13	21.7

Note: Firms which did not use a service are assigned a "1" in these estimates.

Table 15

Usage and Ranking of Sources of Technological Improvements by SMI Non-Electrical Machinery Exporters

Source of Improvement	Percent of Firms Reporting Benefits	Average Score Among Firms Reporting Benefits	Average Score Among All Firms	Percent of All Firms Assigning 4 or 5
Own Efforts				
Founder	81.8	4.69	4.02	75.0
Partner	79.5	4.51	3.80	72.7
Founder/ Partner	95.5	4.74	4.57	90.9
External Private Sources				
Equipment Suppliers	68.2	3.83	2.93	40.9
Domestic Buyers	63.6	3.32	2.48	31.8
Foreign Buyers	40.9	3.94	2.20	25.0
Similar firms	52.3	3.13	2.11	15.9
Technical Literature	90.9	4.15	3.86	77.3
Private Consultants	40.9	3.89	2.18	29.5
External Private Source	93.2	4.46	4.23	86.3
Public and Non-Profit Sources				
Industrial Association or other NGO	29.5	3.15	1.64	18.2
Public Technology Agency	36.4	3.75	2.00	15.9

Table 16

The Relative Contributions of the Firm, Other Private Agents, and Public/Non-profit Institutions in the Marketing and Technology Areas for SMI exporters in Leather Goods, Garments, and Non-Electrical Machinery

		Leather Goods		Garments		Non-Electrical Machinery		Unweighted Average	
		Aver. Score	%4-5	Aver. Score	%4-5	Aver. Score	%4-5	Aver. Score	%4-5
1. Marketing:Contribution to the Initial Access of Firms to Export Markets									
Direct Efforts by the Firm to Contact Foreign Buyers or Export Agents	All	3.97	66.7	3.74	60.9	4.09	77.3	3.93	68.3
	2-4	2.89	33.3	3.87	53.3	4.10	80.0	3.62	55.5
Identification of the Firm by Foreign Buyers or Agents	All	3.47	59.4	3.74	66.0	3.09	45.4	3.43	56.9
	2-4	2.67	33.3	3.93	80.0	3.50	60.0	3.37	57.8
Supp Support by Public or Non-profit Agencies	All	2.47	27.9	2.36	31.1	2.33	27.9	2.39	29.0
	2-4	3.00	33.3	3.20	53.3	2.80	50.0	3.00	45.5
Subcontracting Relationship With Larger Exporters	All	2.10	23.3	1.42	8.3	1.17	2.9	1.56	11.5
	2-4	3.22	55.6	1.86	21.4	1.12	0	2.07	25.7
2. Contribution to Technological Capacity of the Firm[a]									
Founder and Partner	All	4.15	73.5	4.18	80.4	4.57	90.9	4.30	81.6
	2-4	4.56	100.0	4.27	80.0	4.70	100.0	4.51	93.3
External Private Sources	All	3.85	70.6	3.91	73.9	4.23	86.3	4.00	76.9
	2-4	4.22	77.8	3.80	66.7	4.50	90.0	4.17	78.2
Public/Non-Profit Agencies	All	2.15	23.5	2.13	21.7	2.39	29.5	2.22	24.9
	2-4	3.00	33.3	2.13	20.0	2.80	30.0	2.64	27.8

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