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The World's Leather & Leather Products Industry

A study of production, trade patterns and future trends

Prepared for the
United Nations Industrial Development Organization

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Published by
Shoe Trades Publishing Limited
36 Crosby Road North
Liverpool L22 0QN
England

ISBN 0 9-522139 0 7

Typesetting and makeup by Print Origination (NW) Ltd.,
Printed by The Cromwell Press, Melksham, Wiltshire SN12 8PH

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Abbreviations

BAT	best available technology
BOD	biochemical oxygen demand
BPT	best practice technology
CAD	computer-aided design
CAM	computer-aided manufacturing
COD	chemical oxygen demand
EC	European Community
FAO	Food and Agriculture Organization of the United Nations
IIT	intra-industry trade
ISIC	International Standard Industrial Classification of all Economic Activities
JIT	just-in-time method
MVA	manufacturing value added
OECD	Organization for Economic Co-operation and Development
PCP	pento-chloro-phenol
PPM	parts per million
SATRA	Shoe & Allied Trades Research Association
SITC	Standard International Trade Classification
TKN	total nitrogen
TQC	total quality control
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organizatin
UNSO	United Nations Statistical Office
VER	voluntary export restraint
VOC	volatile organic compounds

Explanatory notes

The following classification of economic groupings is used in the text: "Developing countries" includes all countries, territories, cities and areas in Africa (except South Africa), Latin America, East Asia (except Japan), South Asia and West Asia (except Israel). "Industrialized countries" includes Northern America (Canada and the United States of America), Europe, Australia, Israel, Japan, New Zealand and South Africa. Unless otherwise specified, "world" excludes Albania, China, the Democratic People's Republic of Korea, Mongolia and Viet Nam. In some tables the classification may differ slightly from the above, depending on the source cited.

Unless arranged otherwise for statistical reasons, countries are generally listed in alphabetical order. In listings and tables, inclusion or exclusion of a particular country may have been dictated by considerations of the availability of comparable data; it does not necessarily express a judgement concerning the stage reached by the country in the development process.

Unless otherwise indicated, "manufacturing" includes the industry groups listed under Major Division 3 in Indexes to the International Standard Industrial Classification of All Economic Activities (United Nations publication, Sales No. E.71.XVII.8).

Mention of commercial enterprises does not imply endorsement of those enterprises by the United Nations.

International Standard Industrial Classification of all Economic Activities (ISIC) code numbers are accompanied by a descriptive title for example, ISIC 323: "Leather and leather products" (other than footwear). For considerations of space, however, the description is sometimes shortened (for example, ISIC 323 may be described simply as "Leather and leather products").

Dates divided by an oblique (1970/71) indicate a crop year or a financial year. Dates divided by a hyphen (1970-5) indicate the full period

involved, including the beginning and end years. References to dollars ($) are to United States dollars, unless otherwise stated. References to tons are to metric tons, unless otherwise specified.

Annual rates of growth or change are based on data for each year throughout the period indicated and are calculated using a semi-logarithmic regression over time, unless otherwise specified.

In tables

(i) apparent arithmetical discrepancies, such as percentages that do not add precisely to totals, result from rounding of basic data or from differences in rounding of figures known to different degrees of precision;

(ii) three points (...) indicate that data are not available or are not separately reported;

(iii) a rule (D) indicates that the amount is nil or negligible;

(iv) a blank indicated that the item is not applicable;

(v) a minus sign (-) before a figure denotes a deficit or decrease, unless otherwise indicated.

Acknowledgements

This book draws upon a wide range of technical, empirical and economic material. Accordingly the contributors include a number of individuals in addition to the principal authors. Members of the Leather Unit in the Agro-products Industry Branch of UNIDO provided essential support, data and advice; without their co-operation, this project would not have been possible. Dr Tracy Murray of the University of Arkansas and Mr Stuart Sinclair of Temple, Barker and Sloan served as consultants, supplying research which was adapted by the authors and incorporated into the book. The study also benefited substantially from research conducted by Landell Mills Commodities Studies. Helpful comments and criticisms were offered by specialists in private industry and by participants at the tenth session of the leather and leather products industry panel held in Madras in November 1991. Several other institutions–notably the Commodities and Trade Division of the Food and Agricultural Organisation and SATRA Footwear and Technology Centre–supplied the data used in this publication. Finally, the book represents part of the work programme of the Statistics and Sector Studies Branch of UNIDO and several members of the Branch were extensively involved. In addition to the primary authors they include: T. Yamada, B. Leutner, V. Pecenka and S. Seeling.

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CHAPTER ONE

An Overview of the Leather and Leather Products Industry

Few industries can claim such a long history as leather and leather products. Longevity, however, is not always an advantage. Maturity and senescence are sometimes associated with obsolete technologies, shrinking markets and a long-term pattern of contraction and decline. Such a characterization does not apply to the leather and leather products industry. Producers have certainly passed through a period of drastic adjustment since the early 1980s and many no longer exist. Yet when viewed from a global perspective, the scope of operations has grown steadily and in some markets even flourished. The total number of firms has actually increased while new products such as athletic shoes have swept through the markets of most rich countries, boosting profitability and changing the very nature of the industry.

What are the reasons for such dynamism in a mature industry and can the rapid pace of adjustment be sustained in the future? This book argues that most of the changes taking place today are driven by conditions in the markets for final products. Competition should intensify during the course of this decade while new markets will emerge in developing as well as industrialized countries. The pace of change is unlikely to abate as the industry responds to these new forces and gradually comes to terms with the dramatic developments which led to such rapid growth over the past five years.

This brief description suggests several characteristics that recommend the industry as a subject worthy for detailed study. The torrid pace of growth experienced in some markets confers a certain degree of uniqueness on the industry which is not shared by other, equally mature, fields of manufacturing. The fact that many long-established

firms have successfully navigated their way through a prolonged period of market turbulence is also of interest. So too is the prospect that a senescent industry such as this expects no let-up in the pace of change and adjustment.

Another noteworthy feature is the degree of internationalization which exists, both with regard to the location of production facilities and consumer markets. Markets for hides, skins and tanned leather have long had an international character, but producers of finished products traditionally exhibited little interest in events beyond their national borders. That parochial view no longer applies today. Tanners and finishers of leather will frequently relocate, following footloose manufacturers to new production sites in developing countries, or wherever labour costs are low and the work force has the necessary skills. Markets for finished products continue to be found mainly in the industrialized countries although the product composition has changed markedly and the prospects of rapid growth of demand in some parts of the developing countries is intriguing.

The extent to which markets have been internationalized has a corollary in the degree of inter-firm collaboration and cross-border cooperation which exists today. This growing network of inter-firm linkages is impressive and has worked to the benefit of most participants. It is an important reason why the surviving firms in industrialized countries have managed to sustain their profitability even though large chunks of production capacity have migrated to developing countries.

Aside from the characteristics noted here, another reason for the decision to embark on a detailed study of leather and leather products is the priority this industry commands in the work of the sponsoring organization. The United Nations Industrial Development Organization (UNIDO) is engaged in a wide range of activities designed to assist tanners, finishers and manufacturers. Industry specialists in UNIDO provide technical assistance and advice on products and markets, and actively promote links between companies in developing and industrialized countries. A large and unique body of information and experience has therefore been accumulated within the organization. These sources proved invaluable in the preparation of this study.

Scope of the study

Before going any further, the reader should have a clear idea of what is

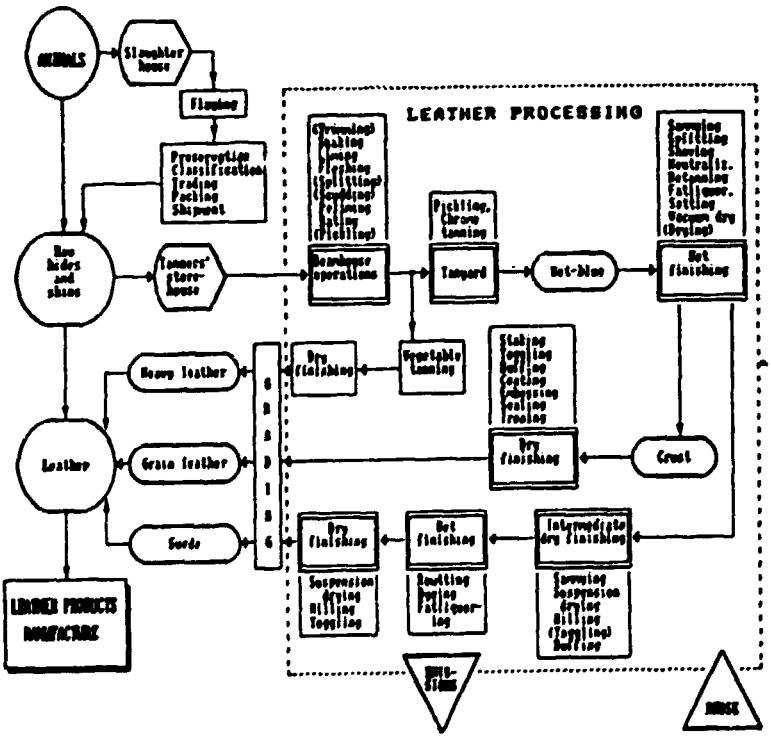
meant by the leather and leather products industry. An unambiguous definition of any "industry" is possible only if the products involved are fairly homogeneous; problems arise when a differentiated set of products is studied. In such a case an industry's boundaries depend upon the "substitutability" between various products and the similarities in the production technologies which are used. If two products have similar characteristics and consumers are indifferent as to which they acquire, the degree of substitution will be high. The products can then be treated as part of the same industry, provided that production technologies are similar.

For purposes of this study the leather and leather products industry is defined to include all aspects of tanning and finishing, as well as the production of finished products made from leather. Matters relating to markets for raw materials (that is, hides and skins) are properly regarded as an agricultural rather than a manufacturing activity, but their significance is too great to be ignored here. Accordingly, the industry is pictured as consisting of three stages. They include the production of raw materials, the transformation of these materials into various types of leather, and the manufacture of finished products. The two latter production stages receive the most attention in this study although some of the more significant developments in the markets for raw materials are also considered.

The links between these three stages are rather unique in comparison with other manufacturing industries. Hides and skins are a by-product of the much larger meat and wool industries. Leather tanners and finishers are the sole market for these raw materials and the totality of the off-take is converted into leather. However, there is no conventional relationship between the two groups; the price of the raw materials is of overriding importance for users although the supply is determined by conditions outside the leather industry. Recently, this division between the first two stages has begun blurred as units working in association with the butcher carry out at least the first few steps of the tanning process. Further downstream, links between the tanners and manufacturers of leather articles are close despite the fact that the two operations are markedly different in character. Leather production is basically a bio-chemical-intensive process while the manufacture of leather products is a labour-intensive assembly operation.

References to production of raw materials, tanning and manufacturing are a useful short-hand descriptions of these activities, but they obscure the true diversity of operations involved. Figure 1.1 indicates

Figure 1.1 The leather sector cycle



some of the many steps and processes which make up the first two production stages. Most of these operations concern the tanning and finishing process of leather, and several different processing routes are possible.

The degree of complexity grows when attention turns to the manufacturing [Figure 1.1] end of the industry. The more important product markets which are studied in this book are standardized footwear, luxury footwear, athletic shoes, wearing apparel and leather upholstery. The structure and profitability of firms, the technologies they use, their methods of distribution and many other characteristics all differ depending upon the type of products being produced. Such diversity means that generalizations are difficult although several trends apply to specific parts of the industry are identified in later chapters. The main themes which emerge from this investigation are summarized in the following section.

Competition and rivalry in major markets

One distinguishing feature of this study is the importance attached to the internationalization of markets and production processes. At this broad level of investigation a number of different forces are constantly reshaping and altering the industry's competitive landscape. Later chapters deal with these developments from several different perspectives, but even at this early stage it is helpful for the reader to have a general idea about the nature of competition in the industry. Among the themes which emerge in later chapters, two stand out. They concern various aspects of product quality and the degree of maturity in the world's major markets. Based on these two characteristics, a stylized picture of the world's leather and leather products industries can be pieced together.

The notion of quality which is used refers here not only to the technical quality of tanning and finishing, but also the design and fashion appeal of the final product. At the bottom of the quality scale is an anonymous range of products which are mass-produced and sold in discount stores. These are standardized items that are generally made of low grade leather and have limited fashion appeal. At the opposite end of the spectrum are fashionable, high quality products with an exclusive identity which leaves them practically immune from competition. At these heights, however, the air is thin.

Between the top and bottom of the quality range are many products

of intermediate quality which combine some element of fashion with the price appeal of mass production. These huge markets are comparitively easy to enter and rivalry takes the form of product differentiation. Consumers are aware of various market niches but are attracted by specific product characteristics found in only one or few niches. Fidelity to a particular niche is not absolute, however. A price differential, if large enough, would lead consumers to choose a close substitute. For this reason, firms generally produce a variety of products at different price levels. The formation of a cluster of customers around specific characteristics explains the degree of product differentiation and the proliferation of product models.

The industry's second distinguishing feature, that of market maturity, focuses attention on systematic changes in the conditions relating to demand and supply. As markets mature, consumers grow richer and the quality range of products will be stretched accordingly. Brand loyalties emerge and buyers become more discriminating as they gain experience in assessing differences in quality and price. These changes create more opportunities for product differentiation, the establishment of new product niches, and various forms of non-price competition.

Meanwhile, another set of forces is at work among tanners, finishers, manufacturers and distributors. With the onset of maturity the threat of market saturation grows and the basis for competition changes. Success increasingly depends on a rather unique set of characteristics. Examples include: access to specific skills relating to design and marketing, the ability to respond quickly to capricious changes in fashion, an organizational structure which can handle the challenges posed by a far-flung system of international sourcing and distribution, and the creation of a wide network of suppliers and distributors, and manufacturers and distributors. Attributes such as these can only be acquired with experience. Once they are, firms are in a better position to extract a price premium for their products - and to justify that premium in terms of fashion and quality.

These two characteristics - the degree of market maturity and variations in product quality - go a long way towards determining the nature of competition within the industry. Their significance will vary depending on the countries and markets under consideration, but with some simplification the interaction between the two variables yields a useful picture of competitive conditions.

Figure 1.2 shows this picture for four of the industry's major product groups. The quality range is represented on the vertical axis while the

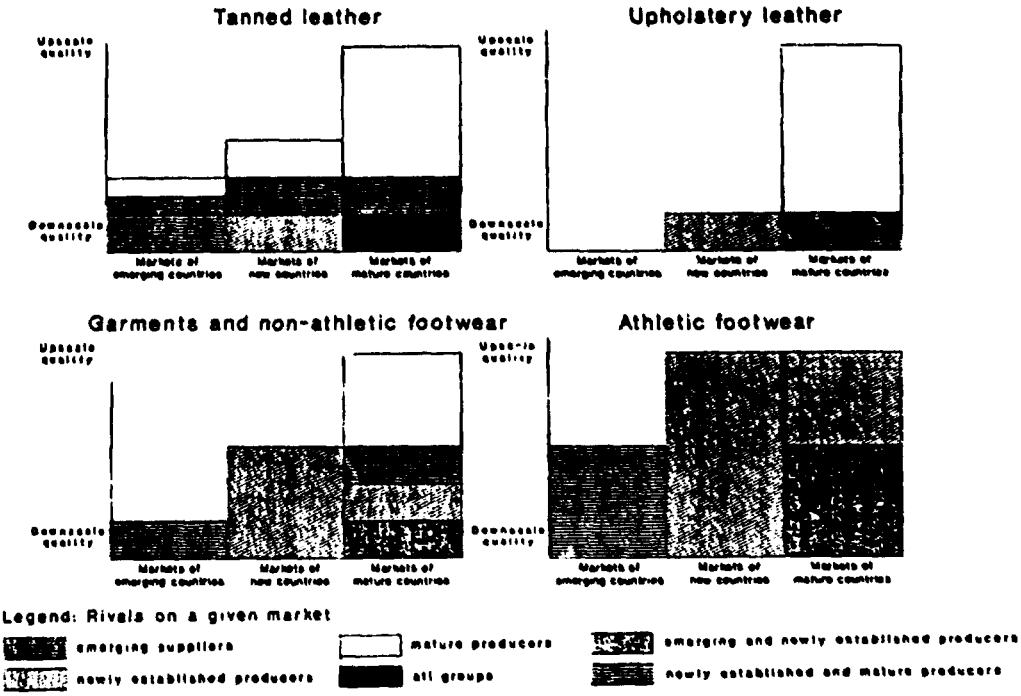
horizontal axis indicates the degree of market maturity. The latter is defined in terms of three different sets of producers - emerging suppliers, newly established suppliers, and countries with an experienced and long- established set of producers. Included in the first group of developing countries are China, Indonesia and Thailand where tanning and/or manufacturing operations have been recently established but are expected to grow during the remainder of this decade. Newly established producers are developing countries which already have considerable experience, and some are exporters in one or more product categories. Examples would be Brazil, the Republic of Korea and Taiwan Province. The last of these three groups consists of tanners and manufacturers in industrialized countries such as France, Germany, Spain, the United Kingdom and the United States of America and a few othe.

By singling out three sets of countries and four types of products, figure 1.2 sketches a pattern of global rivalry in 12 distinct markets. The height of the rectangles associated with each group of producers gives an impression of the quality range. In countries with mature markets, the full quality range exists in all four product categories. The same applies to athletic footwear in countries with newly established producers. These, however, are the only instances where a full quality range exists in the various markets.

Sources of supply are also identified. For instance, upholstery buyers in mature markets are served mainly by firms based in these countries, with a thin fringe of the market at the lower end being claimed by newly established producers located elsewhere. Conversely, mature firms are not involved in the market for athletic footwear, nor in the downscale portion of the markets for footwear and leather garments. Countries which are emerging suppliers export their products to several markets. They compete against newly established producers in mature markets for garments and all types of footwear, but only in the low-to-intermediate range. In the case of tanned leather, all three groups of producers vie for customers, though again at the lower end of the quality range.

In conclusion, this description suggests that the industry consists of a fairly intricate network of markets and suppliers. Many options are available to each firm, depending on where they position their product in the quality spectrum and which markets they choose to target. Issues relating to market entry, choices of technology, marketing strategies, forms of collaboration and other aspects can all be examined in terms of

Figure 1.2 Patterns of global rivalry



recurrent themes outlined here. The complete story of the leather and leather products industry is therefore much more complex than their cursory overview might suggest.

Organization of the book

The organization of this book reflects the impression that major changes within the industry should be seen from a global perspective. The following three chapters provide such a framework. Worldwide patterns of production, consumption and patterns of structural changes are examined in chapter II. Chapter III looks at the determinants of export performance and discusses the main policies which influence the trading environment. Chapter IV supplements the global picture by examining patterns of specialization in the world's major product markets. A key to understanding all these changes in the industry's global map is the corporate strategies being followed by leading firms in various parts of the world. This crucial aspect is the subject of chapter V. A number of strategies, all designed to provide the firm with a competitive advantage, are examined there. They include strategies for cost reduction, product innovation, product differentiation, development of marketing prowess and organizational methods are discussed.

In later chapters attention turns to some of the industry's more important micro-economic characteristics and country-specific conditions. Matters relating to establishment size, shifts in cost structure and the use of substitute materials are the subject of chapter VI. Environmental considerations and the impact of regulatory controls are considered in chapter VII. In chapters VIII and IX attention turns to the conditions governing patterns of growth and development in individual countries.

Finally, chapter X takes a look at the future. The discussion focuses on which parts of the industry are likely to experience the most rapid growth during the remainder of this decade and how the geographical distribution of production facilities might change. The probable configuration of demand, the future pattern of structural change and other key features of the industry by the beginning of the next century are also examined. The book concludes with a detailed statistical appendix. This information, which has been compiled from the UNIDO data base and the Organization's extensive field experience, provides the reader with a comprehensive picture on current trends in various parts of the industry and in a large number of countries.

CHAPTER TWO

The Changing Map of World Production

Differential rates of growth and relocational pressures raise issues which are of fundamental importance for any industry. Successful firms can suddenly find themselves facing a combination of threats which result in underutilization of capacity and the loss of market share, either at home or abroad. Some producers may be forced to contract or even cease operations. For the industry as a whole, these developments will alter patterns of trade and foreign investment, giving rise to policy disputes that pit producers in one part of the world against those in another.

In the leather and leather products industry, the general impression is that production capacity is gradually moving from Europe and North America to other parts of the world. There may be several reasons for the shift. First, wages in industrialized countries are high and have been rising in recent years. Manufacturers of certain leather products require relatively large amounts of labour and are vulnerable to this change. Second, several developing countries which are important suppliers of hides and skins have banned the export of these materials. Their intention is to encourage domestic expansion of downstream operations. Both trends would accelerate the growth of tanning and manufacturing capacity in developing countries relative to industrialized countries.

Policy makers in industrialized countries have responded to their own producers' problems by attempting to restrict imports of footwear and other leather products. Through such means they hoped to reduce the competitive pressure on domestic firms. The tactic has met with limited success, however. As imports from specific developing countries are

reduced, new suppliers emerge to take their place and the expanding network of protectionism soon becomes unmanageable (see chapter 3).

The pressure on firms in industrialized countries may grow in the future. One reason is that the industry's hides and skins are obtained as a by-product of meat production. Supplies of raw materials are therefore sensitive to changes in dietary habits. If consumers in industrialized countries turn away from meat products, the size of bovine herds will be scaled back. As a result, the worldwide availability of hides and skins will be reduced and competition for these inputs will intensify.

Trends in industrial policy will also affect the industry's future. Industrialized countries have rather comprehensive systems for environmental regulation and control which are likely to be strengthened over time. The result can be a rise in production costs since more investment capital must be devoted to pollution control and the acquisition of "clean" technologies rather than production-raising investment for modernization or expansion of existing capacity.[1]

Meanwhile, changes in agricultural policies may undermine the competitive position of some producers. Many industrialized countries offer production subsidies and operate rather generous systems of price support for their agricultural sector. These practices probably benefit the producers of leather and leather products since livestock herds tend to be larger than market conditions would require. Various forms of agricultural support are now under attack in international forums and could eventually be scaled back. If they are, any indirect benefits which the leather and leather products industry derives will be reduced.

The significance of each of these factors - as well as their implications for trade, investment, structural change and other characteristics - is explored in later chapters. Before that can be done, a clear picture of the pattern of production, trade and consumption is needed. The following section deals with one part of the overall picture, documenting the changing pattern of production and offering some stylistic interpretations of these changes.

Growth and relocational trends

The leather and leather products industry consists of three stages, each requiring a different mixture of material inputs, labour and capital. The first, or raw material stage, involves co-production: hides and skins are recovered from dairy and draught animals or animals slaughtered for meat. Leather tanning and finishing represents the second stage of the

Table 2.1 World production of hides and skins*, 1975-1990 (Percentage)

Category	Share in world 1975	Share in world 1990	Annual growth rates 1975-1990
Cattle hides and skins	100.0	100.0	0.6
Industrialized countries of which:	65.0	58.7	-0.1
United States	23.5	16.7	-1.6
USSR	11.5	15.9	2.8
Developing countries of which:	35.0	41.3	1.7
Argentina	5.1	4.1	-0.7
Brazil	4.6	5.0	1.2
India	6.8	7.7	1.5
Sheepskins and lambskins	100.0	100.0	1.4
Industrialized countries of which:	62.8	58.9	1.0
Australia	9.1	10.2	2.1
New Zealand	14.0	12.1	0.4
USSR	16.1	11.8	-0.7
Developing countries	37.2	41.1	2.1
Goatskins	100.0	100.0	2.8
Industrialised countries	8.6	7.0	1.4
Developing countries of which	91.4	93.0	2.9
China	7.6	17.3	8.6
India	33.5	29.2	1.8
Pakistan	7.3	9.0	4.2

Sources: Food and Agriculture Organization of the United Nations, 1992 World Statistical Compendium for Raw Hides and Skins, Leather and Leather Footwear, 1972-1990 and UNIDO estimates

Notes: *Calculations are based on data in metric tons.

industry. These operations are relatively capital-intensive, while the third stage, the making of leather products, is a relatively labour-intensive operation. Each of these stages is discussed in turn.

Major suppliers of hides and skins are shown in table 2.1. About 90 per cent of all leather (by weight) is obtained from bovine animals and nearly half this total originates in only five countries. The United States of America and the former Union of Soviet Socialist Republics (USSR) are the world's major producers, though Argentina, Brazil and India are other important sources.[2] As a group, the industrialized countries are still the main producers of bovine hides, but their share has been falling for a number of years. The geographical concentration of suppliers is even more pronounced for the two minor sources of raw materials. Six per cent of all the world's leather supplies is obtained from sheepskins and lambskins. A third of this amount comes from only three countries - New Zealand, the former USSR and Australia. Goatskins and kidskins account for an additional 3 per cent of all raw materials (with most being produced in developing countries - mainly China, India, Pakistan and tropical Africa).

Tanning and finishing of hides and skins represents the industry's second stage.[3] Most of the output is light bovine leather which is used to make shoe uppers and a variety of leather products. The remainder consists of heavy bovine leather and leather from sheep and goats. Heavy leather is mainly found in shoe soles and its market is declining as other materials (for example, rubber) are substituted. Synthetic materials have also replaced heavy leather in some uses - for example, industrial conveyor belts and related applications. Saddlery and harness-making is another visible but very small market for heavy leather.

Geographical shifts in the location of tanning and finishing facilities have been swifter than for the production of raw materials. Leading suppliers such as the United States have seen their operations shrink, while the shares of other rich countries such as Italy and Spain have risen (see table 2.2). Rapid growth in some countries like China and the Republic of Korea is another reason for the greater dispersion of leather-making capacity.

Manufacturers of footwear are the largest users of leather, and table 2.3 completes this picture by showing the pattern of production in this sub-sector. Again, the industrialized countries are major suppliers but their dominance is being eroded. Although impressive, the gains in developing countries can be attributed to only a handful of suppliers.

Table 2.2 World production of leather, 1975-1990
(Percentage)

	Heavy bovine leather[a]			Light bovine leather[b]			Light leather[b] from sheep and goats		
	Share in world		Annual growth rate	Share in world		Annual growth rate	Share in world		Annual growth rate
	1975	1990	1975-1990	1975	1990	1975-1990	1975	1990	1975-1990
Industrialized countries	70.6	55.2	-2.6	59.9	53.4	1.5	61.5	44.9	-0.1
of which:									
USSR	30.0	28.1	-1.4	9.7	10.0	2.5	14.5	7.6	-2.3
United States	9.5	5.0	-5.2	8.2	5.1	-0.9	2.0	2.2	2.6
Italy	9.1	9.4	-0.7	7.6	11.3	5.0	14.7	12.2	0.7
Spain	5.5	1.8	-8.1	2.8	2.8	2.1	7.4	7.4	2.0
Developing countries	29.4	44.8	1.8	40.0	46.6	3.3	38.5	55.1	4.4
of which:									
China	2.1	5.8	5.7	1.4	2.8	7.0	3.3	8.4	8.6
India	7.7	11.7	1.8	7.3	6.6	1.5	13.0	12.6	1.8
Republic of Korea	1.5	6.2	8.5	1.9	6.6	11.0	0.1	2.4	31.0
World	100.0	100.0	-1.0	100.0	100.0	2.2	100.0	100.0	2.0

Sources: Food and Agriculture Organization of the United Nations, 1992 World Statistical Compendium for Raw Hides and Skins, Leather and Leather Footwear, 1972-1990; and UNIDO estimates.

Notes: [a] Calculations are based on data in metric tons. [b] Calculations are based on data in square feet.

Table 2.3 World production of leather footwear*, 1975-1990 (Percentages)

Country or area	Share in world 1975	Share in world 1990	Annual growth rates 1975-1990
Industrialized countries	66.7	51.1	0.6
of which:			
France	2.9	1.8	-0.6
Italy	7.1	7.7	2.9
Portugal	0.5	2.3	12.9
Spain	4.4	3.8	1.3
USSR	23.9	19.6	1.1
United States	6.6	2.6	-3.7
Developing countries	33.3	48.9	5.0
of which: Brazil	3.5	6.2	6.4
China	3.6	9.7	9.3
India	8.5	7.8	1.8
Republic of Korea	0.5	5.1	18.9
Taiwan Province	0.4	2.4	14.6
Yugoslavia	1.6	2.2	4.4
World	100.0	100.0	2.4

Sources: Food and Agriculture Organization of the United Nations, 1992 World Statistical Compendium for Raw Hides and Skins, Leather and Leather Footwear, 1972-1990; SATRA, World footwear Market 1991; information supplied by the European Confederation of the Footwear Industry, and UNIDO estimate.

Notes: * Calculations are based on footwear production in million pairs; world production in 1990 is estimated at 4,173 million pairs.

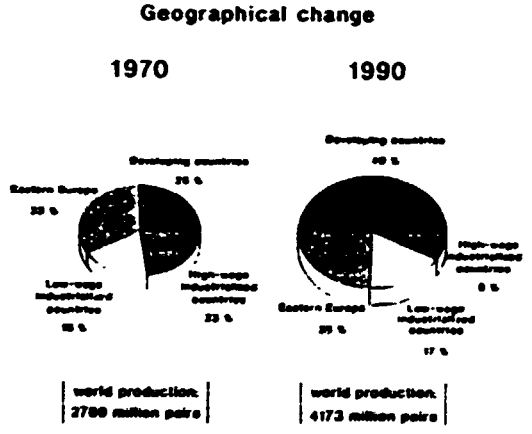
For example, the six producers shown in table 2.3 accounted for 69 per cent of all the footwear manufactured in developing countries and a third of world production. Though it is clear that the developing countries are now major producers of leather footwear, the full extent of these changes is more dramatic than the shares and growth rates in table 2.3 suggest. For example, between 1970 and 1990, world production grew by more than 1.4 billion pairs, with virtually all of the increases coming from developing countries. Shifts of this magnitude can only be due to equivalent changes in the underlying determinants of production.

Figure 2.1 provides additional information which suggests that movements in wage rates have been a fundamental reason for the changing pattern of production. The industrialized countries are divided into three categories.[4] Among the western industrialized countries, 10 were identified as high-wage economies in 1970. Production in this group fell by 300 million pairs in 1970-1990, equivalent to an annual decline of 3.1 per cent. In contrast, most of those industrialized countries which were low-wage economies in the 1970s saw their output of footwear grow. Israel, Portugal and Spain reported some of the largest gains. Meanwhile, footwear manufacturers in developing countries and areas were recording huge gains. Brazil, Hong Kong and the Republic of Korea were growing fastest, though production in several other developing countries was also expanding (see appendix table A.1).

Realignment of the industry began with a shift from high-wage to lower-wage sites. Some of the original beneficiaries (for example, Italy and Japan) experienced wage pressures of their own in subsequent years and have lost ground relative to competitors. The situation is constantly changing, however. New producers have entered the market as rising wages in several of the richer developing countries force footwear manufacturers to relocate yet again (see box 2.1).

In conclusion, this stylized picture suggests that changes in relative wages are an important determinant of production patterns among footwear manufacturers. There are exceptions, however. Particular firms in industrialized countries have managed to maintain their scale of operations despite higher wages. Usually they have done this by establishing positions of leadership in certain product lines such as high-fashion footwear, specialized footwear or finished leather products. Meanwhile, some of the newer firms in developing countries have succeeded in building up their tanning and manufacturing operations without a domestic source of hides and skins, usually by

Figure 2.1
Production of leather footwear, 1970-1990



Source: see Appendix Table A.1

targeting specific export markets and specializing in the manufacture of standardized footwear. The new entrants are often supported by manufacturers or distributors in mature markets who hope to strengthen their own competitive position in this way.[5] Such link-ups are part of a more general effort to reconcile the supply situation with conditions governing the operation of markets for finished products. Demand characteristics and consumption patterns in markets for leather footwear are discussed in the following section.

Consumption trends in the world's footwear markets

Traditionally, footwear was the main outlet for leather but its share has declined over time. One reason is that manufacturers have turned from leather to synthetic shoe soling; another is the growth in the market for other leather products such as upholstery and garments (see box 2.2). At present, about half the world's leather is used to make shoes and the following discussion focuses on this particular market.

Consumption of footwear rose slowly during the 1970s and 1980s. According to figure 2.2, the world market for leather footwear increased by about 1.3 billion pairs between 1975 and 1990, a gain of over 40 per cent. The largest increases occured in developing countries where consumption has increased by 60 per cent since 1975. Consumers in industrialized countries accounted for roughly 70 per cent of purchases in 1975, but two decades later their share was down to 66 per cent. The countries with the largest markets for footwear include the USSR, the United States, China and India. Others where consumption has grown rapidly are China, Cyprus, Singapore and Turkey (see appendix table A.2).[6]

Estimates of per capita consumption provide additional insights about various national and regional markets. The exceptionally high levels of reported consumption for East Europe deserve special mention. This result is attributable to a combination of factors involving statistical methods and industrial policies. First, East European countries compile data on production and consumption differently from other countries. All shoes produced with leather-shoe technology are lumped together. A large portion actually consists of non-leather shoes, meaning that production and consumption are overstated for this region. Second, many of the shoes purchased were traditionally of poor quality, and all were sold at very low prices thanks to generous subsidies. These characteristics and policies do not apply today al-

though they are relevant to the period under discussion. Second, fashion and consumer choice probably play a more important role in western markets than in Eastern Europe and have contributed to a wider mix of leather and canvas shoes. Consumers in western countries can choose from a wide range of both leather and non- leather models which have not been available to buyers in the east. As a result, western consumers own more pairs of shoes than their counterparts in the east, but their per capita consumption of leather footwear is lower.

Box 2.1 Real wage trends among footwear producers

Wages in industrialized countries are relatively generous thanks to high levels of specialization in the lucrative markets for high-fashion footwear. Wage rates in several developing countries are rising rapidly, however. This upward trend is eroding the competitive position of these countries in markets for standardized footwear. According to box table 2.1, wages have risen fastest in Brazil, India, Republic of Korea, Pakistan and Taiwan province.

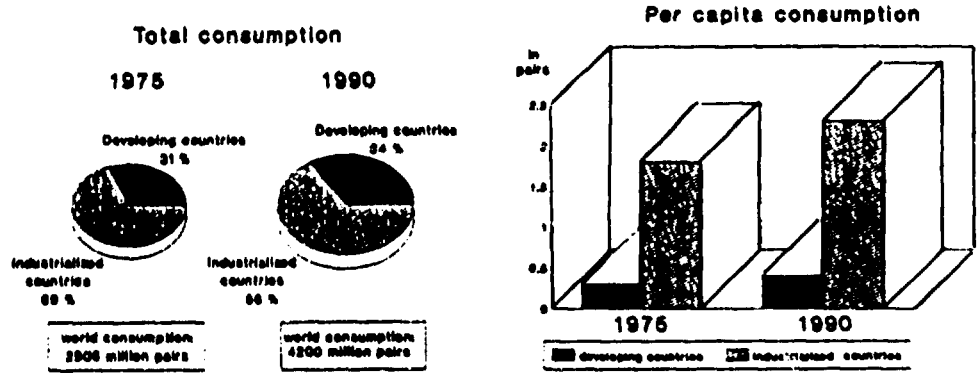
Box table 2.1 Wage trends in the footwear industry, selected countries

Country or area	Real wages per employee, 1989* (thousands of 1980 dollars)	Growth rate 1983-1989 (percentage)
Brazil	2.6	7.6
Egypt	1.2	-4.3
France	18.5	3.5
Germany, Federal Republic of	14.7	2.4
India	1.6	7.3
Italy	8.4	1.1
Japan	10.7	2.0
Mexico	3.1	-1.5
Pakistan	1.4*	5.2*
Portugal	2.2	0.0
Republic of Korea	4.3	9.8
Spain	6.2	-1.9
Taiwan Province	4.1	8.7
Turkey	4.4	4.5
United Kingdom	10.2	1.1
United States	9.4	0.7
Yugoslavia	2.9	0.0

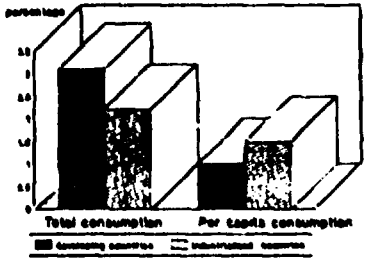
Source: UNIDO database

Notes: * Wages were converted to US dollars at 1980 exchange rates and deflated by the consumer price index. † 1988.

Figure 2.2
Consumption of leather footwear, 1975-1990



Annual growth rates of consumption, 1975-1990



Source: see Appendix Table A.2
country data and explanation of methods

Box 2.2 Long-term trends in consumer preferences

Tastes are influenced by changing living styles which can have positive or negative effects on leather use. Until the 1950s, for example, luggage was a conspicuous travel companion present in a ship's cabin or in a train compartment. Appearance is important today but mass tourism is not so favourable to the use of leather luggage because of weight and damage in handling, and because the luggage is hidden in a car or the freight deck of a plane.

Contemporary consumers have a preference for leather upholstery in their homes and cars. As the prices of automobiles and furniture rise, the additional costs of leather upholstery become a less significant component in the item's total cost. From the manufacturers' point of view, an extra $1,000 to install leather upholstery in a $30,000 or $40,000 automobile is well spent when the added customer appeal is taken into account.

Leather's strong appeal to consumers increases the marketable value of items but there are also drawbacks. One is that attempts to extend the raw material base by reducing the quality selection can result in a poorer image. The luxury profile of leather products also means that markets are vulnerable to movements such as the animal-rights campaign, which has been so successful in the case of furs.

Japan is another market where the pattern of consumption is unique. The number of shoes purchased by Japanese consumers is the lowest of all industrialized countries. Cultural differences, along with the popularity of non-leather footwear in Japan, would presumably explain this anomaly. Elsewhere, the pattern of consumption seems to be loosely related to the level of income with the richer economies reporting higher levels of per capita consumption and/or higher rates of growth.

The relationship between income and footwear consumption has been tested in a more rigorous manner with the help of a regression model.* Results show that for every one per cent rise in per capita income, ownership of leather footwear increases by about 0.82 per cent. In other words, the demand for leather footwear grows at a slightly slower pace than the average for aggregate consumption. Income, of course, is not the only determinate of consumption. Growth of population will also enlarge the market for leather footwear. Consumption is expected to rise in proportion to any increase to population and to grow by about fourth- fifths of any proportionate increase in per capita income.*

In conclusion, the world's markets for leather footwear are growing, albeit slowly. However, the pace of growth could accelerate in the future: per capita consumption in developing countries is only about a

sixth of the level in industrialized countries and will increase as income rises. Various factors such as climatic conditions or a relatively weak preference for leather could mean that consumption never reaches the levels attained in industrialized countries. The sheer thrust of demography, combined with even modest gains in per capita income, are nevertheless bound to shift the weight of world consumption towards the developing countries. Long-term changes in production and consumption will have implications for productivity, and patterns of specialization. These characteristics are discussed in the concluding section of the chapter.

The leather industry's role in the manufacturing sector

Leather and leather products represent only a small portion of all manufacturing activities. According to table 2.4, the two branches account for just over 1.6 per cent of total manufacturing value added (MVA) in the developing countries and less than one per cent in the industrialized countries.

Though the industry is small, some countries are relatively specialized in either leather-making or the manufacture of leather products. Table 2.4 illustrates this fact with the help of a measure known as the index of relative specialization. An index value substantially greater than unity implies that the country is relatively specialized in that branch, while a value less than unity indicates relative underspecialization. Estimates for industrialized countries are generally low: Italy, Portugal, South Africa and Spain are the only ones with a clear pattern of specialization. In each case, the industry is rather well integrated in the sense that there is specialization in both branches.[9] The production pattern in developing countries tends to be more fragmented. Some countries, such as Argentina, Columbia, Ecuador and Iran are relatively specialized in the manufacture of leather but have no corresponding specialization in footwear. In others, the reverse is true.

This feature reflects a combination of historical conditions and supply characteristics. Industrialized countries with an ample domestic supply of hides and skins and expertise in product design and distribution have become highly specialized. Several developing countries also have large supplies of hides and skins and a specialization in tanning and finishing. Others are relatively important producers of standardized footwear

Table 2.4 Size and relative degree of specialization in the leather industry[a], 1989 (Percentage and ratios)

Country or area	Leather and leather products (ISIC 323)		Footwear (ISIC 324)	
	Share in MVA 1989	Index of relative specialization 1989[b]	Share in MVA 1989	Index of relative specialization 1989[b]
Industrialized countries	0.31	0.76	0.43	0.70
Australia	0.21	0.51	0.43	0.70
Austria	0.26	0.63	0.66	1.07
Belgium	0.12	0.28	0.14	0.22
Canada	0.16	0.38	0.34	0.56
Czechoslovakia	0.46	1.13	1.35	2.19
Denmark	0.13	0.31	0.34	0.55
Finland	0.22	0.52	0.55	0.89
France	0.28	0.68	0.76	1.24
Germany, Federal Republic of	0.23	0.55	0.25	0.41
Hungary	0.53	1.28	1.14	1.85
Ireland	0.21	0.50	0.36	0.58
Israel	0.33	0.80	0.51	0.82
Italy	1.02	2.48	1.66	2.71
Japan	0.15	0.37	0.14	0.22
Netherlands	0.29	0.71	0.21	0.35
Norway	0.18	0.45	0.08	0.12
Poland	0.59	1.43	1.82	2.97
Portugal	1.55	3.76	2.83	4.61
South Africa	0.32	0.78	0.88	1.44
Spain	2.17	5.28	0.99	1.61
Sweden	0.09	0.23	0.07	0.11
United Kingdom	0.29	0.71	0.48	0.79
United States	0.17	0.41	0.15	0.24
Developing countries and areas	0.54	1.30	1.06	1.72
Argentina	0.86	2.08	0.33	0.53
Brazil	0.46	1.12	0.87	1.42
Chile	0.34	0.83	1.54	2.51
Colombia	0.63	1.53	0.42	0.68
Cyprus	2.52	6.12	5.52	8.99
Ecuador	0.71	1.73	0.37	0.61
Egypt	0.05	0.12	0.80	1.31
Honduras	0.85	2.05	0.68	1.10
Hong Kong	0.36	0.87	0.42	0.68
India	0.28	0.68	1.04	1.70
Iran (Islamic Republic of)	0.71	1.72	0.51	0.84
Kenya	0.51	1.24	0.92	1.49
Korea, Rep. of	0.48	1.17	0.75	1.21
Mexico	0.88	2.13	2.02	3.29
Panama	1.00	2.41	1.38	2.24
Singapore	0.06	0.13	0.11	0.18
Turkey	0.20	0.48	0.22	0.36
Yugoslavia	0.92	2.24	2.60	4.23
Zimbabwe	0.33	0.79	2.55	4.16

Sources: UNIDO database.

Notes: [a] All figures are based on data in constant 1980 prices. [b] The index of relative specialization is the country's share in world production in the given branch divided by that country's share in world MVA; for purposes of this calculation, "world" is defined to be the total of all countries shown here.

but import their raw materials. Only a few developing countries such as Brazil, Mexico and the Republic of Korea have achieved some degree of specialization in both parts of the industry.

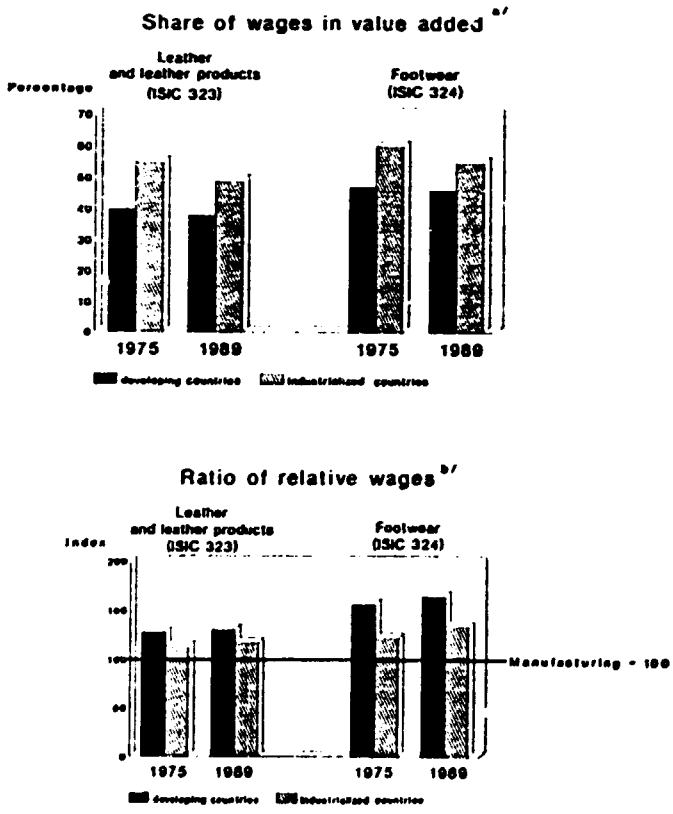
The relative cost of labour is thought to be another important determinant of production patterns. Figure 2.3 provides data on this characteristic. The average share of wages in value added has declined slightly in both industry branches and country groups. A more informative way of looking at labour costs is to compare the industry's wage bill with that for the manufacturing sector as a whole. On average, there has been very little change in this industry's relative wages since 1975. Labour's share in value added is greater than the average for all manufacturing and increased slightly since the mid-1970s. Firms within the industry may have introduced some labour-saving innovations (a fact implied by the declining share of wages in the total value added for each branch) but these steps have not matched the pace of similar adjustments in other manufacturing industries.

Estimates for individual countries do reveal some rather significant changes between 1975 and 1989 (see appendix table A.3). Interpretation of these results is not straightforward, however. For example, a substantial increase in the relative wage ratio would be expected if producers have clung to the same product lines and production technologies during a prolonged period of wage rises. However, the same would be true for firms that chose to move into higher value-added products but, in doing so, were required to employ more skilled workers (thus raising the wage bill).

In conclusion, we have examined three distinctly different features of the global map. A prominent feature is the rather extensive changes in the geographical pattern of production over the past two decades. One interpretation of this shift is that the availability of raw materials acts as a magnet for producers (F. Schmel, 1990, p.16). This view implies that the location of tanning, finishing and manufacturing operations is closely linked to the local availability of raw materials. An alternative explanation attributes the changing pattern to the fact that the manufacture of leather products is a footlose set of operations. Manufacturers have relocated to areas where labour is cheap and tanners and finishers have followed them.

In the case of consumption, attention has focused on the all- important market for footwear. Like production, consumption has grown slowly and world demand is dominated by conditions in industrialized

Figure 2.3
Indicators of labour costs in the leather industry 1975-1989



Source: see Appendix Table A.3

a/ Wages include salaries

b/ Defined as the branch's ratio of wages in value added relative to the ratio of wages in value added of all manufacturing

countries. Footwear markets in these countries are saturated, with most growth being in response to changes in fashion and style. The global pattern of consumption could be markedly different by the end of the next decade, however. Shoe consumption in developing countries is only a sixth of the level in rich countries. Modest gains in per capita income, coupled with continued increases in population, should lead to substantial growth in the demand for standardized footwear.

Finally, the industry's operations have been pictured in relation to total manufacturing activity. Leather continues to be a relatively labour- intensive activity in all countries. Patterns of specialization differ between rich and poor countries, however. Only a small number of industrialized economies have a relative degree of specialization. Those that do tend to have a rather well-integrated industry, carrying out various types of tanning activities as well as the manufacture of footwear and other leather products. Very few of the developing countries which specialize in this industry can make the same claim. Large differences in labour skills or production technologies do not appear to explain this structural difference. Long-term success depends mainly on the country's ability to make adjustments in the product mix or to move downstream into products with greater value added. In fact, the division of labour between producers of standardized products, luxury products and those specializing in upstream operations is becoming sharper all the time. This development has important implications for patterns of trade, a subject which is addressed in the following chapter.

Endnotes

1 The evidence on this point is not clear. First, many new technologies are not only cleaner but also more efficient, meaning that modernization and pollution control are not always contradictory goals. Second, differences in the environmental performance of firms in industrialized and developing countries may not be as great as some presume. Multinationals, for example, are not always free to choose the types of production technologies they use at different sites. Differences in production technologies pose problems which can discourage this practice. Stockholders are sometimes critical of the multinationals' environmental record and may object to the use of "dirty" technologies at sites in developing countries. In any case, some developing countries have also begun to impose tighter controls on pollution. For further discussion, see Ballance and Forstner, 1992

2 Hides and skins produced in India are primarily taken from fallen animals

and, therefore, tend to be of rather low quality.

3 Tanning is the most capital intensive of the three stages. Capital requirements, however, are modest in comparison with other manufacturing activities, and the investment for start up is not a serious barrier to new entrants in developing countries.

4 Countries in Eastern Europe are important producers of shoes but were not classified as high or low wage economies owing to the fact that wage rates and prices within the industry were determined by planning exercises rather than market forces. These countries are included in the table for completeness.

5 Offshore production may take two forms. In some instances, it involves ownership by foreign partners; for example, manufacturers or distributors in Germany, Japan or the United States may have an equity position in factories operating in Portugal, China, the Dominican Republic or elsewhere. In others, collaboration is limited to assistance in design, marketing and distribution, but the foreign participant has no equity. This is usually the case in the Republic of Korea and Taiwan Province.

6 Some large countries like Indonesia are not shown in appendix table A.2. This does not mean that the countries do not consume significant quantities of shoes. The indicators of consumption refer only to leather shoes which are industrially produced (and therefore reported in industrial statistics); non leather shoes and handicraft products are not considered.

7 The equation was estimated using a sample of 99 countries data for 1970 and 1990. The traditional demand model assumes that a homogeneous relationship exists between quantity consumed and total income. Such a model ignores other variables that might impact on consumption. In this particular case, income was redefined as the product of population and per capita income (measured by GDP per capita). When the expression is divided by population, the result is an equation relating per capita consumption (c) to population (N) and per capita income (y). That equation can be stated as follows

$$ln(c) = A + [(e_y - 1) \times ln(N)] + [e_y \times ln(y)]$$

where *ln* denotes the natural logarithm and e_y is the income elasticity of demand. This equation was estimated using restricted least squares, due to a linear restriction on the coefficients. The initial results are shown below

	1970	1990
e_y	0.94	0.90
e_y-1	-0.06	-0.10

The income elasticity (e_y-*1*) of demand, which was statistically significant at the .01 level of confidence, was 0.94. Such a result implies that 1 per cent increase in per capita income would yield 0.94 per cent increase in per consumption. However, the population coefficient indicates that 1 per cent increase would yield 0.10 per cent *decline* in consumption. That result is due to the cross sectional nature of the sample; namely, larger countries such as China and India have smaller per capita consumption levels. Since the dependent variable is per

capita consumption, the population variable represents a structural shift between large and small countries. The fact that the shift coefficient is small, or even negative, is reasonable. In order to account for this anomaly, the equation was re-estimated without the population variable. In that case the income elasticity of demand was found to be 0.83 for 1970 and 0.82 for 1990. Again, the estimate was statistically significant at the 0.10 per cent.

8 Further tests showed that the relationship between per capita consumption and per capita income did not differ between countries by stage of development. To examine this question, the regression model was re-estimated for western industrialized countries and developing countries. The restricted model yielded very similar results - the estimated income elasticity of demand for industrialized countries was 0.80 while that for developing countries was 0.86. For the restricted model (that is, without the population variable) the income elasticity of demand for the developing countries (0.61) was almost twice that of industrialized countries (0.34).

9 France, which is specialized in footwear but not leather and leather products, is the only industrialized country which is an exception to this rule.

CHAPTER THREE

Patterns of World Trade

Production and consumption may have grown at a rather slow pace over the past two decades but the industry's trade has been expanding briskly. There are at least two reasons for the markedly different trends. First, the major markets for finished products continue to be in industrialized countries though there has been a rapid growth of production capacity in developing countries. Second, many of the newer producers of semi-finished and finished products (particularly footwear) have no domestic source of raw materials. These recent entrants are predominately export-oriented and rely on imports of leather or hides and skins.

Developments such as these have had important implications for trade. This chapter begins by examining the pattern of growth and direction of trade. These changes point to underlying shifts in the pattern of competition and raises questions about the nature of rivalries in home and foreign markets. These issues are examined in the second section, while the results of a more detailed investigation of intra-industry trade (IIT) is presented in the third section. IIT occurs when a country simultaneously imports and exports the same item, be it raw materials, semi-finished or finished products. In industries where IIT is especially large, the determinants of trade performance are thought to differ from the situation which consists of the exchange of entirely different items. The chapter concludes by looking at some of the more important policies which influence trading patterns.

Growth and trading patterns

Trade has grown at a surprisingly brisk pace. According to table 3.1, the industry's exports have increased significantly faster than the world's trade in all manufactures. Such an achievement is remarkable, particularly in view of the fact that manufacturing trade was itself growing at an unprecedented pace. Most regions shared in this impressive performance; only Japan reports rates of growth below those for total manufacturing.

Footwear accounts for over half of all the industry's exports. In this category the developing countries have flourished. Led by Asian suppliers, their exports of footwear grew at an annual rate of more than 19 per cent in the period 1975-90. Trade in bovine leather and leather apparel accounts for a much smaller portion of exports though here again the developing countries' share in world markets has grown.

Rapid gains such as these imply corresponding changes in trading patterns. Table 3.2 provides a matrix showing growth rates for major importers and exporters by product category. Developing countries in South and East Asia are some of the most dynamic markets in the world. Much of this trade is intra-regional; in fact, several Asian countries have developed large leather-making and manufacturing operations but import hides and skins.

Suppliers outside the region have also benefitted from the region's dynamism. Firms in West Europe and North America have seen a substantial increase in their Asian exports of hides, skins and leather.

Latin America's trade performance has been less impressive. The region has a large resource base and is a big producer of hides and skins. Its exports of these materials have not grown at a commensurate rate, however. This is partly due to the ban on overseas sales of hides imposed by certain countries.[1] Latin American suppliers of leather and footwear experienced some strong growth in overseas markets although they are loosing out to Asian competitors in a number of cases. Nor have they succeeded in developing many foreign markets for wearing apparel.

The volume of trade between North America and Western Europe is large, but is growing slowly in comparison with the other regions. Europe remains an important market for North American producers of leather and manufactures. European firms, however, have lost a substantial portion of the North American market to exporters in developing countries.

Table 3.1 Trade in leather and leather products, 1975 and 1990[a]
(Million of United States dollars and percentage)

Region or economic grouping	Bovine hides and skins SITC 2111 and 2112		Bovine leather SITC 6113 and 6114		Footwear with leather uppers SITC 85102		Leather apparel SITC 8413		Manufacturing sector SITC 5-8	
	Exports 1990	Annual Growth rate 1975-1990	Exports 1990	Annual Growth rate 1975-1990	Exports 1990	Annual Growth rate 1975-1990	Exports 1990	Annual Growth rate 1975-1990	Exports 1990	Annual Growth rate 1975-1990
World	4,059	11.6	6,131	14.5	20,106[b]	13.1	5,482	13.9	2,324,183	10.9
North America	1,738	12.1	711	15.9	345	13.8	113	10.2	359,767	9.9
EC	1,441	11.2	2,858	13.9	10,696	10.8	1,137	9.1	1,102,475	10.7
Other Western Europe	195	10.2	311	12.0	634	6.7	77	5.4	184,137	10.4
Eastern Europe and USSR	160	21.8	26	36.4	102[b]	1.1	30	3.6	35,045	2.1
Japan	1		159	3.5	30	1.6	11	...	277,397	11.6
Other industrialized countries	365	9.3	253	25.2	26	16.9	21	2.9	28,402	10.6
Developing countries	159	11.5	1,813	17.3	8,272	19.2	4,094	17.5	336,960	16.0
Africa	35	4.9	33	14.4	98	14.2	59	14.0	14,480	10.6
Latin America	43[b]	11.2	942	15.2	1,295	13.6	114	6.7	52,167	13.4
South and East Asia[c]	76	24.3	815	21.0	6,216	25.7	3,248	19.3	241,188	18.3
Western Asia	5	20.4	3	6.4	48	12.9	640	16.5	15,180	12.3

Source: UNIDO

Notes: [a] The coverage of countries within geographical groups relates to the availability of trade data in 1975 and 1990, and can vary between product groups. [b] Estimate. [c] Excludes re-exports.

Table 3.2 Growth of exports by product group and region, 1975-1990[a] (Annual percentage growth rate)

Exporter/product group[b]	Exports to North America	Western Europe	Japan	Latin America	South and East Asia
North America					
Hides	8.0	3.4	10.8	6.8	20.0
Leather	5.5	17.3	42.2	13.6	25.7
Footwear	10.5	17.3	15.2	12.6	8.9
Apparel	2.5	21.0	27.5	10.0	17.1
Western Europe					
Hides	5.8	10.9	5.5	-2.6	45.2
Leather	15.9	12.5	24.1	5.9	33.3
Footwear	6.3	11.5	15.9	9.7	18.5
Apparel	8.7	7.3	24.7	9.6	24.7
Latin America					
Hides	25.3[c]	4.0	35.5	7.0	...
Leather	15.8	14.8	63.6	20.5	40.9
Footwear	13.1	17.8	22.9	16.3	56.4
Apparel	7.5	4.8	8.5	17.2	36.3
South and East Asia					
Hides	0.0	19.4	28.9	...	29.1
Leather	29.9	16.7	37.5	46.3	41.2
Footwear	26.3	26.6	23.6	34.7	24.5
Apparel	21.3	15.0	35.3	18.4	28.5

Sources: UNIDO.

Notes: [a] Growth rates are derived from exports in current United States Dollars. [b] "Hides" refers to bovine hides and skins (SITC 2111 and 2112) "Leather" refers to bovine leather (SITC 6113 and 6114). "Footwear" refers to footwear with leather uppers (SITC 85102) and "Apparel" refers to leather apparel (SITC 8413). [c] A number of major producers in Latin America have banned exports of hides. Growth rates are therefore derived from a very small absolute volume of exports.

Together, these two tables present a picture of an industry which has passed through a period of dynamic growth in trade. Manufacturers of footwear and leather products have seen their exports expand at a pace far greater than for most other industries. This success is matched by substantial changes in the direction of trade. A number of the world's traditional suppliers of leather and leather products have lost market share to new rivals in other parts of the world. Such developments have important implications for the industry. How are producers in different countries faring as competition becomes more intense in international markets? To what extent are producers in a country capable of meeting demand in their home market and succeeding in foreign markets? These questions are addressed in the following section.

Competition in domestic and foreign markets

The main purpose of international trade is to fill any gap which exists between domestic demand and supply. This function can be expressed in terms of the trade identity which relates consumption (C) and production (P) to exports (X) and imports (M) in the following manner:

$$P + M = C + X$$

The left side of the equation represents total supply (domestic production plus imports) while the right side indicates total demand accounted for by domestic purchasers (consumption) and foreign buyers (exports).

Table 3.3 shows rates of growth for trade, production and consumption in each of the industry's major product categories. The results carry the description in the previous section one step further: not only has trade been growing more rapidly than in other industries but it has also been increasing much faster than production or consumption. This pattern is replicated in most regions of the world, with trade in light leather and footwear growing especially fast.[3] Based on these results, underlying changes in the relationship between domestic demand and supply should be considerable.

In order to investigate this possibility, the trade identity in the equation above can be re-written as follows:

$$P/C = 1 + (X - M)/C$$

The left side of the equation shows the proportion of consumption satisfied by domestic firms. A relatively high ratio (unity or greater) can be explained in either of two ways. One possibility is that the industry is

Table 3.3 Growth of trade, production and consumption in the world's leather industries, 1970-1990 [a]
(Annual percentage growth rates)

Region or economic grouping	Bovine hides and skins				Light bovine leather				Footwear			
	Q	C	M	X	Q	C	M	X	Q	C	M	X
World	1.2	1.2	2.4	2.4	2.4	2.5	7.9	7.2	2.3	2.3	6.8	6.3
North America	-0.2	-4.0	-0.1	2.4	-2.2	-3.0	4.3	9.7	-3.4	3.3	8.4	5.0
EC	0.7	-0.3	1.5	3.9	2.5	3.8	8.1	5.2	0.7	1.5	7.0	3.5
Other West Europe	-0.3	-1.3	1.9	2.2	0.8	-1.3	2.1	6.4	-1.7	2.6	5.8	2.7
Eastern Europe and USSR	2.4	1.5	0.2	19.5	2.3	2.3	1.6	-3.3	0.9	1.0	1.1	-0.3
Japan	1.6	0.0	-0.2	11.7	1.5	-0.8	18.8	6.1	1.6	2.9	18.8	-5.9
Other industrialized countries	0.5	0.5	-12.0	0.0	2.8	0.5	5.7	15.6	-0.7	-0.3	4.6	4.7
Developing countries	1.8	3.2	8.0	-0.4	3.6	3.6	11.8	8.3	5.6	5.9	7.6	14.9
Africa	1.7	2.9	-0.1	-2.9	3.2	2.9	5.6	8.4	3.7	3.3	2.9	10.4
Latin America	1.4	2.1	0.3	-7.7	2.7	2.6	12.0	4.5	5.1	3.2	2.1	14.3
South and East Asia	2.4	4.6	14.0	8.7	4.8	4.7	12.8	12.2	6.2	4.3	16.4	17.6
Western Asia	2.9	2.7	0.4	0.4	3.8	5.0	13.3	8.5	4.3	4.1	-2.4	12.4

Sources: Food and Agriculture Organization of the United Nations, 1992 World Statistical Compendium for Raw Hides and Skins, Leather and Leather Footwear, 1972-1990; SATRA, World footwear Market 1991; information supplied by the European Federation of the Footwear Industry; and UNIDO estimates.

Notes: Q denotes production; C refers to consumption; M represents imports; and X is exports.

[a] Growth rates are calculated from quantities.

effectively isolated from international markets. The ratio of production to consumption would then be around unity but the portion of output which is exported (as well as the share of imports in consumption) would be negligible. The home industry is unlikely to be internationally competitive in these circumstances; imports might be limited by foreign exchange constraints or other restrictions. A second, more realistic, situation arises if firms are highly competitive in international markets. When the home industry is large in relation to the domestic market, P/C will be around unity or greater, the share of exports in production will be sizeable (X-M > 0),and the proportion of consumption met through imports will be low or even negligible.

Aside from these two interpretations, the meaning of the production/consumption ratio is subject to two qualifications. First, space requires that the ratios shown here are expressed as regional averages. That practice which can mask large differences in the competitive abilities of individual countries of a region. Second, the meaning becomes somewhat complicated if a large portion of trade does not relate to the exchange of different products but consists of intra-industry trade (that is, the simultaneous exchange of raw materials, semi- finished or finished products between firms at different stages in the industry). This phenomenon is discussed in more detail in the following section, but for present purposes, such a condition would mean that no inferences can be made about the competitive position of the industry. The ratio would still provide information on the balance between domestic demand and supply, though more detailed information would be needed to assess other industry characteristics.

Subject to these qualifications, the relationships between exports, production, imports and consumption can provide useful information about the industry's performance. Ratios for three of the most important product categories are found in table 3.4. Just over 36 per cent of all bovine hides and skins are traded internationally. In a few markets (for instance, North America) production far exceeds consumption. That region also exports a large portion of its output, and imports are rather small in relation to consumption. This combination of indicators suggests that producers are able to meet a significant portion of domestic needs and are relatively competitive at the raw material stage. Various Western European countries also have P/C ratios of (C) which exceed unity, although their imports are large in relation to consumption. In Africa and Latin America, production is sufficient to meet regional needs, but exports have generally not been encouraged and no

Table 3.4 Measures of self-sufficiency and competitiveness in major product categories, 1990 [a]
(Ratio)

Region or economic grouping	Bovine hides and skins			Light bovine leather			Leather footwear		
	X/P	M/C	P/C	X/P	M/C	P/C	X/P	M/C	P/C
World	0.368	0.378	0.985	0.463	0.455	1.014	0.310	0.319	0.987
North America	0.776	0.164	3.738	0.796	0.756	1.192	0.103	0.835	0.184
EC	0.792	0.822	0.855	0.476	0.589	0.783	0.605	0.606	1.002
Other Western Europe	1.260	1.495	1.905	0.929	0.925	1.050	0.755	0.930	0.286
Eastern Europe and USSR	0.107	0.200	0.896	0.004	0.084	0.920	0.072	0.082	0.989
Japan	0.011	0.850	0.148	0.615	0.216	2.035	0.015	0.241	0.770
Other industrialized countries	0.733	0.027	3.647	0.558	0.479	1.178	0.015	0.163	0.850
Developing countries	0.106	0.276	0.810	0.557	0.490	1.152	0.346	0.076	1.413
Africa	0.159	0.047	1.134	0.159	0.146	1.016	0.091	0.093	0.996
Latin America	0.026	0.083	0.941	0.379	0.108	1.436	0.325	0.021	1.450
South and East Asia	0.175	0.464	0.650	0.835	0.823	1.072	0.398	0.100	1.497
Western Asia	0.070	0.187	0.875	0.003	0.265	0.738	0.040	0.004	1.037

Sources: Food and Agriculture Organization of the United Nations, 1992 World Statistical Compendium for Raw Hides and Skins, Leather and Leather Footwear, 1972-1990; SATRA, World footwear Market 1991; information supplied by the European Confederation of the Footwear Industry; and UNIDO estimates.

Notes: [a] Ratios are derived from quantities.
X/P is the share of exports to production; M/C is the ratio of imports to consumption; and P/C is the ratio of production to consumption.

inferences can be made about suppliers' competitive status in markets for raw materials.

Several developing countries are major producers of bovine hides although this fact is concealed when regional averages are calculated. Countries such as Argentina, Brazil and India have imposed export embargoes to encourage more local tanning of the raw material. The objective is to increase the proportion of value added contributed by local firms. At the other extreme are countries with large tanning operations which are supplied through imports of hides and skins. Such a situation is represented by P/C ratios that are less than unity, coupled with large amounts of imports in relation to consumption.[3] Examples include: China, Italy, Japan, Republic of Korea, Portugal and Spain.

Light bovine leather is the industry's most important intermediate product. The proportion of world production which enters international markets is larger than for hides and skins - roughly 46 per cent.[4] Japan and a few Western European countries produce more than they consume, but all industrialized countries have moderate-to-large amounts of imports. Latin America is perhaps the only region which appears to be competitive and self-sufficient in this product category. India is one of the few other countries with a home industry that meets most of its domestic needs in leather markets. In general, imports tend to be significant even in those markets where production matches consumption.

Estimates for footwear must be interpreted somewhat more cautiously than those for other product categories owing to weaknesses in the underlying data (see box 3.1). Subject to this qualification, table 3.4 indicates very few markets where the domestic industry is dominant in the home market. Latin America and South and East Asia are the two exceptions. Both regions produce substantially more than they consume. They appear to be self-sufficient and competitive, with large amounts of exports and negligible imports.[5]

The situation in industrialized countries is markedly different. In North America imports account for a large portion of consumption (84 per cent in 1990), while exports are negligible. Western European countries are both large importers and exporters. Some, for example, Italy, Portugal and Spain, are highly competitive with the volume of exports exceeding imports by significant amounts. Others like France, Germany, Netherlands and Switzerland are net importers.

Finally, there are several regions where the relationship between production and consumption of footwear is determined mainly through

relative isolation from world markets. Production generally meets domestic needs without significant volumes of trade. Regions and countries falling into this group include: Africa, Japan, Eastern Europe (excluding USSR) and Western Asia.

In conclusion, the links between domestic production and consumption, as well as the openness to competition, vary widely from one product category to another. This characteristic is likely to be even more pronounced in the future as the international division of labour and product differentiation becomes more intricate.

Box 3.1 Statistical ambiguities in data for footwear

Trends in markets for footwear and leather products are more difficult to determine than for other parts of the industry. One problem is that data for footwear and other leather products is mingled with that for products made partially of materials such as plastic, textiles or rubber. Another is that estimates of market size and levels of consumption require data for both production and trade, although the two statistical systems define each product category differently. Thirdly, the amount of non-leather material included in products such as shoes, handbags, luggage or personal goods varies according to the market and over time. These variations can be substantial and depend on changes in fashion which cannot be foreseen.

Intra-industry trade

The foregoing discussion has described the industry's trade in an aggregate sense that provides information on the degree of trade openness. Such a picture is useful but a more detailed investigation is necessary in order to gain some impression about the underlying determinants of trade performance.

There are numerous theories suggesting all sorts of different determinants, but in a loose sense most of these will fit into one of two categories. Traditional economic theories explain a country's trade performance in terms of resource endowments, workers' skills or superior technologies. These explanations are mainly concerned with trade aggregates, meaning that performance is evaluated on an industry-wide basis. More recently, analysts have come to recognize that trade successes can also depend on a second complementary set of determinants. The latter include: economies of scale, degree of product differentiation, differences in quality and related characteristics of firms and plants. This particular line of reasoning calls for a more detailed breakdown of exports and imports.

The latter approach, which is the subject of this section, is concerned with intra-industry trade (IIT). Such trade is defined as the simultaneous import and export of products that are close substitutes, whether these are intermediate inputs such as leather or final products like shoes or wearing apparel. By examining patterns of IIT and comparing its rates of growth with aggregate or inter-industry trade, we can obtain some impression of which types of determinants are more important for the leather industry.

At first glance, the existence of IIT seems peculiar. Why would a country simultaneously be an importer and exporter of products from within a single fairly homogeneous industry? Economic logic suggests that an industry with a comparative advantage should be an exporter while one with a comparative disadvantage will be an importer. Analysts have offered numerous reasons for the existence of IIT. The two most widely accepted explanations are: (1) IIT occurs because products are highly differentiated and their markets are therefore distinct,[6] and (2) IIT is a statistical artifact owing to the way trade data is compiled and reported.[7]

Trade which results from product differentiation is regarded as a "true" or genuine form of IIT and can occur in various ways. For example, a country may produce large amounts of finished leather which is of superior quality. Domestic manufacturers turn out high-fashion leather goods using this leather. Firms catering to the lower end of the home market must import leather of low or average quality, while the country's tanners export some finished leather of superior quality. Similarly, if a country's entire industry produces goods of superior quality, most finished products of low to moderate quality will be imported. It is also possible that countries import and export different types of high-fashion products and models at the same time. Even in very narrowly defined markets - for example, women's leather handbags - there would still be ample opportunity for IIT based on product differentiation.

The second explanation for IIT is based on a different line of reasoning: statistical artifacts give rise to IIT when trade statistics are reported only for broadly defined groups of products with heterogeneous characteristics. Imports and exports of tanned leather, for example, are usually lumped together in a single category even though unfinished and finished leather are essentially different products. In fact, much leather is traded after both the first and second tanning. Similar cases can arise in other product categories such as:

bovine hides and skins (exports of cattle hides and imports of calfskins), sheepskins and lambskins (which are reported together), goatskins and kidskins (reported together), and sheep and goat leather (reported together). Trade of this type does not depend on product differentiation and is not regarded as a genuine form of IIT.

When measuring IIT, economists frequently use the following index:

$$IIT = \frac{\sum_{i=1}^{n} (X_{ij}+M_{ij}) - \sum_{i=1}^{n} |(X_{ij}-M_{ij})|}{\sum_{i=1}^{n} (X_{ij}+M_{ij})}$$

where X represents exports, M is imports, i refers to the individual country, j represents the product category and there are n countries in the group. If either exports or imports do not exist, the value of the index is zero and the country has no IIT. When exports and imports are equal, the index is unity and all trade is of IIT.[8]

The way in which this measure is interpreted is straight forward. A relatively small index value means that product differentiation and other reasons for IIT are of little significance. Competitive abilities and international differences in comparative advantage would be the main determinants of trade in that case. Conversely, a relatively large index value suggests that considerations such as product differentiation, quality differences, economies of scale and other micro-economic determinants of trade are important.

The indices in table 3.5 show some large variations, both among regions and product categories. A fifth of all trade in bovine hides and skins is IIT, but the share is much greater in Western Europe.[9] The European outlier results in part from the fact that some imports are later re-exported. Trade of this type is determined mainly by middleman profits; it does not depend on comparative advantage, the existence of imbalances between production and consumption, or intra-industry considerations.

The situation is quite different for bovine leather. IIT accounts for almost two-thirds of world trade with especially large shares reported for North America, Japan, Western Europe and some Asian countries.[10] There are several reasons for this result. First, both light and heavy leather are included in this category. The two items are essentially different products; most countries require some of both and trade accordingly. Second, manufacturers of footwear and leather products tend to specialize in either high fashion or standardized

Table 3.5 Indices of intra-industry trade [a] in main product categories, 1990

Region or economic grouping	Bovine hides[b] and skins	Bovine leather[c]	Leather footwear[d]	Leather apparel[e]
World	0.20	0.63	0.21	0.21
North America	0.10	0.84	0.08	0.10
EC	0.37	0.73	0.31	0.42
Other Western Europe	0.69	0.74	0.51	0.24
Eastern Europe	0.09	0.25	0.20	0.35
Japan	...	0.85	0.08	0.02
Other industrialized countries	0.05	0.63	0.19	0.31
Developing countries	0.06	0.36	0.09	0.11
Africa	0.37	0.19	0.09	0.19
Latin America	0.15	0.13	0.12	0.15
South and East Asia	0.04	0.46	0.05	0.12
Western Asia	0.06	0.17	0.19	0.01

Sources: UNIDO.

$$IIT = \frac{\sum_{i=1}^{n} (X_{ij}+M_{ij}) - \sum_{i=1}^{n} |(X_{ij}-M_{ij})|}{\sum_{i=1}^{n} (X_{ij}+M_{ij})}$$

Notes: [a] The index is defined as follows:
where X represents exports, M is imports, i refers to the individual country, j represents the product category and there are no countries in the group. If either export or imports do not exist, the value of the index is zero and the country has no IIT. When exports and imports are equal, the index is unity and all trade is of the intra-industry variety. [b] SITC 211.1 and 211.2. [c] Includes both heavy and light leather (SITC 611.3 and 611.4). [d] Footwear with leather uppers (SITC 851.02). [e] SITC 841.3.

products and their diverse leather requirements give rise to IIT. Third, many firms are specialized. They buy in semi-tanned leather from foreign suppliers and export finished leather.

Trade in finished goods (leather footwear and leather apparel) include a much smaller IIT component - about a fifth of the world total. Western European countries such as France, Germany, Italy, the Netherlands and the United Kingdom report the largest shares. Manufacturers tend to be specialized, producing either high fashion items, standardized products, or a combination of both. European consumers also have a relatively wide range of preferences with substantial demand for products of varying quality.

Table 3.6 concludes this examination of IIT by comparing rates of growth for IIT with those for "gross trade" (defined as exports plus imports). At the world level, gross trade is growing faster than IIT in three of the industry's four major product categories. Such a finding is somewhat surprising since it is counter to the evidence for most other industries and implies that inter-industry trade is more dynamic than its intra-industry counterpart.[11] The results also suggest that there are systematic differences between countries. IIT has been growing faster among firms in developing countries than for those in industrialized ones. In two product categories, bovine leather and leather apparel, the developing countries' IIT has also grown more rapidly than gross trade.

In summary, this survey of IIT tells us several things about patterns of trade, the nature of competition and the underlying determinants. First, the bulk of the industry's trade is inter-industry in character. This implies that competition is mainly (though not exclusively) based on price and that the underlying determinants are conventional ones which reflect differences in comparative advantage. The only exception is leather, where IIT is the dominant form of trade. Factors such as product differentiation, quality differences and close international links between firms are more important in this particular product category. Price considerations and other conventional determinants of competition ability are also important but less so than in other parts of the industry.

Second, contrary to the experience in most manufacturing industries, IIT is not growing as rapidly as inter-industry trade. This result applies mainly to industrialized countries, however. Among firms in developing countries, much of the trade expansion is intra-industry in character. The precise reasons for this demarcation would require detailed study

Table 3.6 Comparative rates of growth for intra-industry trade and gross trade in major product categories, 1975-1990[a] (Annual percentage growth rates)

Region or economic grouping	Bovine hides and skins SITC 2111 + 2112		Bovine leather SITC 6113 + 6114		Leather apparel SITC 8413		Footwear with leather uppers SITC 85102	
	IIT	Gross Trade	IIT	Gross Trade	IIT	Gross Trade	IIT	Gross Trade
World	9.7	11.9	15.5	14.7	12.0	14.0	11.8	13.1
North America	8.2	11.8	16.2	14.4	10.2	14.9	13.8	14.1
EC	10.0	10.9	14.2	14.6	11.7	10.7	11.5	11.6
Other West Europe	9.6	10.0	9.5	9.4	6.5	8.4	9.5	10.1
Eastern Europe and USSR	2.3	8.2	37.2	9.8	11.8	8.9	19.7	7.8
Japan	39.9	10.9	29.8	7.2	-2.1	25.7	1.6	17.7
Other industrialized countries	6.4	9.2	20.6	19.0	17.3	7.7	16.1	9.8
Developing countries	19.6	21.0	27.9	19.0	26.1	18.1	17.8	20.0
Africa	19.9	12.1	17.5	20.0	22.6	13.7	7.3	5.3
Latin America	12.2	1.4	16.5	15.2	18.4	8.3	20.6	14.3
South & East Asia	19.3	22.2	45.0	22.1	27.3	20.0	13.0	25.3
Western Asia	2.6	6.2	8.8	17.8	11.2	16.3	14.9	15.2

Sources: UNIDO.

Notes: [a] Intra-Industry Trade is defined to be $\sum_{i=1}^{n}(x_i+m_i) - \sum_{i=1}^{n}|x_i-m_i|$, while gross trade is defined as $\sum_{i=1}^{n}(x_i+m_i)$; these two expressions are the numerator and the denominator, respectively, for the index of IIT discussed in the text; calculations are based on trade in current United States dollars.

of conditions in individual firms and countries. Growing multinational involvement or systematic differences in the conditions governing entry, minimum efficient scale of operation, and firm behaviour and objectives could all play a role and their net effect is unclear.[12]

Finally, the results provide some basis for speculation about future changes in the industry's pattern of trade. Several factors will probably lead to accelerated growth of IIT in the future. They include: a greater emphasis on the quality of inputs, environmental pressures on leather tanners which lead to increased specialization (see chapter 5), and the steady expansion of international links between firms. In the longer run the growth of income in developing countries will also contribute to more intricate patterns of consumption as the richer consumers opt for more high-fashion items. This, too, should boost IIT. Eventually, the industry's trading patterns should more closely resemble that in other parts of the manufacturing sector.

Trade restraints

Previous sections have examined trade performance and looked at some of the broader economic determinants of trade. Trade policy also has a role to play and the concluding section considers this subject.

From the discussion in earlier chapters it is clear that production in some industrialized countries is stagnating. In these circumstances it would not be surprising to see a steady increase in imports. The slow growth of demand in these countries has limited importers' successes but firms in industrialized countries encounter another source of pressure; they are frequently unable to compete in price-sensitive markets for standardized products. Manufacturers facing such a combination of circumstances have typically reacted by seeking protection from imports. Large industries like steel, textiles or automobiles have been more successful in this endeavour than small ones like leather. Protectionism is nevertheless an important issue in particular countries and product markets.

In economic theory, an industry's pleas for protection from imports can be substantiated according to two different lines of argument. First, import restraints may be justified during an initial period when new firms are too small to compete effectively and have yet to master many of the skills and techniques of their larger and more experienced international rivals. Known as the "infant industry argument", such protection would be offered for a limited period of time - only long

enough for firms to acquire the size and experience needed to compete with foreign rivals. Second, protection may be needed in order to offset some degree of monopoly power - for example, when a single large producer is powerful enough to prevent entry or drive smaller competition out of the business.

Neither of these arguments is well suited to the leather industry. Firms in industrialized countries generally have a long history and ample experience in the industry. Moreover, the markets in these countries are mature, not embryonic, and generally consist of many small producers with little or no monopoly power. Tariffs, quotas and other forms of import restraint are nevertheless familiar aspects of the industry's trade. Questionable forms of protectionism are found in all countries, although the issue receives most attention in the large, industrialized markets of the world.

Tariffs are the most common form of protection and the simplest way of expressing their effect is in "nominal" terms - that is, the percentage increase in the price of the import as a result of the tariff. Nominal tariffs are generally low for imports of hides and skins, but they tend to "escalate" at each successive stage of production. The highest tariffs are therefore imposed on finished products such as shoes and leather garments. On average, the nominal tariff on imported shoes is reported to be around 9 per cent in the industrialized countries (Petri, 1988, p.60).

Such rates may be sufficient to exclude some foreign competitors, although the true amount of protection is usually much greater. One reason is that tariffs are frequently used in conjunction with other import restraints such as quotas. A second is that the nominal tariff does not represent the true burden on foreign competitors. Most economists argue that a more accurate indicator is the amount of "effective protection". This concept is measured by the nominal tariff in relation to the value added at each stage in the production process and not the gross value of the finished product.[13] Effective protection proves to be much higher than nominal protection, particularly when quotas are employed in conjunction with tariffs (see box 3.2).

Some critics of protectionism use Japan's trade policies to illustrate how parts of the leather industry can be effectively sealed off from foreign competition. That country protects its tanneries by using what is known as a "tariff-quota" system. Imported leather is subject to a fixed quota which is equivalent to 1-2 per cent of Japan's annual production of leather.[14] Tariffs of 15-20 per cent are also applied to the leather

which enters the country under the quota arrangement. Any additional leather imports (that is, over and above the quota) are subject to a tariff of 60 per cent. The system is further complicated by the fact that licenses for imports are issued only in small batches to a plethora of local importers. Japanese distributors that wish to import in large quantities must therefore "assemble" a quota by buying licences from others. This practice can add another 15 per cent to the existing trade barriers.

The arguments in support of these policies are fairly complex. Japan's trade barriers will probably be relaxed during the 1990s but its negotiators continue to argue that protection is required as a result of a complex mixture of economic and social policies.[15] The important point is that policy makers in any country may suddenly decide to erect trade barriers using a combination of tariffs, quotas and other restraints that effectively isolates the home industry from foreign competition.

These options are equally available to policy makers in developing countries, although markets are generally small and a much higher priority is attached to export earnings. In an effort to maximize export earnings, government officials may ban exports of hides, skins and, sometimes leather.

Box 3.2 Protectionist measures in footwear markets

Tariffs and quotas are the most familiar methods of limiting footwear imports but informal agreements, known as orderly marketing agreements and voluntary export restraints (VERs), are even more popular. In 1989 a total of 14 different VERs were applied by Canada, the EC and the United States. Exports from the Republic of Korea were involved in six of these agreements, and those of Taiwan Province in four.

When tariffs are combined with quotas or some other informal agreement, the level of effective protection can be substantial. For example, in the United Kingdom the nominal tariff of 3.6 per cent on footwear rises to 17.6 per cent after accounting for non-tariff restrictions. The combined effect of these measures yields an effective rate of protection on the value added by the shoe manufacturer of 41.5 per cent. See Ennew, Greenaway, and Reed (1990).

The creation of Europe's single market promises to complicate this issue. Brussels wants to harmonize, rather than abolish, national quotas on footwear imports. Several member states are worried about an influx of Chinese imports and have argued for stringent measures. Curiously, the quota proposal includes the lucrative market for athletic footwear, even though there is no EC production of "high tech" sports shoes. Major producers such as Nike and Reebok oppose the measure because their production facilities are widely dispersed, including several factories in China.

Their purpose is to force firms to move downstream into tanning and manufacturing where the value added content of exports is greater. Such an approach has been tried in Argentina, Brazil, India and other countries where domestic production of hides is substantial.

The logic of this approach is clear, but advocates of free trade and competitors in the industrialized world regard it as a subtle form of protectionism. They point out that a ban on the export of untanned leather increases the local supply and therefore reduces prices. The country's tanners and manufacturers of footwear and leather products would benefit in two ways. First, they obtain greater supply security; second, they enjoy a cost advantage since the domestic prices of their raw materials are artificially depressed by the export ban. The magnitude of any cost advantage is unclear, though studies by industry associations in industrialized countries suggest that it is substantial (see box 3.3).

Whatever the validity of this argument, there are certain disadvantages which must be weighed alongside the benefits of an export ban. These and related issues are discussed in the case studies appearing in chapters 8 and 9. The following chapter examines some of the industry's more important micro-economic characteristics.

Box 3.3 Export bans and raw material prices

Producers in industrialized countries argue that when exports of hides and skins are banned, domestic prices are "artificially depressed". In some Latin American countries they estimate that the ban leads to a fall in raw material prices of around 20 per cent. Since hides represent around 50 per cent of the cost of finished, tanned leather, tanners in the country would see their costs fall by about 10 per cent (assuming the estimates are accurate). The combination of artificially depressed prices for raw materials and cheap labour explains why the export prices of Latin American tanners are roughly 29 per cent below corresponding prices for tanners in the EC.

In 1990 producers in the United States succeeded in persuading their government to impose countervailing duties on the Argentina's exports of leather on the grounds that the latter's export ban on hides and skins represented a hidden subsidy.

Endnotes

1 The region's exports of hides and skins to Japan and South and East Asia have risen significantly although this reflects growth from a rather small initial level.

2 One exception is hides and skins, where Africa and Latin America report rates of growth for production and consumption which exceed those for trade.

Several African countries have export potential in this category but, so far, they have not exploited this possibility. Major producers in Latin America have discouraged the export of hides through policy measures.

3 Indicators for the South and East Asian countries are somewhat misleading because production figures are heavily influenced by the large measure of self-sufficiency in countries like India and Pakistan, whereas the high import-to-consumption ratio is sensitive to the figures for the Republic of Korea where the tanning industry depends on imported hides and skins.

4 Similar calculations for heavy bovine leather are not shown here. For the world as a whole, only 11 per cent of all production is traded while the same proportion of consumption is satisfied through imports.

5 Interestingly, over half of Asian exports of footwear are destined for Western Europe. A smaller proportion – around 38 per cent – goes to North America.

6 The existence of scale economies and product differentiation enables countries to specialize in different versions of a differentiated product. IIT results from the fact that in each country there is a demand for more than one version.

7 There are other explanations for IIT as well. Some of the more simple reasons include commodity arbitrage and trade which results from efforts to save on transport costs (known as cross hauling). These types of IIT are common but do not alter the demand and supply within a country. IIT may also result from international differences in comparative advantage. For example, some countries in Latin America export semi-tanned leather to buyers in Eastern Europe. Latin America is exploiting its comparative advantage in hides and skins, which cannot be exported directly because of government export embargoes. Italy's tanning industry includes a large number of very sophisticated micro-tanneries. Some of these tanneries specialize in leather finishing, and import their inputs (semi- tanned leather). This particular type of IIT is determined by the same forces as inter-industry trade and, like the statistical anomalies referred to in the text, is not regarded as a true indicator of IIT. Empirical estimates will necessarily include all these sources of IIT, even though some are not relevant for an understanding of the industry's trade performance. See annex II on measurement problems.

8 Trade statistics on the leather industry are available in two different forms. The United Nations compiles data according to the value of imports and exports, while FAO reports trade in quantities. The two sources also classify products in different ways. IIT indices were originally calculated from both sources and the results proved to be similar. Thus, only the indices derived from United Nations statistics expressed in values are presented in this chapter.

9 Africa also has a large IIT index but this result may be spurious. The region has very little trade in hides and skins and estimates are sensitive to any change in the volume of trade. A more general problem is that IIT figures for trade in

hides and skins may be overestimates. This is because the statistics do not distinguish between trade in cattle hides and calfskins. Because of this flaw, we can not determine whether IIT results from differences in quality or reflects exports of the heavier cattle hides and imports of the lighter calfskins.

10 The United States is a big importer of light leather from the EC, though it also exports significant amounts – mainly to Latin America. Such a pattern results from qualitative differences in the leathers being traded. This applies also to the Republic of Korea and Thailand, countries with an IIT index greater than 0.7. The European situation is more complex, being driven by middleman profits, differences in quality and a host of other considerations.

11 The exception is bovine leather, the only category where IIT accounts for more than half of all trade.

12 For a comprehensive survey of the macro-economic and micro-economic determinants of IIT, see Greenaway and Milner (1986), chapter 7.

13 In more formal terms the effective rate of protection (E_P) is defined as the increase in value added per unit due to protection as a proportion of the value added per unit with no tariff:

$$E_P = (V'_I - V_I / V_I$$

where V'_I and V_I represent value added per unit with a tariff and without a tariff respectively.

14 This amount is equivalent to only one day of Western European output.

15 Japan has agreed to raise the quota to around five per cent by 1997, but negotiators argue that tanneries must still receive substantial protection because they employ minority groups and these jobs must be protected.

CHAPTER FOUR

Internationalization and Specialization in Product Markets

Industries may become involved in international markets either through trade or foreign investment. In turn, the pressure of international competition leads to other changes, frequently requiring that manufacturers alter the priorities they assign to product markets. Specialization, for example, can serve as a means of deterring foreign competitors: firms attempt to establish control over particular market niches that are not easily penetrated by rivals. Alternatively, the decision to specialize can require that a firm actively seeks overseas markets or alliances in order to justify the costs of specialization. This chapter examines various aspects of internationalization and specialization in the industry's main product markets.

Markets for leather footwear

Like many other manufacturers, producers of footwear have begun to compete aggressively in international markets. Much of the impetus for this transformation derives from changes in the buying habits of consumers. As income grows, consumer spending rises but footwear generally claims only a small (and declining) portion of the additional purchases. Domestic markets are eventually saturated and further growth depends mainly on the number of consumers rather than their income levels.

A deterioration in the growth of demand often forces firms to look for new volume of imported footwear relative to domestic markets abroad. Market shares are then reshuffled, new trade flows are generated and the degree of competition intensifies. The success of footwear

producers in this new environment depends on their ability to boost exports while safeguarding their home market from foreign competitors. This feature is examined here in terms of two quantitative measures. The first is the export ratio which can be represented by the share of exports in output. The second is the import penetration ratio, which is defined as the proportion of domestic consumption satisfied by imports.

Table 4.1 gives global estimates of the export ratio in the footwear industry. The most striking feature is the measure's steady rise over time. Exports were only about an eighth of world production in 1968-1971, but by 1990 almost a third of all footwear was sold in foreign markets. These figures imply that some markets for footwear are being internationalized at a rather brisk pace. The number of exporting countries is few, however. Leather footwear is produced in more than 100 countries, but only 30 account for virtually all the world's exports.

The degree of internationalization may be limited but its consequences for major suppliers has been dramatic. For example, 20 years ago Italy and Spain accounted for more than half of the world's exports and trade in leather footwear was confined to a very few rich, western countries (see table 4.2). That is no longer the case. Brazil, Hong Kong, China, the Republic of Korea and Taiwan Province have 45 per cent of the world's exports, while the shares of most industrialized countries has declined.

This rearrangement of trading patterns reflects two broadly different lines of development. Producers in developing countries have gained market share by specializing in the mass production of standardized shoe models. They have a cost advantage in this submarket which results from low wages, effective management techniques, efficient operation of plants and adaptive engineering. A different approach has been followed in industrialized countries where domestic sales have slowed (usually because of greater imports of standardized shoes) and production has declined. These producers have responded by altering their product mix and by specializing in types of footwear that are less exposed to foreign competition. Product differentiation, however, requires large fixed expenditures on design and marketing. Because these outlays can seldom be recovered only through domestic sales, exports often receive the highest priority regardless of trends in the home market.

The two lines of development described here are depicted in figure 4.1. Countries or areas that lie above the 45 degree line have increased

Table 4.1 Export Ratios for the world production of leather footwear, 1968-1990

Period or Year	Export ratio (per cent)
1968-71	12.4
1972-74	14.6
1975	16.5
1976	17.4
1977	17.6
1978	18.4
1979	18.7
1980	18.3
1981	19.4
1982	20.4
1983	22.3
1984	25.6
1985	26.6
1986	27.2
1987	27.4
1988	28.0
1989	29.5
1990	31.0

Sources: Food and Agriculture Organization of the United Nations, 1992 World Statistical Compendium for Raw Hides and Skins, Leather and Leather Footwear. 1972-1990; SATRA: World Footwear Market 1991; information supplied by the European Confederation of the Footwear Industry; and UNIDO estimates.

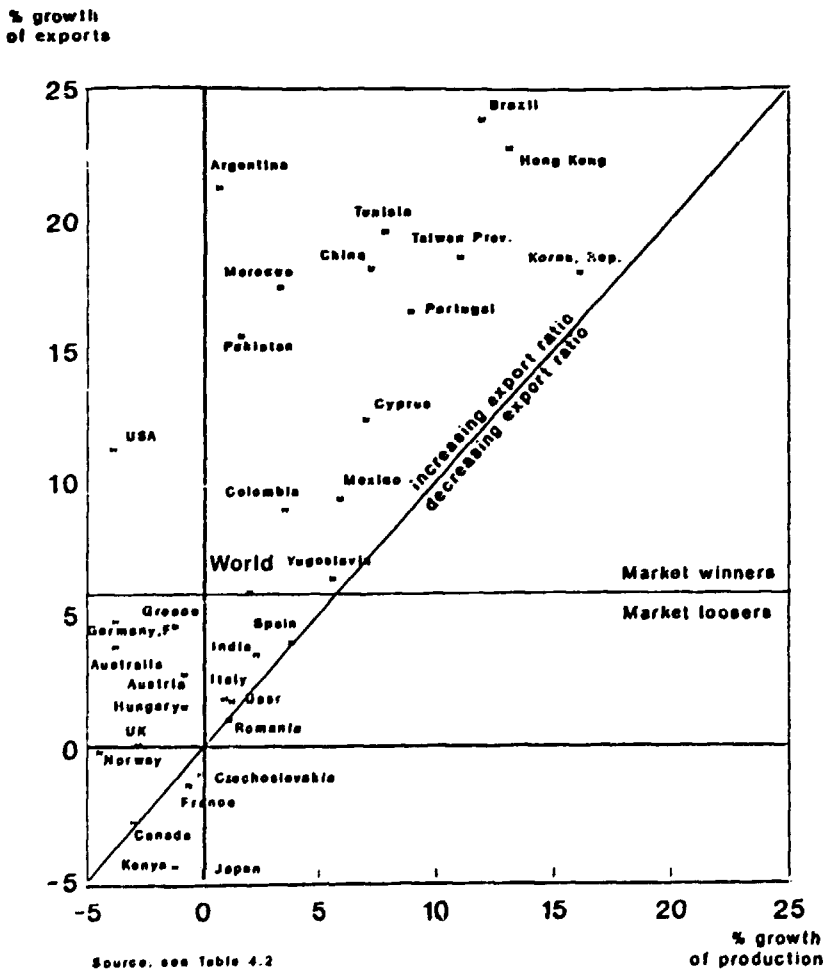
Table 4.2 The world's largest exporters of leather footwear, 1970 and 1990

Country or Area	Yearly growth rate (per cent) 1970-90	Exports[a] (million pairs) 1990	Share of world exports (per cent) 1970	1990	Cumulated shares (per cent) 1990
Italy	1.8	245.2	43.2	19.0	19.0
Republic of Korea	17.9	207.4	1.9	16.0	35.0
Brazil	23.7	143.0	0.5	11.1	46.1
Taiwan Province	18.5	108.1	0.9	8.4	54.5
Spain	3.9	77.7	9.0	6.0	60.5
Hong Kong	22.6	72.2	0.3	5.6	66.1
Portugal	16.4	69.4	0.8	5.4	71.5
China	18.1	41.8	0.4	3.2	74.7
Thailand	...	37.8	0.0	2.9	77.6
Yugoslavia	6.3	32.3	2.4	2.5	80.1
Germany, Federal Republic of	4.7	30.8	3.1	2.4	82.5
Czechoslovakia	-1.0	23.0	7.1	1.8	84.3
France	-1.4	19.4	6.4	1.5	85.8
Poland	1.6	19.0	3.5	1.5	87.3
Hungary	1.5	17.0	3.2	1.3	88.6
Indonesia	...	16.2	0.0	1.3	89.9
Romania	1.0	15.0	3.1	1.2	91.1
India	3.4	13.0	1.7	1.0	92.1
United Kingdom	0.1	12.2	3.0	0.9	93.0
United States	11.2	11.7	0.4	0.9	93.9
Netherlands	5.2	11.0	1.0	0.9	94.8
Austria	2.7	9.6	1.4	0.7	95.5
Morocco	17.4	5.7	0.1	0.4	95.9
Denmark	5.0	4.8	0.5	0.4	96.3
Mexico	9.3	4.0	0.2	0.3	96.6
Tunisia	19.5	3.5	0.0	0.3	96.9
Switzerland	1.8	3.3	0.6	0.3	97.2
Cyprus	12.3	3.0	0.1	0.2	97.4
Belgium	0.6	2.9	0.6	0.2	97.6
Greece	4.5	2.4	0.3	0.2	97.8

Sources: Food and Agriculture Organization of the United Nations. 1992 World Statistical Compendium for Raw Hides and Skins, Leather and Leather Footwear. 1972-1990; SATRA: World Footwear Market 1991; information supplied by the European Confederation of the Footwear Industry; and UNIDO estimates.

Notes: [a] Total exports of the countries and provinces shown here amounted to 1,262 billion pairs in 1990.

Figure 4.1
Winners and losers in the footwear market (1970-1990)



in their export ratio, while those above the horizontal line have seen their output grow more rapidly than the world average. Those that have managed an increase in both measures are mostly developing countries. Meanwhile, the exports of several industrialized countries were growing even though their share in world production was declining. In certain countries (for example, the Federal Republic of Germany and the United States) the contrast was even sharper; exports were rising despite an absolute decline in production. The interplay between various forms of internationalization and the lines of specialization gives rise to a variety of experiences which are summarized in box 4.1.

A more complete picture is obtained when attention turns to imports. Penetration ratios may be calculated using data expressed in volume (that is, the number of shoes) or in value. The two sets of estimates can differ and caution should be used in their interpretation (see box 4.2). Table 4.3 adopts the former approach, showing penetration ratios derived from the volume of imports. The overall pattern can be summarized in a few stylized facts. First, markets in Eastern Europe absorb only a minor portion of world imports (7 per cent in 1990) and the share has been falling - not because imports have diminished but because they have remained constant while trade in other parts of the world has flourished. Second, developing countries have never been significant importers. As the standard of living grows, higher income groups in these countries import more luxury footwear but domestic producers will continue to meet most of the market's needs. Finally, North America and Western Europe are by far the largest importers; together, they accounted for 83 per cent of the world total in 1990.[1]

The major feature demonstrated by table 4.3 is the striking progression of imports going to North America and Western Europe. The United States is the world's biggest market for footwear and has been a favoured target of Brazil's exporters. These suppliers were soon joined by others in Taiwan Province and the Republic of Korea. The United States responded in the early 1980s by attempting to contain the growth of imports through voluntary export restraints.[2] However, policy makers' efforts to stem this flow were frustrated by increased imports from non- controlled sources and a substantial over-valuation of the dollar.

Imports by Western European countries are as large as those of North America. Although the region's share has gradually increased, a more dramatic shift has been in the sources of supply. In 1970 Western Europe was largely a self-contained market with most trade occurring

between countries within the region. By 1990 producers in developing countries had become the major suppliers of footwear to Western Europe.

Box 4.1 A country typology of footwear producers

At least four groups of countries can be identified from the data in figure 4.1 and table 4.2. One group consists of countries such as Brazil, China and others where exports have grown rapidly. In some of these countries, for example, the Republic of Korea, the standard of living has been rising and domestic growth has spurred production of footwear. Others like Argentina, Colombia, Morocco and Pakistan have combined rapid growth of exports with modest gains in production. That situation is indicative of sluggish domestic sales or a narrow export line which confines growth to a small portion of total output.

In a second group are countries where the growth of exports and production has slowed. Import penetration is low because of the established reputation of the home industry (Italy and Spain), non-market advantages (Eastern European countries) or low wages (India).

A third category is represented by countries where production has contracted while exports expand. This pattern is typical when import restrictions are negligible and producers are specialized in specific export lines. The smaller countries in this group may export more than two-fifths of their production but the same is not true for larger countries where trade is marginal compared to domestic sales. The United States, for example, has found niches in specific differentiated products such as cowboy boots, comfortable outdoor moccasins and high-technology athletic shoes, which explains the unusual combination of contracting production and raising exports.

In the last category are countries where both production and exports are contracting. Increases in the export ratio suggests that a reorientation towards exports is taking place although, to date, it is not vigorous or not successful. Canada, France and the United Kingdom are examples.

Box 4.2 Estimating import penetration ratios

Most the industrialized countries' imports of footwear come from developing countries and are cheaply priced in comparison with domestic models. For example, in 1988 the penetration ratio for non-rubber footwear in the United States market was 80 per cent (United States Department of Commerce, 1989). A pair of shoes produced domestically was valued at $18.90 ex-factory, while the average price for a pair of imported shoes was $8.90 free alongside ship (f.a.s.). Assuming a tariff of 6 per cent and an additional 15 per cent for delivery to a United States port, the notional value of the imported shoes was $11.20. When imports are valued at this notional price, the penetration ratio becomes 68 per cent rather than a volume-derived estimate of 80 per cent. In general, estimates based on the value of imports tend to give a less dramatic view of market loss than those derived from volume data. Both versions can be useful indicators of the economic importance of market penetration.

Table 4.4 supplements this regional picture with information for individual countries. Because developing countries import very little

Table 4.3 Imports of leather footwear by region, 1970 and 1990

Region	Share in world (per cent)	
	1970	1990
Industrialized countries	95.4	91.9
North America	36.8	42.0
EC	30.7	35.3
Other Western Europe	7.6	5.8
Eastern Europe and USSR	19.1	6.6
Japan	0.1	1.3
Other industrialized countries	1.0	0.9
Developing countries	4.6	8.1
Africa	1.7	0.9
Latin America	1.0	0.5
South and East Asia	0.8	6.2[a]
Western Asia and other	1.1	0.5

Sources: Food and Agriculture Organization of the United Nations, 1992 World Statistical Compendium for Raw Hides and Skins, Leather and Leather Footwear, 1972-1990; SATRA, World Footwear Market 1991; information supplied by the European Confederation of the Footwear Industry; and UNIDO estimates.

Notes: [a] Most of this increase is the result of imports by Hong Kong.

Table 4.4 Import penetration ratios for leather footwear, 1968-1990

Category and Country	Import penetration ratios[a] (per cent) 1968-1971	1972-1974	1980	1985	1990
Category I					
Hungary	5	7	12	23	30
Poland	6	6	6	2	5
Romania	1	1	1	2	4
USSR	8	9	8	10	8
Category II					
Greece	0	0	2	15	26
Italy	1	1	7	9	21
Portugal	2	5	0	0	6
Spain	0	1	1	1	6
Yugoslavia	10	7	0	0	10
Category III					
Israel	4	5	8	11	11
Japan	1	2	4	4	24
New Zealand	8	8	12	7	33
Category IV					
Austria	26	45	100	87	90
Belgium	59	85	98	101	104
Canada	25	21	20	33	71
Denmark	53	64	75	92	103
Finland	16	21	47	63	78
France	13	20	40	49	58
Germany, Federal Republic of	33	46	68	77	89
Ireland	10	43	80	95	91
Netherlands	46	63	93	111	117
Norway	55	69	90	90	91
Sweden	70	76	83	94	100
Switzerland	47	63	83	88	97
United Kingdom	15	22	49	56	69
United States	19	26	49	78	84

Sources: Food and Agriculture Organization of the United Nations, 1992 World Statistical Compendium for Raw Hides and Skins, Leather and Leather Footwear, 1972-1990; SATRA, World Footwear Market 1991; information supplied by the European Confederation of the Footwear Industry, and UNIDO estimates.

Notes: [a] Import penetration ratio is defined as ratio of imports to domestic consumption; penetration ratios may exceed 100 per cent in cases where exports have a substantial import content.

footwear, their penetration ratios are low and only industrialized countries are considered. Those shown in the table fall neatly into four categories. Producers in Eastern Europe represent one distinct group. They import very little footwear and, with the exception of Hungary, penetration ratios have been stable over time.

Several Western European countries with rather low penetration ratios make up a second category. Portugal and Yugoslavia are moderately successful exporters, with a competitive advantage which depends on low wages. These producers have little to fear from outside competitors who might try to capture the sub-market for standard footwear. Meanwhile, domestic demand for top-quality products is limited by income. Italy and Spain are also important exporters though conditions in their home markets are quite different from those in Portugal or Yugoslavia. Import penetration has been low thanks to local consumers' clear preference for domestic products, the high quality of local production and the home industry's strong competitive position (even in standard footwear). Conditions are changing, however. Italy's imports have been rising (mainly as a result of higher wage costs) and the same could occur in Spain as the effects of wage increases and integration into the EC become apparent.

A third category is represented by countries such as Israel, Japan and New Zealand. Import penetration ratios were traditionally low, although this was not due to the domestic industry's competitive abilities. For a long time these countries remained aloof from the process of internationalization. Their producers were protected by tariffs, by distance, or the very smallness of their home market. This no longer seems to be the case as even these countries are being drawn into the process of internationalization.

The fourth category consists exclusively of industrialized countries. Most of the smaller ones have penetration ratios close to 100 per cent, meaning that imports cover almost all domestic consumption. A high level of imports is to be expected since consumers are rich and have a wide range of preferences that can only be partially satisfied by local manufacturers.[1] Larger countries in the group tend to have lower penetration ratios, between 50 and 80 per cent. This result is attributed to the fact that each country has its own unique footwear styles which are supported by relatively large numbers of consumers. The smaller countries tend to be more specialized but all members of the group have seen a substantial rise in penetration over the past two decades. In some cases the home industry has lost 40 to 50 per cent of its domestic

market. The steady gains of foreign suppliers have led many calls for stronger measures to restrain imports. The effectiveness of such methods - and the benefits for the country as a whole - are questionable, however (see box 4.3).

As markets for leather footwear have become more international, the degree of competition has intensified and firms have proved to be adept at product differentiation. Thanks to specialization, a number of producers in high-wage countries have been able to increase exports even while they lost market share. Such tactics require a variety of engineering skills, both for product design and adjustments of production process, as well as a substantial network for distribution and a well-financed advertising campaign.

Producers of standardized footwear face a different mixture of constraints and options. Intense competition depresses the price of the final product while conditions in the markets for raw materials and leather mean that input prices are firm. As a result, the value added per pair of standard shoes is necessarily small. Suppliers of standard shoes are forced to increase productivity or reduce costs through greater economies of scale. Both options are difficult to sustain in industrialized countries where wages are high and the market for shoes is growing slowly. In summary, production of standard shoes is bound to join the convoy of senescent industries such as crude steel and cheap apparel which is steadily gravitating towards low-wage countries.

Box 4.3 Leather supply and substitute materials in the footwear market

The dependence of leather tanners and finishers on footwear manufacturers was underlined by the development of portmonerie materials in the 1960s. Dupont launched the new material because it expected a huge shortfall in the availability of hides for use in footwear. The firm calculated that a high-priced sophisticated microporous synthetic could fill this anticipated gap.

Dupont's launch coincided with a shift in footwear fashion in favour of patent leather. For shoe manufacturers, portmoneries had a number of distinct advantages. The materials came in continuous rolls, in regular widths and without surface defects or colour variations. It soon became clear that portmoneries did not represent an additional source of raw material supply but, rather, a substitute for leather which could destroy the latter's market. In response, makers of leather sought to develop alternative markets and leatherwear was one which received a high priority.

Markets for leather garments

Markets for leather garments were of little significance until the early 1970s. Their importance has grown, though producers still account for only a minor portion of the industry's total output. Nor are these firms major users of tanned leather, requiring only 12 to 13 per cent of world supplies in the late 1980s.

The subsector has also suffered from the sorts of pressures experienced in other parts of the industry. The location and geographical pattern of production began to change rapidly in the first half of the 1970s. A combination of policy decisions and technological advances was behind the restructuring. The most important factor was the decision by policy makers in several developing countries to embark on a programme to generate more value added in leather processing. The price of raw materials on world markets soared following Argentina's decision to rebuild cattle stocks and suspend hide exports.[4] Initially, this development was of little consequence for producers of leather garments since sheepskins were their main source of supplies. Shoe manufacturers, however, were hard hit and reacted in a conventional manner by switching first to cheaper leather and later to synthetics (see box 4.3). The amount of leather used in shoe uppers was reduced by 15 per cent and, despite the general decline in raw materials, a surplus of hides was created. Leatherwear proved to be the immediate gainer as manufacturers began to use leather from both sheep and cattle. Technological advances reinforced these supply-side developments. The Japanese succeeded in splitting hides as thin as 0.6 millimetres without loss of tensile strength. With that innovation, tanners were able to offer garment manufacturers a thin, flexible and soft leather with a large cutting area. Such characteristics simplified the tasks of matching colour and texture and led makers of leatherwear to commit themselves to a wider range of raw materials.

Consumers' preference for leather forced manufacturers to resume use of the material for shoe uppers. The supply of hides began to fall after the American kill peaked in the mid 1970s. Demand among manufacturers of footwear, garments, upholstery and other articles remained strong with the result that supply conditions were tight. Makers of leather garments were perhaps most sensitive to supply constraints: they were now committed to greater use of hide leather and their costs increased as hide prices rose.[5]

Firms in the United States and Europe (particularly in the Federal Republic of Germany and the United Kingdom) embarked on a search for overseas sub-contractors and/or suppliers of cheap finished leather to be used in garments. As their purpose was simply to reduce costs, sub- contractors with access to cheap, skilled labour were just as attractive partners as those having an abundance of raw materials. Many of the new suppliers were leather tanners and finishers based in developing countries which had no local source of raw materials. Hong Kong, for example, became one of the world's largest suppliers of leather garments (see box 4.4).

Korean tanners were also quick to establish links with manufacturers and distributors in industrialized countries. They soon emerged as the world's leading producer of garment hides as well as a major manufacturer of garment leather. In their initial enthusiasm, many of the country's tanners overreached themselves and later went out of business.[a] Those that remained, re-equipped themselves and proved to be very competitive, claiming more than two-thirds of the Japanese market for garment leather.

Producers in developing countries with ample supplies of hides and skins were also quick to recognize opportunities in markets for leatherwear (see box 4.5). Turkey, with an abundance of sheep and goat skins, began to produce low-cost leather garments in the 1970s. The industry faltered in later years but recovered in the 1980s following a round of joint ventures with companies in the Federal Republic of Germany and the United Kingdom. Turkey is currently one of the world's 10 largest producers of leather garments and among the five largest exporters while India and Pakistan saw their exports grow between threefold and fourfold in the 1980s.

Box 4.4 Exports of leather garments: the success of Asian suppliers

Hong Kong is one of the world's largest exporters of leather garments, although it relies almost totally on imported leather. Exports tripled between 1983 and 1988 and rose another 57 per cent in 1989. Hong Kong's firms export mainly to Japan where they specialize in a quality range which is slightly above that of Korean suppliers but below the European standard. This enables them to take advantage of the move to higher quality products by many Japanese consumers.

However, a number of the new tanners proved to be inexperienced and poorly equipped for small-skin tanning. Their position was later undercut when garment makers in the Republic of Korea turned to Europe for bovine leather.

Box 4.5 Development of Western markets for leather apparel

Until the 1970s leather was predominately used only in garments with special applications. Virtually all producers were located in North America or Western Europe and worked almost exclusively for domestic buyers. The market's parochial nature was swept aside in later years. This fact is evident from the data in box table 4.6 which shows how world imports have soared in the years since 1967. Major markets such as the Federal Republic of Germany, Switzerland and the United states have experienced rapid expansion, although they have not kept pace with the growth of world trade.

Box table 4.5 Imports of leather apparel[a], 1967-1988

	Value of imports			Percentage of total		
	1967	1972	1988	1967	1972	1988
Item	(million of dollars)					
World imports	102.8	404.3	4,796.2	100.0	100.0	100.0
United States[b]	48.2	154.0	1,375.8	46.9	38.1	28.7
Germany, Federal Republic of	7.5	109.1	959.5	7.3	27.0	20.0
Netherlands	4.8	25.5	124.2	4.7	6.3	2.6
Switzerland	6.6	18.7	183.3	6.4	4.6	3.8

Source: UNIDO, based on data supplied by UNSO.
Notes: [a] data refer to SITC 841.3. [b] f.o.b.

Some resource-rich countries like Pakistan and India have sought to develop markets for leather garments mainly as a means of adding value to their leather production. In most cases, garment manufacture was regarded as an extension of leather-making operations. To encourage the move into finished products, India and Pakistan provide cash subsidies and cash rebates for garment exports.

Export success created its own set of problems: production is frequently constrained by supply shortages. Turkish firms, in order to secure additional supplies, have now started joint ventures with companies in Western Asia and North Africa for the manufacture of garment leathers. Meanwhile, India and Pakistan supplement their own supplies with imports of raw materials from Europe, New Zealand and elsewhere. Policy makers in India have also imposed a ban on exports of finished leather.

Among the industrialized countries Italy and Spain have excelled in the market for leatherwear. Despite high wages and the rising costs of environmental protection, the two countries' exports doubled between

1982 and 1987. Both countries succeeded in boosting exports through product differentiation and greater specialization. Design flair, production quality and product performance are the characteristics which brought success to Italian and Spanish firms.

Italian production of leatherwear, as in shoemaking, is centred on a large number of small firms. All work closely with tanners and retailers to produce well designed, versatile, high-quality garments. The manufacturers are therefore able to respond quickly to fashion changes, which is one reason why they have maintained market share despite low-cost competition from Asia. Italian producers have not escaped supply-related problems, however. Their tanners rely heavily on imported skins - particularly wet-blue, crust and semi-finished leather from India. The latter's restrictions on exports of hides (imposed in 1991) could therefore be painful. The Indian export ban may eventually force Italian firms to turn to joint ventures in finished garments or abandon this source of supply.

Spain's garment makers have attained a reputation in design and styling of garments which are manufactured to high standards. The country's speciality leatherwear firms have also established an international presence. Spanish tanners have contributed to this success through product differentiation which makes extensive use of their large domestic supply of high quality lamb and sheepskins. A speciality is production of fashion-oriented lightweight lambskins with both wool and suede being finished in the latest colours.'

Producers in developing countries have had less success in product differentiation. Turkey effectively exports garments through its tourist trade though its industry's products have a generally poor image in foreign markets. Today, the quality range for Turkish garments is greater than that of most competitors but the bulk of trade is anonymous, being carried out under European labels. Firms in the Republic of Korea export a large portion of their garments to Japan and the United States where they have staked out the lower end of the quality range. As incomes rise consumers are moving up-market and the product range may soon have to be adjusted accordingly.

Producers in India and Pakistan have had to overcome different problems. In Pakistan, the rise in labour costs put firms at a disadvantage which they have tried to offset by promoting closer cooperation with Indian producers where wages are lower. Both countries have an abundance of raw materials but the quality varies widely. The two countries can be regarded as successful exporters but neither has

established a wide reputation for high quality and this fact has hindered their ability to maximize export earnings.

In conclusion, newcomers to the garment industry can follow several routes into the market, though they probably have fewer options than producers of footwear. The choices available to firms in other parts of the industry are also unique as the following discussion makes clear.

Markets for leather upholstery

Upholstery makers accounted for only about five per cent of the world market for leather in the late 1960s, but like producers of leather garments, their share has steadily grown. Leather is mainly used in domestic furniture, contract furnishing (which includes office furniture and related commercial applications) and automobiles. Each of these markets is distinct, having its own demand characteristics and distribution methods.

World production of leather upholstery nearly doubled during the 1980s and by the end of the decade was more than 71 million square metres. Almost half of this amount is used in household furniture, another 30 per cent is found in automobiles and 20 per cent is taken up in contract furnishing.[8] According to table 4.5, around 90 per cent of world production occurs in only five countries. Of these, the Federal Republic of Germany is the only supplier which did not manage a large increase in output during the last decade. Other important producers are: Argentina, Australia, Brazil, Japan, South Africa, Sweden and Thailand.

Growth of the subsector has been largely demand-driven, though producers have contributed to this process through improvements and the development of new applications. Demand for leather furniture in industrialized countries multiplied in the 1980s as incomes soared and house purchases rose. The emergence of specialist furniture stores and chains was both a consequence and a contributor to market growth. First- time house buyers in Western Europe proved to have a decided preference for leather furniture; as much as a third of new home owners in the Federal Republic of Germany and Scandinavia choose leather. Older households with high incomes also prefer these products for replacement furniture.[9]

The nature of demand in the automobile market has a quite different focus. Traditionally, car manufacturers have tried to reduce costs by greater uniformity of assembly. Any option that fell below five per cent

Table 4.5 Production of upholstery leather in selected countries (in million sq meters)

	Austria	Germany, Federal Republic of	Italy	United Kingdom	United States*	Total
1980	1.6	8.7	9.8	2.0	11.0	33.1
1981	1.6	9.5	9.2	2.3	11.2	33.9
1982	1.8	10.3	11.0	2.6	13.1	38.8
1983	2.2	11.7	10.5	2.7	16.7	43.8
1984	2.5	11.6	17.1	3.3	17.6	52.1
1985	2.5	11.0	17.0	3.4	17.6	51.5
1986	3.0	11.0	22.3	3.7	14.7	54.7
1987	3.2	11.4	23.1	4.8	16.9	59.6
1988	3.9	10.2	23.4	5.0	16.7	59.2
1989	4.2	9.5	27.7	5.3	17.0	63.7

Sources: Data supplied by the International Council of Tanners.
Notes: * Calculated from cattle hide products.

of the production run was usually dropped. Leather upholstery became a rarity with this policy, being used only in the top end of model ranges. Thanks to automation and more intense competition, leather upholstery has made a partial recovery.[10]

The geography and varied nature of the markets served give rise to several characteristics which distinguish this sub-sector from others. First, upholstery markets have a much narrower geographical base than those for footwear or leather garments. Second, producers must cater to several distinctly different types of markets. Product design, distribution and other operations are therefore more fragmented than in other parts of the industry. Third, makers of leather upholstery require hides of the highest quality. World supplies are limited and most come from Europe, North America or Australia. South America supplies some of the best hides but tanners in many developing countries lack access to the proper materials.

It follows that manufacturers are rather specialized, both geographically and in terms of the markets they serve. There is little evidence of any drive to internationalize as can be observed in other parts of the industry. Some of the reasons why manufacturers have retained a regional or national perspective result from differences in national markets involving income, buyers' preferences and patterns of ownership. National differences in technical standards have also slowed the spread of production. Governments and industry associations in industrialized countries impose different standards with regard to flammability, tensile strength and flexibility. The variety of standards makes it difficult for new start-ups in developing countries to compete.

The most stringent standards are imposed by automobile makers which set their own requirements. These take into account local conditions and engineering considerations, both of which may be awkward to the upholstery supplier.[11] Even more important is the fact the automobile industry is still concentrated in industrialized countries and subcontracts to local suppliers. As parts of this giant industry move to developing countries, upholstery making should expand (see box 4.6).

In conclusion, the extent and speed of internationalization and specialization has been impressive. Producers of footwear have seen the most rapid changes. The reasons are straight forward: markets for shoes are ubiquitous and many consumers have several pairs which differ according to style and purpose. These attributes make it relatively easy for firms in different parts of the world to differentiate their

products either in terms of price, quality or function (for example, sport shoes, leisure shoes and so on). Markets for leather garments are perhaps even more sensitive to concerns about fashion and quality, though the bulk of demand for these products is limited to the richer consumers in industrialized countries. Nevertheless, suppliers in some developing countries are important. They produce either garment-quality leather or leatherwear itself which eventually finds its way into the hands of consumers in the richer markets.

Producers in these particular segments have followed two different routes into the industry. One version, which could be described as a "collaborative approach", is exemplified by the experience of resource-poor countries. Firms in these countries require massive imports of hides and skins, a cheap but relatively skilled work force, and strong links with manufacturers and/or distributors in industrialized countries. The other approach retains more independence and is common in countries which have their own supplies of resources. Here, producers rely heavily on exports but also on the domestic market in the case of footwear or sales to tourists in the case of garments. Hong Kong, the Republic of Korea and Taiwan Province have opted for the former alternative, while India and Pakistan have taken a more independent line. Turkey, at least in the case of its garment-producing companies, has followed a combination of both approaches.

Box 4.6 Foreign supplies of leather upholstery for cars

The automobile industry is an important user of leather upholstery and its significance is likely to grow in the future. Few car makers, however, rely on imported leather upholstery. Thailand, which has an abundance of high-quality buffalo hides, supplies leather for use by Mercedes. Japan, despite its enormous car production, imports most of its leather from the United States and Europe although Japanese-made leather is now being used in Toyota's Lexus. Car makers in the Republic of Korea have also begun to use locally made upholstery leather, but the country's tanners have yet to begin exports.

The world's markets for upholstery depend on a different set of circumstances which distinguish it from the others considered here. Specialization is extensive but the degree of internationalization is not great. The demand for leather upholstery is confined to a smaller number of countries than that for garments. Yet another factor which has limited the spread of upholstery operations is the fragmented nature of demand. Significant differences in tastes, preferences and fashions exist in major markets. While suppliers for homes, offices and

automobiles must meet different criteria with car makers having particularly unique and stringent requirements.

Each of these markets therefore illustrate the interplay between demand and supply which contributes to patterns of internationalization and specialization. The following chapter carries this idea further, looking at various strategies which firms in the leather industry have adopted in their efforts to succeed.

Endnotes

1 The figures for Asian developing countries and areas also seem to indicate an opening to imports but this impression is largely a statistical artifact. The bulk of imports of these countries' and areas (83 per cent of the total) consists of footwear exported from China to Hong Kong and then re-exported to the United States and Europe.

2 Voluntary export restraints are really a commitment by one country's producers to limit the volume or value of their exports to an agreed ceiling in the market of another country (the importer). To encourage agreement, the importing country may hold out the possibility of harsher trade restrictions. Thus, voluntary export restraints are not always "voluntary".

3 In some of these countries the domestic production of footwear has almost disappeared.

4 The situation was aggravated by a world shortage of grain and cattle feed.

5 In the late 1960s the approximate composition of end-users' markets for leather was as follows: garments (3 per cent), upholstery (5 per cent), leather goods (15 per cent), saddlery, chamois and mechanical uses (7 per cent). Once a successful marketing campaign was mounted, leather became a preferred fashion material. Since then, garment manufacturers have accounted for between 10 and 14 per cent of the global market for leather. Surveys of buying habits in France, Germany, Italy, Spain and the United Kingdom show that about 60 per cent of the population possesses at least one leather garment.

6 World prices of hides collapsed in the late 1980s when demand switched from hide leather to sheepskin leather. Many of Korea's tanneries were inexperienced and poorly equipped for small-skin tanning and were forced out of business.

7 A succession of warm winters at the end of the 1980s drastically cut sales of double-face garments and caused serious difficulties. However, Spanish garment leather tanners demonstrated a large measure of flexibility by switching to nappa and suede leathers based on their own hair-sheep type skins and on imported lambskins from New Zealand, UK and France.

8 There is also a small market for leather as furnishings in aircraft – mainly executive transport and other privately owned planes. The market for such uses is growing rapidly but is very small and is not considered here.

9 Different markets have distinguishing characteristics, however. In the United States, for example, domestic and imported Italian furniture is cheaply priced in relation to income. Thus the move up-market occurs sooner than in Europe.

10 Leather's share of the European car market is traditionally higher than in the United States (10 per cent compared to 5). This is generally due to the fact that Europeans

regard the car as a luxury while Americans see it as a necessity. Car makes fitted with leather upholstery include: Rolls Royce, Jaguar, Jensen, Mercedes, BMW, Audi, Saab, Volvo, Renault, Peugeot, Citroen, Lancia, Ferrari, Maserati, Cadillac, Buick, Toyota, Nissan and Honda.

11 Volvo, for example, is concerned about fogging because of the prevailing weather conditions in Scandinavia. Nissan, on the other hand, is interested in softness and flexibility while General Motors has one set of standards for Europe and another for North America. Technical specifications vary with regard to colour fastness, light fastness, finish adhesion, resistance to sweat, alcohol and so on.

CHAPTER FIVE

Corporate Strategies in a Changing World

Linkages between the various stages and product markets which make up the leather industry create an intricate and constantly changing pattern of competition. The internationalization of markets and the willingness of governments to intervene through policy decisions further complicate the picture. Against this background, companies must fashion their own strategies to maintain or bolster profitability and market shares.

Given the range of circumstances and forces operating within the industry, any description of the strategic options necessarily requires some simplifications. A number of broad characteristics or trends that lend a certain measure of commonality to strategic decisions of individual firms can nevertheless be identified. Examples include similarities in demand patterns, product characteristics and production technologies. National policies, although they may differ in methods of implementation, have similar objectives in many countries. In other instances strategic decisions may be taken in collaboration with other firms, including foreign ones, and this practice too contributes to the degree of commonality.

The effective life-span for any particular strategy is limited by policy decisions and events in the market-place. The options, however, represent more than a series of short-run tactics examined from slightly different perspectives. Any strategy, once adopted, can not be quickly abandoned. For the sake of clarity, it is useful to distinguish between different strategies according to the variable which is the focus of attention. Costs, production processes, product characteristics, distributional capabilities and organizational aspects of the firm are the

variables singled out here. In practice, firms never confine their decision to a single variable: the decision to pursue one strategy does not preclude others. This chapter begins with a brief discussion of the changing nature of competition and then examines several generic strategies for different parts of the leather industry.

The nature of competition: A long-term perspective

For more than two decades the leather industry has been characterized by growing internationalization of markets and the migration of production capacity from industrialized to developing countries. Intense competition within the industry is not a recent phenomenon, although the international dimension of the process is relatively new. The period between 1950 and 1970 saw a massive shift in the location of leather-related industries: producers moved from rich northern European countries to the Mediterranean basin and from the northern part of the United States to the south (see box 5.1).

There were several reasons why relocation was accomplished with remarkably little acrimony. First, unemployment was not severe in countries where the industry was contracting. Policy makers were happy to release a labour-intensive industry to make room for more capital-intensive ones. Second, markets for major products such as footwear were growing rapidly. Some producers were losing market share but this merely meant that they were growing slower than their competitors. Third, the industry was still confined to the industrialized countries where differences in the cost of labour or materials were minimal. With similar technologies and cost structures, no firm had a dominant position. Price-cutting - the most drastic form of competition - was therefore not a long-term option. In this environment there were few firms large enough to exert much impact on the behaviour of others. Short-term competition occurred (mainly to resolve temporary problems) and cost-cutting was not unknown, though it was rare that a single producer acquired any significant degree of market power.

The circumstances today are different. Demand in industrialized countries is stagnating and any loss in market share means that firms shrink in absolute terms. Contraction can also have wide-ranging consequences since the leading producers of footwear, garments and upholstery may employ significant numbers of workers, and their exports earn substantial amounts of foreign exchange. Finally, the basis for competition has changed; firms now depend on vigourous price-

cutting tactics, aggressive advertising and rapid product development.

Box 5.1 Structural trends in an earlier period: the case of footwear

So long as markets for footwear were buoyant, even firms that were losing their market share were still able to increase production. Box table 5.1 shows a significant fall in the number of factories and employees in several countries although production rose substantially in most cases. Italy and Spain were among the big gainers. The pattern was similar for tanners. As recently as 1986, 90 per cent of the EC's tanneries were found in Greece, Italy, Portugal and Spain.

Box table 5.1 Employment and output among producers of leather footwear in selected countries

Country	Year	Number of factories	employees	Production (1,000 pairs)
Netherlands	1950	369	15,000	10,000
	1970	123	10,000	23,000
Sweden	1950	259	11,000	11,000
	1970	34	2,000	5,500
Germany, Federal Republic of	1950	740	80,000	78,000
	1970	739	84,000	150,000
France	1950	660	43,000	68,000
	1970	320	50,000	137,000
Italy	1950	1,800	15,000	40,000
	1970	7,840	235,000	295,000
Spain	1950	1,440	41,000	20,000
	1970	1,790	32,000	99,000

Source: Boon, G.K. (1990), table 7.10

Companies of unequal size, and with differentiated forms of competitive advantage are constantly at work to improve their position or to gain a greater share of the richer markets. As the room for manoeuvring becomes global, the strategies grow more complex. Opportunities for investment or acquisition are constantly monitored. So, too, are technological developments, commercial trends, and the behaviour of competitors. Producers still strive to improve their competitive position in traditional ways - for example, by economizing on inputs, modernizing production processes, diversifying products, cutting prices, or mounting advertising campaigns. However, they also enter into alliances with other firms. These moves may help to offset the strengths of a rival, gain control over a particular group of suppliers or distributors, or ensure a

stronger position in a particular range of products.

The internationalization of markets has also meant that firms must pay more attention to international policy. Strategists must take into account the decisions of governments and international organizations responsible for trade, policy and investment. For example, they must consider whether access to the North American Free Trade Agreement will be restricted, what implications the new single market of the EC will have, and the problems and opportunities which will emerge in Eastern Europe. Scenarios like these concern the future, but anticipatory behaviour is already taking place today.

Reasons for the marked change in the competitive environment have been explored in previous chapters. Very briefly, the rules of competition were altered as newcomers in developing countries began to claim a greater share of world markets. These firms succeeded for two reasons. First, their manufacturing costs were significantly lower than those of competitors in industrialized countries. Productivity of the new entrants was also low, but cheap labour rates and raw materials, along with the generous export incentives offered by governments, were sufficient to offset these weaknesses. Second, producers in developing countries made an enormous effort to overcome natural barriers to exporting in the form of "transaction costs" (see box 5.2). On the supply side, they mastered the arcane problems associated with international dealings and adjusted to their requirements. On the demand side, improvements in marketing systems, production processes and product design have borne impressive results.

The process of internationalization which followed from these events occurred in several stages. In the first phase, Brazil emerged as one of the world's largest suppliers of leather shoes while Korean and Taiwan Province became large-scale producers of leather garments. The pace of internationalization accelerated in the second phase when leather athletic shoes became fashionable. Asian countries were already manufacturing rubber and canvas shoes, and soon became the leading suppliers of leather athletic shoes as well. In the third phase, firms in industrialized countries began to move their plants to sites where labour costs were lower. Preferred sites included the European periphery (Portugal, Tunisia, Turkey) and the Caribbean. In the fourth and current phase, new Asian suppliers in China, India, Indonesia, Pakistan and Thailand have begun to export finished products of leather.

Box 5.2 Transaction costs as a barrier to exports

All economic exchanges encounter problems of information and enforcement of commitments. Known as transaction costs, these can be particularly high for exporters who are far removed from the markets and distributors involved. Differences in public policy and the way markets are regulated further complicate the task of the exporter.

In general, exporters encounter various forms of "information deficiency". If information on market characteristics, trade restrictions, distribution requirements and other factors were costless, and no costs for enforcement of contracts existed, transaction costs would be zero. Certain types of ignorance, however, are expensive to dispel through search. Information with regard to product quality or the precise type of service required is especially difficult and costly to obtain in the case of exports.

A portion of the leather-making industry has followed its downstream clients to the new locations. Large tanning operations were developed in the Republic of Korea and Taiwan Province; today, these economies produce considerable quantities of standard leather from imported hides and skins. Tanners in Brazil and India make leather from local materials and sell both in their home markets and overseas.

Meanwhile, US and European firms specializing in price-sensitive final products were coming under great pressure. These standardized items are easy to copy and can be manufactured in large quantities by semi-skilled workers. Most of their cost is in manufacturing where cheap labour is a distinct advantage. A large number of firms (usually those that depended on local markets) disappeared. Those that survived were able to find a market niche and could export. Since marketing abroad is more expensive than at home, the survivors were usually larger than the plants that closed. Any new plants in the industrialized countries tend to specialize in upscale goods, but they, too, need to export. This combination of factors has created a new industry populated by fewer and larger firms, all with a pronounced international orientation.

Two distinct types of firms have emerged as internationalization has proceeded. One set competes vigorously in markets for standardized products while the other specializes in sophisticated and fashionable products. Such a dichotomy naturally omits many precious details. For example, firms from one group may attempt to encroach on the markets of the other. Producers in a protected market compete amongst themselves while outsiders struggle to penetrate their markets. Finally, there are rivalries among distributors. These companies are not necessarily

manufacturers of footwear or leather products; instead, they are involved in the coordination of a value-added chain that stretches from design to retailing. All these rivalries are important but they are usually less than global and receive less attention in the discussion here. The strategies considered below include the following: rivalries based on labour costs, efficiency in manufacturing product innovation, product differentiation, marketing expertise and organizational competence.

Rivalries based on labour costs

Competition based on differences in labour costs is the prevailing practice in markets for mass products. Success depends on the ability to establish efficient plants in ever cheaper locations. Markets for footwear have proven to be the most susceptible to such moves. Standard shoe models are easy for newcomers to copy and can readily replace more expensive versions produced in high-wage economies. Makers of leather garments have experienced a similar, though less intense, form of labour-cost competition. Leather has a longer lifetime than garments made from other materials. This low rate of product replacement makes it relatively easy to relocate to cheap-labour sites - in part because transaction costs are less significant when time is not a factor. The same is not true when fashion, high rates of turnover and a lack of durability are important product characteristics.

Market shares which depend on a labour-cost advantage are always vulnerable to competition from cheaper production sites. Plants making standardized products tend to use great amounts of unskilled labour and the technologies required are accessible to all. In addition, much of the capital consists of equipment which can easily be relocated. Because of these conditions, price competition is dominant and entry is easy. Firms earning excess profits may quickly be undercut by newcomers able to sell at lower prices.

Large distributors in Europe and North America have naturally encouraged this form of competition. This group, which includes multiple chains, department stores, retail cooperatives, mail-order firms and wholesalers, has doggedly searched for the cheapest sources of supply. Originally, most of their suppliers were in Italy, Spain and, marginally, in Eastern Europe. Later, it became clear that cheaper sources were to be found in developing countries and areas.

Firms in Brazil, the Republic of Korea and Taiwan Province began to flourish. Their cost advantage was based on a combination of cheap

labour, moderately high levels of productivity and generous government support. Transport costs and a lack of experience were problems, but many companies were still able to supply products at prices as much as a third below those of competitors in industrialized countries. This cost differential was immediately translated into lower prices and applied where it mattered most -in the market for cheap, standardized leather footwear and garments.

Competitors in industrialized countries could not match these prices and a number failed. The survivors embarked on an all-out attempt to reclaim market share. Adjustment and consolidation took three forms: cost-cutting, modernization of production processes and development of new products. There were many cost-cutting opportunities. Work forces were trimmed, inefficient operations and marginal product lines were eliminated, budgets were squeezed, and firms were reorganized. Though effective, these efforts were seldom sufficient to offset the cost advantage of competitors in cheap-labour economies. Many firms were forced to relocate. North American companies went to Asia, the Dominican Republic, Mexico, Puerto Rico or Venezuela. European firms moved to Asia or the European "periphery" - Malta, Morocco, Portugal, Tunisia, Turkey, the former Yugoslavia, and Eastern Europe.

Manufacturers in industrialized countries were cautious about their methods of migration, however. First, rather than setting up their own foreign plants, they usually entered into joint ventures with foreign firms or engaged them as sub-contractors. US producers have developed rather elaborate networks for outward processing. European producers took a simpler approach: they obtained the benefits of cheap foreign labour by importing uppers to be incorporated into home-made products. Second, many of the firms were reluctant to close plants in the home market. This occurred in some cases but generally the redeployment resulted in a form of geographical diversification. Production of middle-range articles that were not subject to abrupt changes in fashion was moved abroad while products of higher quality continued to be manufactured at home.

High-cost tanners and garment manufacturers followed the lead of shoe manufacturers. They initially switched to cheaper materials or brought them in from abroad. If this solution proved insufficient, they withdrew from the more labour-intensive operations by subcontracting them to offshore units. Garment makers eventually set up their own subsidiaries in the low-cost countries or entered into joint ventures

involving production, marketing and technology transfer.

Firms in Brazil, the Republic of Korea and Taiwan Province were among the first to join this expanding network of producers, subcontractors and distributors. As wage rates in these countries rose, they, too, have adopted the tactics used by European and US firms. One of these options - to upgrade the products being made locally - is difficult and still in its early stages. It requires many alterations in the production process, timely information on changes in tastes and fashions and the ability to meet sellers' needs promptly. Firms must also overcome barriers to entry (for example as brand loyalties or control over retail trade) and obtain access to high-quality raw materials.

The second option embraced by firms in Brazil, the Republic of Korea and Taiwan Province is to transfer the labour-intensive parts of their operations to other locations. This tactic is already producing visible results. China, India, Indonesia and Thailand all have the ingredients to serve as successful "export platforms". They enjoy generous government support along with competent supervisory staff and abundant labour. Wage rates in these countries are roughly half those in the Republic of Korea or Taiwan Province, thus offering a clear cost advantage despite lower productivity and higher transaction costs.

All new entrants in the low-wage countries face the general problem of overcoming high transaction costs. As noted earlier, this is a composite cost which can arise in several ways - particularly when firms reorganize or expand their network of suppliers, subcontractors and distributors. The same applies when a new production site comes on stream and is inserted into a wider system of suppliers and manufacturers. For example, some exporters in developing countries are obliged to ship upscale products by plane/air when time is important. Chinese managers, moulded by the command-type of economic system, need the help of foreign advisers when they search for new inputs or wish to alter relations with contractors and suppliers. These are only two examples of the many administrative problems, infrastructure deficiencies and fragmented information systems that give rise to transaction costs. Such imperfections are a heavy burden on firms in developing countries that aspire to enter world markets.

For firms in developing countries, the problem is serious. They rarely have any contacts with buyers in industrialized markets. Few are able to setup manufacturing operations while simultaneously cultivating distant

markets and establishing conduits to these customers. Outside help is usually needed. Because many firms in industrialized countries are under pressure from competitors, they are willing to offer assistance.[1] Such assistance will change the relationship between the order-giver and producer. Buyers expected manufacturers to supply products that match their specifications in terms of design, quality, physical characteristics, quantities, sizes and colours. Furthermore, there is a strict time schedule for delivery.

In their initial search, foreign buyers had to depend on suppliers of unknown reputation. The goods they received were sometimes defective, delivered with long delays or in insufficient quantities. To protect themselves against these risks, buyers usually offer considerable assistance to the exporter. They describe the design and other product features in great detail and help with packaging, shipping, customs clearances and even financing (for example, by prepayment of the production order). If the buyer is a firm with manufacturing experience, it may advise on production operations, train the workforce, contribute to quality control, and supply precut patterns and even machinery. Buyers may also help to identify sources of raw materials and establish the sales channels. If the local exporter successfully masters these operations, a long-lasting relationship usually develops.

The costs of all these activities usually lead to a stable relationship between the local manufacturer and foreign trader. However, the trader can always shift his orders to cheaper sources and the position of the manufacturer will be stronger when several conduits to distant markets are available. That may be the case if a number of independent local traders compete to channel orders from a foreign client to local manufacturers. Such a process has been observed among manufacturers of footwear in Taiwan Province. Based on a survey of nearly 900 firms (see UNIDO, 1991), domestic trading companies proved to be the main channel for exports (72.4 per cent), followed by foreign trading companies (17.5 per cent) and direct export by manufacturers (7 per cent).

Once local manufacturers begin to differentiate their products, the passive method of taking orders no longer applies. The firm must assume a more active role by establishing its own bridgehead in the consumer's market. The easiest method of marketing abroad is for sales people to participate in commercial fairs and contact individual customers. A more permanent method of establishing ties with consumers is to use large trading companies. Such firms maintain offices in major markets and represent the interests of several exporters. Even a small

exporting firm can have a permanent presence in a foreign market by using representatives that work on commission. Finally, firms with ample resources (for example, the Chabools in the Republic of Korea) may set wholesale or even retail distribution networks in one or more importing countries. As a rule, such an extensive distribution system cannot be achieved without a well-established trade mark and the capability to produce original designs.

Manufacturing-based rivalries

Manufacturers wishing to remain in industrialized countries and still compete with producers in low-wage countries have three options. They can cut material costs, reduce labour inputs or obtain cost savings through modernization and computerized automation.

One way to cut material costs is to use lower grade or cheaper materials (for example, East Indian sheep nappes or hide splits instead of sheep suedes). Another is to "stretch" the amount of leather used by combining it with other materials. Both these methods have drawbacks, however. If manufacturers reduce the quality of their leather, they come into direct competition with imported products which are sensitive to price. The move may also involve sourcing from countries like Pakistan or India that use the same materials to make competing products. Leather stretching can be an effective strategy if the fashion appeal of the product is not jeopardized. Thus it is not purely a cost-saving move.

A more effective strategy is to increase the utilization of raw material and reduce the time required to process it. Raw materials account for about half the total costs of leather manufacturers and around a third of the total cost of a garment. They absorb a large portion of working capital and any reduction in processing is cost-saving. In tanning, the opportunities to speed up processing are constrained by the need for full chemical penetration and physical stabilization of the leather. Nevertheless, processing times for tanning and finishing have come down, and new technologies promise to reduce them even further. Progress has been slower in garment making where sewing operations are dominant.

There are certainly opportunities to save on raw materials, but the net gains are not great. Studies by the SATRA Centre for Shoe Technology show that cutting with laser or water jets results in material savings of only 3-4 per cent. In general, such cost reductions are

unlikely to offset the advantage of competitors in low-wage countries.

The second option, that of reducing the workforce and/or raising labour productivity, is popular among producers of footwear. Machines which combine all lasting suboperations (toe, heel and side) into a single step became available in the 1970s. However, the productivity gains and labour savings which resulted were rarely sufficient to restore competitiveness. Leather making remains an art. Many tanneries - even those with the most sophisticated equipment - have actually increased their labour inputs and process times in order to impart a distinctive character to their products. Meanwhile, tanneries in developing countries were turning to capital-intensive techniques, either to combat the effects of rising wages or compensate for their low level of productivity.

Firms in industrialized countries have now shifted their attention to more ambitious goals. They hope to regain their competitive position by adopting ultra-modern techniques such as computer-assisted design (CAD), computer-assisted manufacturing (CAM) and flexible manufacturing. These moves are expected to reduce costs in several ways First, automated production processes will allow firms to replace labour. Second, they permit the introduction of just-in-time methods of inventory control (JIT). Stocks of raw materials, parts, work-in-progress and finished goods are reduced, since production only begins when a client's order is received.[3] Third, automated plants are able to produce products of generally higher quality and always of a more consistent quality.

An even more ambitious goal is to combine the new technologies so that firms can produce a variety of differentiated products. Flexible and reprogrammable systems would enable firms to make design changes quickly. To further reduce the response time, all plant operations must be closely integrated. The wishes of the client would be taken into account by the design department, the product would be designed to be fabricated, fabrication would respect the design, and suppliers would be integrated into the fabrication process. With all this flexibility, firms in industrialized countries should have some advantage over rivals that employ traditional techniques and produce in long runs of standard products.

Automated manufacturing methods are in operation in several industries (for instance, automobiles, machine tools and electronics), though the results fall short of expectations. The same applies to many of leather products. A few manufacturers have introduced com-

puterized applications but so far they have had only a limited impact on costs (see box 5.3). Greater progress has been made in leather making. Computerization has reached an advanced stage, helping to reduce the costs of labour and materials and to eliminate variations in measurement, dosing, timing and process control. JIT is also proving effective - not just in leather making but in downstream manufacturing activities as well.

The goal of a computer-integrated production system is still a long way from realization, however. Some bottlenecks are technical. Operations at the beginning of the processing cycle (design, dyeing, cutting) and in the distribution stage (inventory control, storage and order filling) are easily automated, but the core processes which involve the manufacture of leather products and footwear are more resistant to technological breakthroughs. Hides, skins and leather have irregular shapes and textures and are difficult to handle with the types of automated devices and tools used in other industries. Computer-controlled production processes must also be fed with a steady stream of information on the condition of materials and the actions to be taken by machines. Without human operators, sensors must detect the position and orientation of the material, inspect its texture and recognize defects. Programmed controllers then tell the machine how to react to what the sensors have found. All these problems are multiplied when a production line handles not one but several items.

Box 5.3 Barriers to automation in the leather industry

Footwear manufacturers can use CAD to study the dimensions, patterns, textures and colours of materials through instantaneous variations. Operations such as folding and stitching can now be computer-controlled from a central system. CAD and CAM have also found application in pattern-making and water-jet cutting, particularly in the construction of certain types of athletic shoes which have a uniform finish.

Producers of leather garments face more difficult problems, however. First, the process of marking out and cutting patterns for garment leather is tedious, lengthy and requires considerable skill. These skills are very difficult to replicate in a computerized and highly automated production process. The problems in shoemaking are similar but the smaller pattern sizes of shoe uppers enable the manufacturer to cut the whole shoe from one skin, whereas three, four or more may be required for one leather garment. Second, the size, shape and finish of garment leathers are not amenable to the types of automated pattern cutting methods which are often employed in the textile industry. Such methods are technically possible but their costs are so high that it is still impractical to replace traditional methods of hand or machine sewing in the assembly of garments.

Other barriers are financial: the industry is poorly equipped to undertake innovative research. As a result, innovations in computer-integrated manufacturing generally come from the machine tools industry, and that pattern is likely to continue in the future. The most profitable manufactures are typically those that have disengaged from manufacturing in order to specialize in marketing and distribution activities.

What are the prospects for diffusion of new technologies in leather-making? Progress will be slow, but producers of leather garments and footwear are not the only potential users of the new types of automated production systems. The clothing industry is a much larger client with similar requirements and political influence to enlist support from governments.[3] Market forces and strategic decisions of firms will also determine the pace of diffusion. The major attraction of the new technologies is the ability to alter product characteristics swiftly while keeping variable costs low, even for small production runs. Flexibility is expensive but it allows firms to compete in several product markets simultaneously. Dedicated equipment has lower fixed costs although it confines a firm to a single market. The choice between flexible and dedicated techniques therefore assumes a strategic character, and the outcome depends in part on the behaviour of the competitors. More firms will prefer the flexible option as products become more differentiated, as markets grow larger, and as differences in the fixed costs of the two technologies diminishes (Roller and Tombak, 1990).

Rivalries based on product innovation

Strategies for cost rationalization are designed to defend existing markets against more efficient competitors or to gain market share at the expense of rivals. In either case, attention focuses on existing buyers. A more creative tactic is to enlarge the market by introducing new products and stimulating demand. New products are necessary if growth is to be sustained -particularly in a mature industry such as leather, where consumer needs are easily saturated. In fact, the major source of the industry's dynamism over the past three decades has been new demand generated through product innovation. Efforts have been concentrated in three areas - garments, athletic footwear and upholstery - which are discussed below.

Product innovation in the garment sector has two distinguishing characteristics. First, the strategy was initially implemented for defen-

sive reasons rather than to bolster demand. Second, much of the success can be attributed to the imaginative marketing campaign of producers. These efforts could not have succeeded, however, without genuine product innovations. The circumstances that set the stage for product innovation were created in the 1960s when the pormomeric materials emerged as a potential substitute for leather. Footwear producers were especially hard hit; firms feared that pormomerics would destroy the market for leather uppers in the same way that synthetics had taken over the market for sole leather. Leather makers began a search for new markets in order to reduce their dependence on footwear. The only promising alternative was the market for leather garments.[4]

The leisure-wear sector was singled out as a priority and the industry adopted a target of one leather garment (jacket, costume, dress, skirt, trousers, coat, waistcoat or shirt) for every teenager and adult. Teenagers were regarded as especially important because of their free-spending habits and influence as fashion leaders. Exhibitions were organized and couturier selections were featured at the main international leather fair.[5] Collections were commissioned from design schools, and competitions organized to make new designers aware of the attractive qualities of leather. The primary objective of the campaign was to force department stores, chain stores, men's and women's wear shops and boutiques to stock leather garments as a standard item.

The campaign certainly succeeded: during the 1960s the share of leather taken by garment makers rose from 3 to 14 per cent. This achievement provided the springboard for steady and rapid growth over the next 20 years. By the end of the 1980s garment makers in some countries accounted for a third of the leather market while the share of footwear has fallen to around 40 per cent. It is conceivable that leatherwear may soon overtake footwear in the leather market split.[6]

Product innovations by tanners were partly responsible for the success in markets for leather garments. Advances included dry-cleanable leathers, machine-washable leathers and colour-fast finishes. Improved splitting techniques also led to thinner, more flexible leathers that were better suited to the softer styling in high-class leatherwear. With few exceptions, all these innovations were introduced by tanners in Western Europe or North America.[7]

Meanwhile, makers of footwear were pursuing a different form of product innovation. Suppliers of rubber and canvas sneakers recog-

nized an enormous latent demand for a high-technology, athletic shoe, and a wave of innovations followed. Subsequent models combined technical and decorative innovations which supposedly enhanced the athletic performance of users. Producers made the most of their opportunity, replacing a single product - the multi-purpose sneaker - with a number of specialized models which were not ready substitutes. Athletic shoes eventually penetrated all segments of the shoe customer's profile.

Demand for athletic shoes grew several fold during the latter part of the 1980s, creating new forms of competition. Powerful firms with the ability to create a global organization of designers, suppliers, producers, distributors and retailers emerged. With the right mixture of design and advertising, they were able to produce on a massive scale and still sell their products at prices previously fetched only by luxury items. These firms also assembled the organizational talent which licensed production to scores of subcontractors and handled distribution through thousands of specialized shops, department stores and mail-order companies.

Producers of leather upholstery, unlike makers of athletic footwear, had no single market on which to focus. The upholstery sector consists of several distinct markets, the largest of which is domestic furniture. Demand for leather furniture multiplied in the 1980s with the growth in consumer income and house purchases. Specialty shops concentrated on relatively cheap items based on low-cost leather (imported mainly from Brazil), a tactic which encouraged continued market growth. Tactics such as these helped established leather upholstery as a permanent and central feature of the furniture showroom.

Gradually, leather acquired a fashionable reputation which further enhanced its image. To cater for this fashion image, tanners turned from the traditional, stiff leathers to new forms in contemporary colours and with softer handle. A high-gloss, easy-to-clean leather suitable for panel assembly techniques was introduced. This version was subsequently replaced by softer and more textured leathers in fashion colours or pastels that complemented interior decoration styling and colour themes.[8]

In conclusion, product innovation has played an important role, but the scope of initiative is frequently limited. Successful launch of new models often depends on economic or sociological factors over which the industry has no influence. The success of leather garments, for example, was driven by the emergence of youth as spenders. Develop-

ment of a market for athletic shoes is a result of the leisure society's addiction to fitness and sports. Growth of demand for upholstery derives from conditions in housing markets and the expansion of corporations and bureaucracies. The marketers in the industry have exploited these trends but did not create them. This limitation means that product differentiation, rather than product innovation, takes priority as a strategic variable in the hands of managers.

Product differentiation

Differentiation, unlike innovation, does not entail the development of new products. Instead, a distinctive product identity is created that represents a variation on an existing theme. Differentiation exploits the diversity of consumer tastes and avoids some pressures of competition by identifying market segments that can be isolated from one another.

Two types of differentiation are possible. In the horizontal form, several product versions are offered. The markets for each version are distinct, either because the product characteristics closely match the consumer's ideal version or because buyers have a taste for diversity. When vertical differentiation is pursued, a range of products with similar characteristics is offered. These are rivals, although they differ in quality and price. Consumers prefer the higher quality versions but price differentials ensure that markets are stratified according to purchasing power.

Both forms of differentiation are responses to the threat of product substitution.[9] Where market niches are created, consumers do not see equally priced alternatives as equally desirable. They have an order of preference or a loyalty to certain characteristics or brands. Thanks to these attributes, a firm can raise prices without losing large numbers of customers. Some buyers may switch but many accept the higher price in order to acquire their preferred variety.

Success in product differentiation depends largely on market conditions, although a few stylized features can be noted. First, any initiative is likely to be taken by a new entrant or an incumbent with only a small market share. Most of these niches in differentiated markets are protected by brand loyalties, by the influence which suppliers exert on retailers, or by advertising campaigns. Relatively small firms have little hope of overcoming such barriers if they choose to compete for an occupied niche (see Aron and Lazear, 1990). More often, challengers will try to create a new niche rather than copy an existing one.[10] A

successful incumbent is less likely to attempt the creation of new market niches. Under the pressure of competition it may do so, either to prevent others from taking the same step or to enter a new niche being developed by a challenger. These decisions are strategic ones, taken to exert influence on competitors or as a reaction to competitors' own initiatives. (see box 5.4).

A second characteristic of the strategy concerns the number of product varieties that are possible. By definition, a product is differentiated if buyers are prepared to pay a premium over rival products. The smaller the number of acceptable substitutes, the larger the premium. The volume of sales will obviously be greatest when a firm exploits a niche all by itself. Niche proliferation has limits, however. Those wishing to broaden their product lines will encounter diseconomies of scope.

Box 5.4 The dynamics of product differentiation

Market shares fluctuate over time as competitors struggle to differentiate their products from one another. Developments in the highly competitive market for athletic footwear illustrate how quickly market leadership changes hands. Nike originally claimed about half this market in the United States, thanks mainly to its leadership in track shoes at a time when jogging was a popular pastime. Reebok, a British firm, had only a negligible share of the market until it introduced a series of new products for women's aerobics. These shoes proved to be extremely popular, not only in fitness centres but as fashionable items. Nike lost its dominant market share, whereas the sales of Reebok soared. The leader had become a follower. In response, Nike embarked on its own ambitious programme of product differentiation. It flooded the market with a host of new products. By 1990 Nike was offering 300 models in 900 styles.

Despite the new production technologies which are now available, it is still more costly to produce a large number of product variations than only a few. Marketing arrangements also become more complicated and expensive as the range of products grows[11]. Structural factors can restrict the options even further by limiting the number of niches a market will bear and the number of suppliers that can coexist. Some of the more important examples include the following:

- Functionality determines the main themes for differentiation. Fashion, however, ensures that consumer preferences will cluster around a rather few characteristics of colour, texture and design. Product models which are too unique will not be viable

* Consumers' budget constraints limit the number of versions that can be profitably offered.

* Specific designs are costly to develop, advertise and market. Firms that choose to differentiate their products must first have a minimum market to survive, even though the production processes themselves are not subject to scale economies.

The fact that the number of varieties cannot be boundlessly multiplied poses problems since differentiation is a key to growth. It is difficult to determine how many varieties a market can absorb, but several factors can be identified. In the case of horizontal differentiation, consumers choose between varieties that are equally priced. That number will increase as the market grows and as the fixed costs associated with entry decline. Economic growth or increased international trade will lead to a greater number of product varieties because they expand the market. Computer-aided design has the same effect because it reduces the costs of differentiation.

In the case of vertical differentiation, the market is segmented into quality levels. An upper boundary limits the number of firms that can co-exist. Unlike the case of horizontal differentiation, this upper boundary does not depend on market size or entry costs. Instead, it is determined by the interplay of technology (the change in unit cost associated with quality improvements) and tastes (the willingness to pay for better quality). The maximum number of products will increase if consumers tastes become less homogeneous, or if new technologies permit a larger variety of quality levels without substantial increases in production costs (Shaked and Sutton, 1983).[12] These restrictions are not sensitive to rates of economic growth or improved trade performance which may have their own implications for product differentiation (see box 5.5).

In conclusion, differentiation works through the creation of new niches and gradual enhancement of product quality. These trends cannot be sustained without continuous turnover in product styles (that is, product obsolescence). The mechanism that serves to reduce shelf-life despite quality enhancement is fashion. As the number of more expensive products proliferates and their shelf-life declines, the role of marketing assumes greater importance. This aspect is discussed in the following section.

Market strategies

Innovation and differentiation create markets, but the products must still be sold at a profit. Pricing, advertising, and retailing are the tools used to persuade buyers to pay these prices. They give rise to various forms of price rivalry and advertising tactics. Price rivalries occur when a firm has a certain degree of market power and uses price as a strategic variable. Price discrimination is the simplest version of this strategy. In that case, different customers are charged different prices for the same goods. A common example is the practice of offering discounts to chain stores while charging higher prices to single stores. Chain stores receive the preferred price since they may decide to supply the goods themselves if the manufacturer does not concede advantageous conditions. The single store is in no position to integrate backwards because its low volume of sales would not cover the fixed cost.

Box 5.5 Product quality and trade in leather products

Most economists accept the argument that when products are differentiated in terms of quality levels, greater trade will have no affect on the total number of products. Some, however, argue that greater trade will reduce the total number of products by eliminating some items at the lowest quality level (Gabszewics, Shaked, Sutton and Thisse, 1981).

Trade, and more generally all forms of increased competition, brings prices down. Some of the firms which lose ground in downscale products shift their product mix towards higher-quality products, and competition in the latter product markets becomes more intense. The prices of upscale goods will also tend to fall, and a portion of total demand is diverted from the lower to the higher quality items. Several of the downscale products may eventually disappear as price differentials between various quality levels are reduced. Even extremely cheap, low-quality articles will become unattractive to buyers if articles of better quality are available at only slightly higher prices. The result has been a general increase in quality standards and a profusion of new product types which were unknown in retail shops 20 years ago.

Those employing this strategy must ensure that downstream buyers do not collaborate; otherwise the single store could buy from the chain store rather than the original supplier. One method is to negotiate a contract that precludes collaboration or establishes exclusive sales territories. Price discrimination is often prohibited by law, however, and in such cases suppliers themselves may integrate downstream. A supplier, for example, can acquire a chain store and sell its product

exclusively through its own retailers.

Intertemporal forms of price discrimination - that is, charging different prices for the same item at different periods of time - represent another version of the same strategy. Prices of raw materials fluctuate widely, though firms do not want to adjust prices every time costs change. Consequently, they hold inventories to smooth out fluctuations in production and shipments. Storage, however, is costly. For example, in the United States the average time between acquisition of the raw material and retail sale of footwear is 55 weeks, though materials are being worked on for only 11 weeks. Intertemporal price discrimination enables firms to pass on the costs of storage from one stage to the next.

Such a strategy would not be possible if the economist's ideal of perfect competition prevailed in each of the industry's stages. In order to profit from intertemporal discrimination, firms must have some control over the storage capacity of the distribution system. Forward integration provides one means of control and most large producers of leather products have their own distribution channels. Alternatively, control can be realized through advertising campaigns which leave the retailer no choice but to handle branded products at prices set by the supplier of the items.[11]

Fashion changes present other opportunities for intertemporal price discrimination. Fashion implies that the maximum price consumers will pay is a function not only of income but also the point in time when the purchase occurs. Producers with some market power will try to set prices to take advantage of the time dimension. Ideally, the most affluent will buy when the product is first marketed while the lowest income-buyers make their purchases much later. To obtain this effect, price differentials in successive time periods can not be so great that the richer consumer delays his purchase, nor so small that the seller foregoes some potential profit (see box 5.6).

Advertising strategies complement or reenforce pricing tactics. Informative advertising provides information on firms, products or shop locations and is intended to stimulate competition rather than protect a market. This form is preferred by the manufacturers of leather product because they wish to be visible to customers and need to introduce new products. Downscale products are purchased because of their low price, though upscale goods are purchased for their superior quality. Price information is easy to convey, but quality information involves more

complex elements of appreciation. Through years of informative advertising, some firms have established a reputation for quality; experienced buyers have already formed an opinion about the value of their new product.

Box 5.6 Intertemporal pricing strategies

Price discrimination helps to explain the occurrence of mid-season sales. At the beginning of a product's life cycle, sellers give priority to consumers willing to pay maximum prices. After a certain date, prices are discounted to sell off remaining inventories. Commercial obsolescence can reduce this life cycle and therefore affect pricing strategies. For example, in markets for sports shoes the shelf-time of upscale products has fallen from 12 to 6 or even 3 months. Such brief shelf lifetimes require that the market must be thoroughly skimmed to recoup expenditures, and pricing becomes an extremely important marketing instrument.

In this respect new suppliers are not as well placed as incumbents. Professional buyers can be convinced through samples and tests, but the final consumer will still be reluctant to try an expensive new product. The newcomer must be prepared to spend more than incumbents. Since high- quality products are expected to generate repeat purchases, initial customers should be a source of sustained income. The new entrant therefore expects to use part of its current income to attract these buyers.

Capricious changes in fashion, planned obsolescence, and product differentiation mean that firms are reluctant to undertake elaborate advertising campaigns with each new product. Instead, they seek to establish brand loyalties which satisfy quality expectations. Risk-adverse consumers will remain loyal to the brand so long as quality is maintained. Brand loyalties also represent a barrier to entry and are another weapon in the strategic arsenal of firms.

In summary, advertising campaigns are important but have limitations. First, it is hard to win market share by advertising alone (see box 5.7). In order to encroach significantly on a territory of a competitor, spending differentials of 100 to 200 per cent must be sustained over several years. Second, advertising is cumulative, meaning that the effectiveness of today's expenditures depend on the amounts spent in the past.[14] Third, advertising will be ineffective if not supported at the retail level. The upstream supplier may try to avoid these effects through take-overs or franchising or by allowing the retailer a generous profit margin and a local monopoly.

Box 5.7 The relationship between advertising and market share

In a market where no competitor has a decisive advantage, market shares tend to be relatively stable and fairly equally dispersed. The ratio between a firm's share of advertising expenditures and its market share is likely to be around one. Firms investing in a niche may have a slightly higher ratio whereas well-established suppliers will have a ratio which is less than one. The former spend more because they want to introduce something new on the market; the latter spend relatively less because they are well known and can rely on the cumulative effects of previous advertising.

As long as no competitive edge emerges, there is no incentive to alter this pattern. A newcomer has no reason to start an advertising war because it would have to increase the ratio substantially in order to match the benefits incumbents derive from past expenditures. Well-established firms could easily raise their own advertising expenditures, making it difficult for new entrants that have no competitive edge. A preventive strategy of permanent overspending may not appeal to shareholders, however, because it would cut into profits.

Organizational strategies

The retail price of a consumer good is a multiple of the ex-factory price with the difference being larger for upscale goods than for standardized ones. For instance, the shop price for a pair of simple shoes could be two to three times the ex-factory price, whereas a branded pair of pumps can be 15 times more expensive. The increment over the factory price consists of distribution costs and profit, if any. It is along this value added chain, running from design through manufacturing, wholesaling, retailing and sometimes importing that organizational strategies take place. Their purpose is to maximize the sum of profits and influence their distribution across stages.

Market power is required for an organizational strategy to work. When that power is concentrated in one stage, there is no need for organizational strategies. The decisions taken by the most influential group are readily transmitted throughout the processing chain. This was the case in the first part of this century: power was concentrated in the manufacturing end of the industry because any competitive advantage was derived from product technologies (see box 5.8). Nowadays market power depends not on any edge in manufacturing but on product differentiation where the ingredients are leadership in design and advertising. The latter activities are functionally dissociated from the technologies of production and distribution and can be mobilized by companies at any point in the vertical chain. Accordingly,

no particular stage will necessarily enjoy the privilege of market power. This fact gives rise to various organization strategies, several of which may coexist.[15] No single strategy is best or most appropriate. At one extreme, firms can choose to be low- cost manufacturers serving only a few wholesalers. At the other, they can elect to be fully integrated designers and wholesalers, responsible for advertising, public relations and product image. In the latter case, the name of the designer and manufacturer is more important to convey to the consumer while in the former case the name of the retailer should dominate. To illustrate, three different options can be noted among firms involved in the market for leather shoes. They include: low-cost manufacturing, fully-integrated production, and a focus on design and marketing.

Box 5.8 Long-term shifts in the balance of market power

For much of this century manufacturers of footwear and leather articles held the bulk of market power. Bata was one of the first firms to perfect large-scale production techniques for the manufacture of footwear. Traditional distribution channels were unable to respond to the pressure created by the great volume of inventories required by mass sales. Hence, in order for the volume of sales to keep pace with the volume of production, distribution had to be modernized. This was achieved through managerial innovations which enabled Bata teams to monitor and coordinate both production and distribution.

Today, product differentiation rather than price and mass production is the key to market power, and manufacturers have strong rivals. Some degree of product differentiation occurs in manufacturing, where the article is given its physical shape, and in retailing, where promotional efforts enhance the product's profile. Neither of these activities can match the role of design and advertising, however, and the initiative for organizational strategy no longer lies with the manufacturer.

Low-cost shoe manufacturers tend to be small companies with annual sales of $500 to 700 million. Some have integrated downstream into retailing (either through owned or licensed stores) and all are engaged in wholesaling, with production for large retail chains being the dominant practice. Rates of return are low and the prospects for improvement are dim (see box 5.9). Few of these firms have the resources to modernize manufacturing processes or to market their products aggressively. They are essentially price-takers, and price is likely to fall in real terms as foreign competition intensifies.

Fully integrated producers are distinguished by the priority they assign to coordination of product lines and distribution channels. Most

have their own design departments and try to produce models that straddle several market segments. They are continuously buying, selling, expanding or scaling back their distribution channels in order to accommodate changes in tastes and costs. Another distinguishing feature is the constant revision of retailing "concepts" relating to location, product positioning and service intensity.

Rather than relying mainly on foreign sourcing to produce lower-priced shoes, fully integrated firms tend to invest heavily in plants located in their home markets. The motive for these investments is twofold. First, traditional methods of manufacturing shoes involves nearly 100 individual steps. By creating a smaller number of work cells which handle a number of tasks, firms can reduce inventories and cut production times. These moves save money and allow a faster response to changes in tastes since fewer pairs of an obsolete style are under production at any one time. Second, a simplified production layout improves quality because efforts can be rewarded at the level of the group (rather than individuals), and the group is motivated to maximize quality rather than volume.

Box 5.9 Economic performance among low-cost manufacturers of footwear

Data from the United States, where low-cost manufacturers account for a large portion of the footwear sector, suggest that these firms are poor performers in comparison with the rest of the manufacturing. Among producers of men's and women's footwear (except athletic shoes), value added per production worker is less than two fifths of the average for all industries. Sales per employee are about half the nationwide average for total manufacturing, and capital per employee is less than 15 per cent of the corresponding national figure.

As a result, even the largest of the low-cost manufacturers do not report impressive rates of return. For example, in the late 1980s firms such as Genesco and Wolverine Worldwide (owner of the Hush Puppies brand) had operating profit margins of only 3-5 per cent.

Firms that are fully integrated from design through retail distribution enjoy some advantages, but they are handicapped in other ways. One drawback is that they must compete directly with low-cost manufacturers, and this limits their profitability. Another is that most market growth is in new products where firms specializing in design or marketing excel (see below). A third constraint is competition from retailers.

General retailers are losing ground to a highly fragmented set of small niche retailers. The latter emphasize differentiation and are constantly on the lookout for new, unusual products. Niche retailers have been able to establish new shopping patterns as customers compare their idiosyncratic offerings with those found in general outlets. Competition between product- and channel-based retailers is intensifying as the life cycle of products is reduced and as integrated firms try to cope with the difficulties of coordinating manufacturing and retailing decisions. Problems such as these have led some integrated producers to transform themselves into specialists in marketing and distribution (see box 5.10)

A third organizational strategy is distinguished by its emphasis on design and marketing. It is best illustrated by firms producing athletic footwear. Companies following this strategy strive to maximize control (though not ownership) over selected activities in the value chain. Rather than offering a range of shoes which retailers sell with their own brand names, they supply products under their name and then attempt to ensure that consumers will pull these products through the distribution channels.

Box 5.10 Making the transition from manufacturer to marketing distributor

Stride Rite, a Boston-based company producing children's leather footwear, has partially converted itself from a fully integrated firm into a distributional specialist. During the first half of the 1980s, the firm manufactured most of its own shoes in the United States. Between 1983 and 1987 it shut seven of its 10 US factories and consolidated manufacturing and international operations into one sourcing division. By 1988 the company had developed raw material sources in eight countries, it had sourcing offices in four countries, factories in two countries, and independently owned source plants in another two countries.

The change from a manufacturer to a marketing distributor was reflected in financial indicators. Sales grew from $238 million in 1985 to $454 million in 1989, while net income rose from 4.7 per cent of sales to 10.1 per cent. The decision to create a company with only a modest manufacturing involvement but a focus on marketing and distribution contributed to this turnaround.

Control over distribution channels is effectively ceded by retailers to suppliers because of the latter's ability to create shopping "traffic". Whenever a successful brand is launched, demand explodes and shortages occur. Retailers in good standing with the manufacturer will be the first ones to obtain delivery. Since loyalty applies to the shoe and

not the store, the prospects of converting a shopper to a different brand are remote. The willingness of retailers to share control over distribution also stems from their relation with suppliers. They rate suppliers according to several criteria such as product innovation, quality, advertising, packaging, point-of-sale product support, on-time delivery and responsiveness to complaints. Firms focused on design and marketing can compete in all these areas, though others (for example, low-cost manufacturers) do not.

An emphasis on design and marketing is also distinguishable in terms of the nature of competition, the role of brand names, the abbreviated lifetime of products and the rapid growth of markets. First, competition occurs primarily within a specific product market rather than across markets. That is, individuals thinking of buying an athletic or casual shoe will immediately narrow their choice to the main brands rather than first evaluating these products relative to traditional manufacturers' shoes. Second, brand names are transferable. Once a prominent name has been established, it can be used to benefit adjacent products and to create premium-priced items outside of footwear.[*] Third, product life-cycles can be as brief as one year and are managed to the disadvantage of competitors. Firms that are able to redefine the market and flood it with a variety of models can have extraordinary success in this situation. Finally, rapid market growth places extra strains on competitors employing other strategies. For example, the United States market for athletic shoes grew from around $1.5 million in 1981 to $5 billion in 1989 and should reach $10 billion in 2000. The sales of Nike alone in 1990 were $2.6 billion - a sum greater than the entire United States market for men's non-athletic shoes in 1988. Such rapid growth demands a type of brand management which is inherently international in scope (see box 5.11).

The strategic options described here obviously have quite different implications. Firms that excel in design and marketing are generally more profitable than others. One reason is that there are relatively few substitutes and demand is not particularly sensitive to price. Another is that these companies are able to make use of the assets of other firms for production and this, too, boosts rates of return.

The process of technological change is a third factor which will reshape the strategies of tomorrow. The product cycle should be reduced even further as the result of continued improvements in production processes. CAD and CAM will enable firms to build greater "ease of production" into their products. These innovations should

lead to a further fall in total costs by reducing the costs of labour and capital per unit of output. In relative terms, material costs could therefore become an even more important component in the total costs.[17] Firms that are international in scope will be best able to cope with this development; they will have the contacts and abilities to search out the cheapest and highest-quality suppliers of raw materials.

What opportunities for developing countries are to be found in these scenarios? These are rather limited for three reasons. First, the key value-adding functions outside manufacturing tend to be tightly controlled by the companies with strong brand names. Some revenue growth will pass to suppliers, but the bulk will be retained by the holder of the brand name (mainly firms following a design - and - marketing strategy). Second, the most obvious opportunities for developing countries are in those parts of the industry where margins are thinnest - primarily the provision of leather to low-cost manufacturers and to some fully integrated producers. Design opportunities exist, but by their very nature will be modest in revenue terms. Third, the types of improvements in production processes being introduced by fully integrated manufacturers will constrain the future role of companies in developing countries which rely on low-cost supplies.

Box 5.11 Production outsourcing among firms specializing in design and marketing

Nike's first manufacturing plant was established in the United States in 1974 but it now obtains shoes from nearly 40 overseas plants, with products coming from the Republic of Korea (54%), Thailand (18%), Taiwan Province (15%), Indonesia (5%), and China (7%). Reebok and LA Gear source virtually all their production in the Republic of Korea.

About half of Nike's apparel products are made in the United States with the remainder coming from Taiwan Province and Thailand. Other foreign involvement includes Nike's ownership of distributorships in nine European countries and sales in an additional 50 countries which are handled by independent distributors and licensees.

Table 5.1 summarizes some of the opportunities according to the strategy chosen and the point in the processing chain where the new entrant might focus its efforts. In the longer term, tastes will probably become more similar across countries. As brands assume more cross-border power, the effectiveness of a design - and - marketing strategy will grow. Like others, producers in developing countries will also turn

Table 5.1 Opportunities for new entrants in the leather footwear industry

Strategy group		Opportunity as			
		Supplier	Wholesaler	Overseas agent	Designer
1	Low cost manufacturer	Always chances to bid below current suppliers; low margin the norm	Low fashion content militates against shoes being keenly sought	Value/weight ration unfavourable	Moderate on good communications
2	Fully-integrated manufacturers	As above	Always opportunities	Limited appeal beyond narrow niches (e.g. boots)	Opportunities exist
3	Design/marketing firm	Restricted to highest quality, high-volume, flexible-mix suppliers	None, company in US controls this key lever	None	None

to this approach. Their main problem in implementing a design and marketing strategy will be how to manage a new brand from overseas.

Endnotes

1 For example, when footwear manufacturers in the Republic of Korea and Taiwan Province began trying to develop their exports to North America, assistance was provided by Japanese merchandising companies. Additional export channels were later provided by Nike and Reebok.

2 JIT does not require computerized methods of production. Firms in the United States have traditionally employed JIT both for supply of raw hides and delivery of finished leather.

3 Privately owned firms specializing in the development of robots and automated machine tools for these industries receive modest amounts of government support for research and development. These systems will probably first be used in the clothing industry, but should eventually find application among leather makers as well.

4 The market breakdown (in percentages) at the beginning of the 1960s was as follows: footwear (70), leather goods (15), upholstery (5), garments (3), mechanical (3), other (4). At the time, pormomerics were probably an even greater threat to leather goods than footwear because their performance specification made them specially suitable. Markets for luggage were lost to synthetic fabrics though leather was still holding its own among buyers of personal leather goods.

5 The campaign was very through. Pop groups were encouraged to wear leather gear at all times and the motor-cycling fraternity (known as the "Rockers" and the "Mods") were also targeted.

6 In Austria, Italy, France, Germany, Spain and the United Kingdom 40 to 60 per cent of the population already possess one leather garment.

7 A tie-dye finish was developed by Indian tanners, while the Japanese perfected techniques for producing ultra-soft leathers.

8 The results were so successful that it was not unusual to find whole selling floors filled exclusively with sofas, suites and chairs in leather. Polyvinyl chloride upholstery, which had originally been offered as a reasonably priced alternative was displaced in Western European and North American markets and retains a foothold only in Eastern Europe.

9 If two products are perfect substitutes, consumers have no preference. They automatically buy the cheapest item. In this situation, no firm can charge a higher price than its rivals without losing market share.

10 The market for athletic footwear offers several examples. L.A. Gear created new market niches when it entered the industry and Adidas adopted the same strategy to regain its lost market share. Nike and Reebok compete for the high-technology, heavily-decorated segment of the market. L.A. Gear attracts

a more fashionable set of buyers, and Adidas focuses on a market segment for high-technology products with no frills.

11 These reasons help to explain the setbacks suffered by Adidas. At one time the firm dominated in the market for athletic shoes in the United States. It supplied 1,200 models, including unusual items like shoes for left)handed bowlers. The firm had trouble coordinating its marketing strategies and experienced delivery problems which cost it many distributors.

12 This description of the interrelationship between trade and quality levels is highly stylized and therefore has limited application in the real world. However, its expectations can often be corroborated. One example is the rubber and canvas tennis shoes which were so common 20 years ago. Until recently, this item was almost impossible to find but it is now reappearing not as a downscale product but as an alternative to the hypermodern sneakers.

13 The convenience of holding stocks is greatest for tanners (who are exposed to wide fluctuations of raw material prices) and wholesalers and retailers (who need to respond instantaneously to demand). Storage capacity is therefore concentrated at the two extremities of the chain.

14 The same restraint does not apply when a large firm invades the territory of smaller incumbents or when it uses advertising to exploit a competitive edge. In 1991 Nike devoted nearly $40 million to its European advertising campaign where its share of the market is the third largest. The firm's advertising budget for the United States is around $100 million per year, and this, too, has some impact on European buyers. Clearly, few firms can match Nike's budget. Smaller rivals must adjust by conceding market losses, developing new niches or leaving the market.

15 Retailers, for example, can integrate backwards into the supply of differentiated products if the upstream firms attempt to exert too much control. Alternatively, they may organize into buyers' co-operatives or chain shops which are large enough to support scale economies in production. Similar power contests may take place up and down the value- added chain, giving rise to various types of corporate strategy.

16 Nike, for instance, has create at least 37 distinguishable athletic footwear and apparel segments. Massive advertising expenditures are necessary, however. The leading design/marketing companies spend around 6 per cent of sales revenues on advertising.

17 In the case of non-rubber footwear, the share of materials in total shipments rose from 43 to 48 per cent between 1972 and 1987. The same applies to men's non-athletic shoes, where the share rose form 48 to 50 per cent.

CHAPTER SIX

Micro-economic Characteristics of The Industry

The industry's micro-economic features are not so readily observable as some of the broad trends discussed out in previous chapters. They are nevertheless of great significance in assessing performance and competitive strength. This chapter begins by looking at opportunities for vertical integration and the types of linkages which exist between firms in different parts of the industry.[1] Related questions such as differences in establishment size and the use of substitute materials are then examined. The chapter concludes with a detailed survey of the cost structure in different countries.

Vertical integration and organization of production methods

Firms in most resource-intensive industries generally assign a high priority to the security of their supplies. If possible, the larger firms in these industries organize themselves in a vertically integrated manner. Their operations then span the entire transformation process from raw materials to the finished product. Such an organizational structure ensures that they have control over sources of supply.

Concern about supply security applies to manufacturers of leather products as well, although their options are rather limited. Firms in other resource-dependent industries such as steel, processed foods or non- ferrous metals are little affected by conditions in alternative markets for their raw materials. Leather, however, is obtained from production of meat and the markets for beef, lamb, pork, dairy products and wool determines the availability of hides and skins.[2] Buyers of raw materials can exert some leverage over suppliers, but

their influence is relatively modest in comparison with other industries (see box 6.1). Faced with such conditions, the manufacturers of leather products can not contemplate a comprehensive form of vertical integration without entering the meat industry as well.

Tanners have experienced fewer supply problems than manufacturers. There are opportunities for vertical integration, although commercial considerations discourage this form of organization (see box 6.2). The demand for leather depends to a great extent on the degree of product differentiation occurring at later stages. Manufacturers need materials with very specific characteristics; this enables them to produce products with a wide variety of finishes, colours and textures. Product differentiation also depends on changes in fashion and the speed with which suppliers respond to designers' specifications.[1] As a result, manufacturers' needs may best be served through a series of short production runs rather than the longer runs which are typical of a vertically integrated plant. Firms that choose to integrate two or more steps in the tanning process will not obtain any measurable improvement in supply security. Nor is the move likely to strengthen links with downstream buyers. The decision therefore depends on market circumstances or gains in efficiency which offset any loss in response time or flexibility.

As with leather-making, the manufacture of footwear consists of two distinct phases, and there are also opportunities for vertical integration. The first phase involves the cutting and stitching leather pieces, while the second entails the assembly of pieces, including installation of linings and fasteners. Some producers perform all these operations in a single, vertically integrated plant. Others prefer to specialize.

Box 6.1 The market for hides and the production of meat

The slaughterhouse's largest outlays are for the live animals which it processes. Sales of hides and skins represent a small portion of the slaughterhouse's total revenue - usually less than 10 per cent. Therefore, the supply of hides and skins produced is not sensitive to direct price signals. Instead, supply is a function of the number of animals being slaughtered for meat.

In theory, leather producers can exert some leverage in this equation. The revenues earned from hides and skins will boost profit margins, sometimes substantially. To illustrate, the purchase of live animals is equivalent to about 50 per cent of the slaughterhouse's revenues, but the additional costs associated with the recovery and sale of hides and skins are very small. Earnings derived from the sale of this by-product are 5 to 10 per cent of total revenues and would be between 10 and 20 per cent of slaughterhouse value added. This income can be used to offset fixed costs and add to profits.

Box 6.2 Opportunities for vertical integration in leather tanning

Leather tanning actually consists of several different operations and some, or all, can be done in the same firm. The first phase of the tanning process yields semi-tanned leather, also known as wet blue or crust. Finished leather is obtained after the second phase, which actually involves two steps, retanning and finishing. The dyeing and finishing which is carried out during this second phase gives leather its colour(s) and texture. As the material passes through each phase, it takes on more and more specific attributes involving physical, chemical and (most importantly) commercial characteristics. At the wet-blue stage most of the options - thickness, colour, quality grade - are still open, but later on the characteristics become so specific that the product is committed to particular uses and its marketability narrows.

There are actually leather-making facilities which are integrated through all these phases of tanning - from raw hides and skins to finished leather. Each operation needsnot be performed in the same plant, however. Some operations begin with the raw material, others with wet-blue, crust or semi-finished leather.

Shoe-making operations can be separated without jeopardizing efficiency and it is logical that patterns of specialization and integration take advantage of the respective strong points of firms in different parts of the world. Specialization or product fragmentation is practised most extensively by United States shoemakers. Many firms design their own shoe models, but the uppers are stitched in the Dominican Republic while the lasting, finishing and packing is done in Puerto Rico. A less intricate but more common arrangement exists in the United Kingdom, Italy and the Federal Republic of Germany. Cutting and stitching of uppers is done in developing countries - mostly in India or China. European firms import the uppers and then perform their own lasting and bottoming.

Some producers choose to integrate various steps in leather making with the manufacture of finished products. Often, these decisions depend on the economic environment and the policy mix. Recent entrants may find that they need to carry out several operations in order to shape the environment to their needs. Policy makers in Brazil, for example, encouraged new shoe manufacturers to process imported Argentinean crust, although the same incentives were not granted to the tanners. Accordingly, manufacturers integrated backwards and started finishing leather themselves. In India, the reverse has occurred. When Indian tanneries began to seek out foreign markets for semi-tanned leather, they were faced with a set of government regulations which favoured the export of items with greater value added. Tanners

subsequently integrated downstream into the shoemaking stage in order to add value to their export.

In conclusion, the extent of vertical integration seems to be associated with the industry's maturity and the sophistication of the markets it serves. When firms are new, the stage which exhibits the most dynamism - whether it is tanning as in India or shoemaking as in Brazil - attracts others to its orbit. Vertical integration is the general rule in the industry's early stages, but as the industry matures, this option becomes less attractive and the number of specialized units multiplies.

Establishment size

A feature which is closely tied to decisions on integration and specialization is the average size of establishment. Average cost depends on the scale of production. Interest focuses, in particular, on the way costs behave at different levels of output. Economists usually employ a U-shaped curve to describe the behaviour of unit costs. Such a curve implies that there will be some "optimal size" for the plant. Firms of less than optimal size incur relatively high unit costs, but as output rises, economies of scale come into play and unit costs decline. Eventually, these costs reach a minimum (the bottom of the U-shaped curve) and then begin to rise if the size of the firm is increased further. This stylized picture of the cost curve cannot be supported by actual data. Little or no information exists on cost behaviour in individual plants as levels of output (or, in the long run, plant size) change. However, enough is known about the size distribution of firms in the leather industry to arrive at some general impressions.

Among leather-making firms, tanners probably have stronger reasons to seek economies of scale than finishers.[4] This distinction results from a combination of factors. First, the materials produced by tanners (semi-tanned, wet-blue and crust leather) have a variety of uses, they are stable and can be stored, and significant volumes are traded. Such product characteristics are suitable for firms operating with large production runs. Second, the technologies needed to produce uniform materials and to minimize polluting effects are expensive, making these operations capital-intensive. Large-scale production is therefore necessary to reduce the cost per unit of tanned leather.

At the finishing stage, the scale of operation varies more widely.

Artisanal operators process 1-20 hides per day, small-scale mechanized establishments finish 20-100 hides daily and normal-sized plants handle between 400 and 1,200 hides per day. Alongside these small to medium-sized firms are giant units processing up to 5,000 hides per day and operating efficiently on a worldwide scale. This mixture of large and small competitors can be explained in two ways. First, some artisanal and small-scale finishers are unable to meet the quality standards demanded by downstream manufacturers. Nor can they compete with larger installations which provide materials of a consistent quality. Instead, these plants cater to residual users of low-quality leathers that are no longer supplied by others. A second, more important reason why small-scale finishers are able to thrive is that they have both greater product flexibility and closer contacts with downstream manufacturers than their larger rivals (see box 6.3).

A limited amount of data on the size distribution in this segment of the leather industry has been collected by UNIDO and is found in appendix tables A.22-A.37. Selected data are summarized in table 6.1. The majority of firms have less than 50 employees but are rarely important contributors to output. Less than a quarter of all firms have more than 100 employees, although they may provide the bulk of output and a large portion of the jobs.

Box 6.3 Opportunities for specialization in leather finishing

Markets for high quality leather products consist of a myriad of niches, all sheltered from competition by fashion changes and a rapid turnover in products characteristics. An effective means of competing in such markets is in terms of the attributes of the leather used in the products. Systematic changes in product characteristics require flexible production processes. Finishing firms that produce a short series of differentiated materials will have an advantage over those that opt for scale economies and long production runs of identical goods. Thus, small flexible installations may have an advantage where quality and product differentiation are more important than price.

The importance of small-scale finishers will ultimately depend on the strength of local manufacturers of finished goods. In the EC, the typical finishing plant employs about 20 workers. However, finishers in Belgium, the Federal Republic of Germany, the Netherlands, and the United Kingdom have lost many of their downstream users. This has led to a rationalization of finishing operations with the survivors being somewhat larger (50 and 90 workers per establishment). France, Portugal and Spain have a stronger fringe of local manufacturers and the average size is around 30 workers per establishment. Italian manufacturers of leather goods are some of the most competitive and the average finishing establishment in that country employs only 11 workers.

The significance of plant size and scale economies is more ambiguous for manufacturers of leather footwear. Moderate gains in productivity and efficiency may be realized when the number of assembly lines and specialized tasks are increased. However, many firms find it difficult to operate in this manner and in any case the evidence suggests that benefits are not always clear.[5] The same does not apply to major competitors producing non-leather footwear. Suppliers of leather shoes tend to concentrate on the upper end of the market by producing high-quality shoes in short production runs while their competitors cater to the lower end of the market where consumers are more price conscious.

The distinction between the two groups of footwear firms results mainly from differences in cost structure. Because manufacturers of standardized plastic or rubber shoes can produce large numbers of each model, they rely on highly mechanized methods of manufacture. Fixed costs are therefore a relatively large portion of total costs and it is possible to reduce unit costs through long production runs. In contrast, leather footwear is characterized by production runs which are short and variable costs rise as the scale of output increases.[6]

Table 6.2 gives some idea of the size distribution among footwear firms in various countries. Typically, more than half these plants have less than 50 employees and over half the workforce is found in firms with less than 100 employees.[7] Italy, with its strong reputation for high quality leather footwear, is an extreme case. Small firms in that country account for over 95 per cent of the total and employ two thirds of the industry's workforce. The industry structure in France is more balanced. More than half the French firms are small, but they provide only 12 per cent of the jobs; another quarter of all establishments accounts for almost 75 per cent of total employment. The size distribution in Austria and the United States reflects a much greater emphasis on the production of standardized shoes using large amounts of non-leather materials. Big firms make up a significant portion of the total number and account for an overwhelming share of the industry's workforce.

Supply characteristics and substitution opportunities

Supply constraints play a rather important role from one end of the industry to the other and their significance is unlikely to diminish in the foreseeable future (see box 6.4). Because of this, leather firms are constantly concerned about recovery rates at the primary stage and the quality of the raw materials they purchase.

Table 6.1 The size distribution of firms engaged in tanning and finishing [a], selected countries and areas and years (Percentage)

Country or area	Year	10 - 49 employees					50 - 99 employees					100 and more employees				
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Australia	1985	80.2	47.0	45.1	48.2	44.3	15.6	32.4	33.3	34.0	36.1	4.2	20.6	21.6	17.8	19.6
Austria[b]	1988	66.7	20.1	20.5	15.3	21.8	8.3	8.4	7.8	14.5	11.7	25.0	71.5	71.7	70.2	66.5
Brazil	1985	55.3	14.6	11.8	12.4	12.1	18.0	14.2	14.3	14.8	14.9	26.7	71.2	73.9	72.8	73.0
Colombia	1987	65.8	19.2	13.9	12.4	13.9	9.8	9.4	7.4	6.3	7.1	24.4	71.4	78.7	81.3	79.0
Hong Kong[b]	1989	87.7	66.7	64.5	70.2	63.1	11.1	27.6	31.4	24.9	33.3	1.2	5.7	4.1	4.9	3.6
Japan	1990	92.5	70.8	65.0	66.2	67.3	5.4	15.2	16.8	16.7	18.6	2.1	14.0	18.2	17.1	14.1
Republic of Korea	1989	77.2	36.5	30.2	23.4	31.8	12.9	19.8	20.8	19.6	21.1	9.9	43.7	49.0	57.0	47.1
Singapore	1989	73.7	...	...	...	...	15.8	...	...	...	...	10.5	...	...	...	...
Turkey	1986	84.2	50.6	45.3	45.7	40.9	9.5	18.6	21.7	22.8	24.5	6.3	30.8	33.0	31.5	34.6
United Kingdom	1991	71.8	34.6	...	...	...	17.8	25.5	...	...	...	10.4	39.9	...	...	...
United Republic of Tanzania	1988	12.9	8.2	6.8	5.8	0.8	21.4	17.3	10.6	5.8	9.3	35.7	74.5	82.6	88.4	89.9

Sources: Appendix tables.

Notes: 1 - Establishments; 2 - Employees; 3- Wages/salaries; 4 - Gross output; 5 - Value added

[a] All data refer to ISIC 323 and includes some manufacturers of leather products as well as tanners and finishers.

[b] Includes UNIDO estimates.

Table 6.2 Size distribution in the footwear industry [a], selected countries and areas and recent years
(Percentage)

		Firms employing:					
		1 - 49 employees		50 - 99 employees		100 and more employees	
Country or area	Year	Share in establishments	Share in employment	Share in establishments	Share in employment	Share in establishments	Share in employment
Australia	1988	77.7	20.5	12.0	20.4	10.3	59.1
Austria [b]	1988	41.7	7.2	12.5	5.5	45.8	87.3
Canada	1987	46.4	...	23.6	...	30.0	...
Colombia	1987	79.5	33.4	12.1	17.7	8.4	48.9
France	1989	55.0	12.4	19.1	13.8	25.9	73.8
Germany	1987	44.9	...	20.4	...	34.7	...
Greece	1986	96.9	...	1.5	...	1.6	...
Hong Kong [b]	1989	88.6	41.8	8.9	38.6	2.5	19.6
Italy	1989	95.6	62.2	3.0	16.6	1.4	21.2
Malaysia	1988	33.3	...	33.3	...	33.3	...
Netherlands	1989	80.0	31.1	15.2	39.7	4.8	29.2
Portugal	1986	83.4	...	12.9	...	3.7	...
Spain	1989	87.5	...	9.8	...	2.7	...
United States [c]	1987	46.3	6.1	11.6	5.7	42.1	88.2

Sources: Appendix tables.
Notes: [a] ISIC 324 which includes leather and non-leather footwear. [b] Includes UNIDO estimates. [c] Leather footwear only.

Rates of recovery are mainly determined by conditions beyond the control of leather tanners. Quality, however, depends on three factors. The first is the condition in which the hide is recovered. Hides obtained from modern slaughterhouses are generally of good quality but between a quarter and a third of all raw materials are taken from fallen draught or dairy animals. A decision to kill these animals is based on their draught or dairy value and not the value of the hides. A second quality determinant is the care taken when removing the hide and the promptness in curing it. Slaughter cuts in the middle of a hide reduce the usable surface area. Hand-flaying minimizes wastage but also slows the slaughtering process and increases the cost of the meat. Careful and timely curing will avoid putrefaction of the hides but, again, costs are incurred. Third, quality depends on the conditions in which the animal is raised. Meat production is becoming a large-scale operation which involves less open-range husbandry and more feed-lot finishing. These practices reduce the number of range-related imperfections (for example, parasite damage to the hide). Modern feed-lot technology also results in larger concentrations of animals, so slaughterhouses and tanners have cost incentives to locate nearby. A short distance between the slaughterhouse and the tannery will mean quicker curing and continuous processing through the pickling stage.

Box 6.4 Supply determinants - a long-term view

The supply of bovine hides has passed through two distinct stages since 1950. Until 1975 the markets for meat, butter and milk were expanding and so, too, was the supply of hides and skins. The development of new feedstuffs and feed-lot technologies also helped to boost supplies. Afterwards, growth slowed as the dietary habits of consumers changed and representatives of animal husbandry groups in some countries lost political influence. The tight supply situation was relaxed somewhat in 1991-1992 when additional hides from Eastern Europe and the USSR became available. That development promises only short-term relief, however. Once shoe production in Eastern European markets recovers, supplies will again be used locally.

Firms in industrialized countries have been able to alleviate supply constraints by increasing offtake rates and weight per hide. The cattle population in industrialized countries is nevertheless falling at a faster rate than it is growing in developing countries. Supply determinants are also taking a more ecological hue. Critics stress the pollutionary effects of animal farming on the quality of land and water, the need to increase the efficiency of land devoted to food production, and the issue of animal rights. Ecological arguments may gradually lead to a shift in consumer preferences away from leather and back to synthetics. Supply security could become even more of a problem by the end of this century, but the long term is difficult to predict. Meat producers could develop more healthy products, while the turnover of dietary prescriptions is fairly high. Supply could also increase due to higher offtake rates and less wastage in developing countries.

In theory, these sorts of supply constraints should not be so severe for downstream manufacturers. The relative profitability and the potential for adding value in various markets - for example, leather garments, athletic shoes or upholstery - should determine which sub-sector takes the greater share of available supplies. This, however, is not the case. Producers engage in very little switching between various markets, even though the raw stock requirements may be similar. There are several reasons for this inflexibility - inertia, differences in mechanical and technical infrastructure, extensive specialization in a particular submarket and a failure to analyze alternatives.[8]

Manufacturers will sometimes substitute other materials for leather, provided that the move is economically and commercially feasible. The appeal of substitutes can be great since their prices are more stable than those for leather. Thus, demand for leather will be influenced by the price of substitutes such as textile fabrics and plastic sheet material. The use of synthetic substitutes generally necessitates additional spending on research and design, but once these outlays are amortized, the impact on unit costs would be reduced.

Substitution has made much headway in footwear markets where synthetic soles and textile uppers are commonplace. These materials were originally used in shoes of comparatively low quality but can now be found in some upscale models since they improve wear, resist slippage and offer therapeutic advantages. Textiles and plastics are also popular materials for use in products such as luggage and handbags. Again, the substitution process began at the lower end of the market, but designers of upmarket items gradually turned to plasticized textiles and simulated leather made from plastic. Consumers accept this form of substitution because the new materials are attractive and exhibit wearing properties that are superior to those of leather.

There is also a conservation phenomenon which affects the demand for leather: manufacturers change the design of their products to vary the amount of leather per unit of output. For example, during periods when leather prices are high, managers or marketing specialists may favour open-toe women's shoes or low-top women's boots. Similar tactics are employed by makers of leather garments (see box 6.5). These adjustments "stretch" the available stock of leather over a greater quantity of goods. Because the raw material accounts for more than 50 per cent of total production costs, any saving achieved by reducing the leather content can translate into higher profits for the manufacturer.

Based on this combination of conservation practices and opportunities for substitution, the demand for leather would be expected to be rather elastic and, possibly, in a state of secular decline. Two offsetting factors are at work, however. First, the demand for leather products is not easily eroded: its prestige and unique properties limit the degree of substitutability offered by other materials. Non-leather substitutes are acceptable materials for high-fashion product but buyers retain a preference for leather in many instances. Second, continued demand for leather owes much to its use in new markets such as upholstery (for automobiles as well as furniture) and garments - especially men's and women's jackets and clothing.

In conclusion, the interaction between supply constraints and substitution possibilities can be encapsulated in the economist's measure of elasticity (see box 6.6). Neither the quality nor quantity of leather available on the open market is especially sensitive to changes in price. In other words, the industry's supply elasticities are rather low. Limited opportunities for substitution mean that the demand for leather is not particularly elastic. With inelastic supplies, any change in market conditions is immediately reflected by price shifts although the industry's somewhat higher demand elasticities help to moderate these effects and reduce the extent of price fluctuations.

Box 6.5 Substitution, conservation and product prestige in markets for leather garments

The use of synthetic materials is a long-standing practice in markets for leather garments. Traditionally, textile and synthetic materials have been used as linings and other parts of leather products, generally on parts of the product that are not readily visible to the consumer.

Leather accounts for a large portion of total costs and materials of adequate quality are not always available. Thus designers will sometimes use a greater amounts of non-leather materials in their garments. For example, a jacket might consist of a leather vest, with textile fabric sleeves, back and collar. Such designs have two advantages. First, they reduce the cost of the leather product, and they enable the industry to "stretch" the available supplies of leather over a greater volume of leather products.

Until now, the growth of demand for leather garments has depended on consumer appeal. The overriding goal of firms is to see that leather is incorporated into the normal seasonal cycle of clothing purchases rather than being regarded as a material with narrowly defined uses in leisure and outdoor wear. Such a step is essential if growth in the upper end of the market is to expand. The danger is that manufacturers may rely too heavily on substitution or methods of leather-stretching and that the leather will loose its fashionable status in the upper end of the garment market.

Box 6.6 Supply and demand elasticities in the leather industry

Leather tanners and finishers operate based on a fixed relationship between inputs and outputs. The quantity of leather produced will differ from the quantity of leather in hides and skins used only as a result of wastage incurred during the tanning process. One way to express this relationship is in terms of supply elasticities (defined as the percentage change in supplies resulting from a 1 per cent change in price). The supply elasticity for hides and skins is obviously low and the input-output relationships which apply to tanning and finishing means that the same characteristics apply to downstream manufacturers.

The demand elasticity for hides and skins (that is, the percentage change in quantity demanded as a result of a 1 per cent change in price) depends on the demand for finished leather products and also tends to be low. Because hides are used in fixed proportion to the output of leather, the elasticity is a fraction of that for the final output and depends on the cost share of material inputs. For example, assume that the average demand elasticity for leather products is -2.5 and that hides account for half the cost of leather. If the leather, in turn, accounts for half the cost of the leather product, the elasticity of demand for hides would be -0.625 (-2.5 x 0.5 x 0.5 = 0.625). These cost shares will vary from country to country and according to the technology choice, especially for tanning. Hides and skins, for example, could account for up to two thirds of the cost of tanned leather while leather makes up as little as a third of the cost of a particular product. Even with these extreme values the demand elasticity for hides and skins would still be quite small (-0.55). The use of alternative materials should yield a somewhat higher demand elasticity in later stages of the industry.

Cost structure

The industry's cost structure naturally differs from one processing stage to the next. For tanners and finishers, the price and quality of the raw materials are the overriding considerations. This fact is evident from the data in table 6.3 which gives a breakdown of costs in several countries. Hides and skins account for over half of total cost in almost all countries and their share is sometimes as high as 80 per cent. Labour is the second largest cost component for firms in industrialized countries. However, in most developing countries, it is overhead - for example, management, interest, capital depreciation and various fixed costs - that is of greater significance. Other inputs such as utilities, chemicals and unspecified variable costs account for a smaller portion of total costs.[9] In general, neither labour nor capital is likely to be a major source of cost advantage and the location of tanning operations should not be particularly sensitive to large international differences in the price of either factor.[10]

External factors can, of course, lead to departures from the stylized picture described here. The demand for leather products is seasonal but

Table 6.3 Cost structure of producers of leather and leather products (other than footwear)
(Percentage)

Country or area	Year	Labour costs	Raw materials	Other inputs	Overheads
Argentina	1984	17.0	70.0[a]	1.8	11.2[b]
Austria	1988	20.5	60.5	9.1	9.9
Belgium	1988	26.8	59.6	4.8	8.8[c]
Chile	1985	11.5	81.1[d]	2.1	5.3
Colombia	1987	12.6	71.1[d]	2.9	13.4
Cyprus	1984	26.5	59.2	7.9	6.4
Germany, Federal Republic of	1989	23.5	45.4	15.5	15.6
Hong Kong	1989	14.0	75.8[d]	[g]	10.2[e]
India	1987	5.0	79.4[d]	1.9	13.7[b]
Indonesia	1986	9.0	79.1	8.0	3.9
Pakistan	1980	3.9	83.2	1.9	11.0
Philippines	1985	18.0	52.7[d]	9.5	19.8
Singapore	1989	18.1	66.9	6.2	8.8
Turkey	1986	4.6[f]	76.4[a]	0.7	18.3
Venezuela	1990	9.9	65.7	5.5	18.9

Sources: National publications.

Notes: [a] Includes fuels and electricity. [b] Includes repair and maintenance, rent for premises and machinery. [c] Depreciation not included. [d] Includes other materials (packing materials, chemicals). [e] Includes rent for premises, machinery and equipment. [f] Only wages and salaries. [g] Other inputs included in raw materials.

tanning must be a year-round operation to be cost effective. To reconcile these different pressures is not easy, and one recipe for disaster is to accumulate inventories of finished leather.[11] Tanners will frequently finance the costs of inventory with borrowed money, and interest rates therefore become an important consideration. In developing countries with exceptionally high or extremely volatile interest rates, the effects on costs can be dramatic. Another cost uncertainty is faced by tanners who depend upon imported chemicals. Exchange rates in many developing countries behave erratically and imports can sometimes become an important cost consideration.

A firm's decisions with regard to organization and methods of production will obviously alter the cost structure. If the production process is extended from wet blue to crust and finished leather, the capital-output ratio will decline, although the ratio of working capital to output is unchanged (Kuyvenhoven, 1980). There are also a number of production techniques from which to choose - each with its own requirements for fixed capital and workers. The possibilities of substituting labour and skills for capital are therefore large. By selecting from all the options available, any group of firms can build up a tanning operation which is suitable to the country's particular factor endowment.

Cost structure and input requirements become more varied when attention turns to the manufacture of footwear and leather products. One simple reason is the many different products which make up this part of the industry. However, the menu of production technologies is again large - even for firms making similar items. Shoe manufacturers, for example, can choose from more than a dozen technologies, each with different implications for labour usage and other factors of production (see box 6.7).

Despite this diversity, some generalizations about the cost structure of footwear manufacturers can be made with the help of the data in table 6.4. First, the input requirements of these firms are still rather leather-intensive. Total materials (which includes not just leather but many other materials) account for a half to two thirds of operating costs in most countries. Second, the manufacture of leather products is moderately labour-intensive, with the highest shares being reported by industrialized countries like Belgium and Germany. Labour makes up a smaller portion of operating costs in developing countries, though its share generally exceeds that of other components except raw materials.

Box 6.7 Technologies and factor requirements for footwear manufacturers

When production technologies are compared in terms of their factor intensities, wide variations can be noted. Box table 6.7 considers four types of production methods and three generic factors. The amount of labour and the training required by workers falls sharply if semi-automatic or automatic technologies are adopted. Production technologies can also be specified at a more detailed level than shown in the table. When this is done, and the processes are ranked by ascending degree of capital intensity, capital requirements vary almost a hundredfold between the two extremes. Labour requirements differ by twentyfold, and skill requirements range from 3 to 18 months.

In countries where the cost of capital and labour are quite different, both craft-based manufacturing and mechanized production can co-exist, though the firms operate on vastly different scales. The former are small and serve regional markets while the latter are large and produce for the entire domestic market. Such a juxtaposition occurs even in industrialized countries although the craft firms usually offer much lower wages in order to compete. The same phenomenon can be observed in a single factory where some operations are fully mechanized and others are done manually (see Benton, 1989).

Box Table 6.7 Factor intensity for alternative techniques of shoe-building (lasting and bottoming) in the mid-1970s

Input requirements per 1,000 pairs daily

Capital intensity of alternative techniques	Labour hours			Capital ($1,000)			Skill level of labour (in training months)		
	S	C	W	S	C	W	S	C	W
I. By hand	720	640	1,066	0.9	0.8	1.4	12	9	18
II. Mechanical human energy	293	293	333	45.0	45.0	50.0	6	9	12
III. Semi-automatic machines	61	57	103	80.6	56.9	192.1	4	6	4
IV. Automatic machines	49	34	82	63.7	70.9	131.4	3		3

S = Stitching C = Cemented W = Welting

Sources: Boon, G., 1980

In general, manufacturers based in developing countries can be expected to enjoy a modest cost advantage over competitors in industrialized countries - provided that they have access to suitable and inexpensive raw materials as well as cheap labour. Firms in industrialized countries have attempted to offset this advantage through labour-

Table 6.4 Cost Structure for producers of footwear[a] (Percentage)

Country or Area	Year	Labour costs	Raw materials	Other inputs	Overheads
Argentina	1984	26.2	66.8[b]	2.1	4.9[c]
Austria	1988	27.5	41.3	16.4	14.8
Belgium	1988	44.2	44.6	5.5	5.7[d]
Chile	1985	19.4	69.7[e]	1.3	9.6
Colombia	1987	22.1	55.5[e]	5.2	17.2
Cyprus	1984	29.4	54.3	7.8	8.5
Germany, Federal Republic of	1989	26.6	40.8	20.7	11.9
Hong Kong	1989	21.5	69.7[c]	[g]	8.8[h]
India	1987	14.6	65.1[e]	1.9	18.4[c]
Indonesia	1986	21.7	52.6	17.4	8.3
Pakistan	1980	14.5	68.3	3.7	13.5
Philippines	1985	25.2	58.0[e]	5.4	11.4
Singapore	1989	17.1	64.8	12.5	5.6
Turkey	1986	11.3[f]	68.7[b]	3.3	16.7
Venezuela	1990	16.1	60.4	11.4	12.1
Zimbabwe	1986	28.6	51.3	9.0	11.1

Sources: National publications.

Notes: [a] All figures refer to ISIC 324 which includes footwear made of leather as well as of other materials. [b] Includes fuels and electricity. [c] Includes repair and maintenance, rent for premises and machinery. [d] Depreciation not included. [e] Includes other materials (packing materials, chemicals). [f] Only wages and salaries. [g] Other inputs included in raw materials. [h] Includes rent for premises, machinery and equipment.

saving innovations but with little success.[12] In practice, however, certain types of labour skills are probably as an important determinant of competitive abilities as wage rates. Leather comes in irregular shapes and the skills required for cutting it are crucial. It is the cutter's responsibility to place the various patterns on the leather in a way which maximises the useable area and minimises wastage. Cutters must also contend with random imperfections in the leather surface. By appropriate placement of the patterns, the imperfections in the leather can be cut out (placed to occur in the wastage area) or located where they are not visible on the finished product. The better the cutter's skills, the greater will be the output of leather products from given supplies of leather.

With regard to capital requirements, working capital (that is, the amounts invested in leather, work in progress, finished goods and suppliers' credits) looms much larger than spending for fixed capital such as buildings, machines and tools. Labour or capital-intensities may vary depending on the production technologies used to manufacture footwear or leather products, but will generally not have a great impact on profitability. These considerations explain why firms using a wide range of technologies are still competitive and why manufacturing operations can be easily redeployed from one part of the world to another without major technical alterations.

In conclusion, the industry encompasses a bewildering array of micro-economic decisions regarding substitution, product differentiation, production methods and so on. Firms that operate according to a variety of different methods are still able to survive and compete in many markets. The fact that such a large combination of methods and approaches is economically feasible is one reason why leather tanning and manufacturing has spread to so many countries. This same diversity helps to explain why many firms based in industrialized countries have been able to continue operation, albeit with some adjustments in organisation and methods. The industry's flexibility is being continuously challenged and it is gradually being forced to face new challenges. Environmental concerns voiced about certain parts of the leather industry will require further adjustments and are discussed in the following chapter.

Endnotes

1 The discussion focuses on the industry's second and third stages — that is, tanning and finishing and the manufacture of leather articles. Production of hides and skins is traditionally regarded as part of the agricultural sector and is considered here only in terms of its impact on downstream producers.

2 Improved market conditions for dairy products or wool would mean that fewer animals are slaughtered and the supply of leather would be reduced.

3 A delivery time of six to eight weeks is presently regarded as a maximum.

4 Blueside, the largest wet-blue plant in the world, can process up to 200,000 hides per month. There are no correspondingly large finishers. The finishers' preference for a small scale of operations is based on opportunities for specialisation and close links with downstream manufacturers.

5 Factories in the Republic of Korea are among the largest in the world: they have about 50 workers per assembly line but optimal size is still less than 10 assembly lines (Levy, 1991, p.169). The Republic of Korea firms are about 12 times larger than those in Taiwan Province. The fact that both groups produce standardized products and are equally competitive in world markets suggests that the benefits of scale economies are not crucial to success.

6 There is, of course, some overlap between these two sets of producers. The more profitable manufacturers of non-leather footwear try to expand up market where they compete with high-quality suppliers of leather footwear. Similarly, some of the stronger producers of leather footwear will want to expand their market share by selling to consumers of cheaper shoes. In general, however, makers of leather shoes will have an advantage at the upper end of the market while non-leather firms excel at the lower end.

7 A majority of the small-scale operators produce footwear with little or no non-leather materials.

8 Demand adjustments to supply-side shocks normally take a number of years. The expansion in leather garment production in the 1970s took advantage of a rise in the United States, European and Australian cattle kill, which reached a peak in 1975. Thus it did not displace the demand for hides in the footwear subsector. The two markets continued to grow till the end of the decade and both contributed to the steep escalation in raw hide prices which occurred between 1975 and 1979.

9 Another way to picture the performance of these firms is in terms of value added which is defined as the value of output less the cost of materials, fuels and other supplies, commission work done by others, and electricity consumed. Value added varies widely depending on the types of leather produced. For example, value added is equivalent to about 45 per cent of material costs for firms supplying wet-blue, semi-tanned leather and approximately 80 per cent for those making semi-tanned leather crust. The ratio rises to 90 per cent for

firms producing finished leather. These figures naturally vary across establishments and countries, but the above are indicative of the progression to be expected.

10 The capital requirements of a tanning plant vary significantly. In addition to the basic plant requirements, modern tanning facilities may include electronic equipment to monitor the chemical process, technology to reduce chemical requirements (including the possible recycling of chemicals) and pollution abatement equipment. Nevertheless, the capital-output ratio for tanning is low in comparison with other manufacturing industries, even though this is the most capital-intensive phase of the leather industry itself.

11 A similar inventory problem exists regarding hides and skins. Meat animals are brought to market on a seasonal basis as well, with a large kill rate in the fall months to save the costs of feeding animals through the winter.

12 One example of a labour-saving innovation is that of gluing seams rather than stitching them. Most innovations have not been sufficiently important to eliminate any advantage realised as a result of lower wages. Moreover, these innovations are rapidly transferred among producers in both developed and developing countries.

CHAPTER SEVEN

Environmental issues and their consequences

Environmental considerations are steadily assuming greater significance as the public's values change. This shift in public opinion is being accentuated by changes in some of the industry's own practices - in particular, the more extensive use of chemicals for leather tanning (Balkau, 1990). So far, producers in industrialized countries have had to make the most adjustments, but firms in developing countries can expect to face similar pressures in the future.

This chapter begins with a survey of environmental problems. The economic issues which these problems pose are examined in the second section while the framework of environmental regulations and controls is reviewed in the third section. Producers respond to this combination of economic pressures and regulatory constraints in a number of ways which are considered in section four. Finally, the costs of these decisions and their consequences for international patterns of competitiveness are discussed.

Environmental forces affecting the industry

Producers of leather and leather goods are facing environmental pressures from two quarters. One is a rather diffuse set of opinions and preferences which reflect a possible shift in societal values. Various environmental groups appeal to the public to eat less meat, maintaining that livestock populations are already so large that they damage the environment. Some go on to argue that existing systems of food production are not efficient. They believe that higher levels of output would be attained if more agricultural land were devoted to the

production of cereals and pulses rather than supporting farm animals (see box 7.1). Meanwhile, changes in the dietary patterns of health-conscious consumers are reducing the demand for meat. Each of these developments would lead to a fall in meat production and a diminished supply of hides and skins.

The regulations and controls which governments have introduced are another, more explicit type of environmental pressure and are the main concern of the chapter. These policies are designed to limit the volume of solid waste deposits, liquid waste discharges and aerial emissions. The regulations themselves are rather general in scope: it is rare that a particular industry such as leather is singled out for special attention. The policies are nevertheless of great importance to the industry. This is particularly for tanners and finishers, a fact suggested by the flow chart in figure 7.1.

Three basic types of pollutants are associated with tanning and finishing operations. They are: preservatives and pesticides, chemical pollutants and organic materials. Preservatives and pesticides are added to raw hides by the farmer, the butcher, or as a first step in the tanning process. Arsenic-based pesticides were the first of these to be regulated and are now banned in most countries. More recently, regulations have been introduced to limit the use of salt (which serves as a preservative) and pesticides based on pento-chloro-phenol. Among the various chemical pollutants, chrome is the most dangerous and long-lasting contaminant. Others include aluminium which is used in tanning, sulphides used in the liming and hair removal process, and solvents which are introduced during leather finishing. These, too, are subject to regulation in most countries. Finally, the industry emits various unwanted protein residues (untanned or tanned) in the form of putrescible organic materials. Disposal of these materials is one of the tanners' main concerns. The magnitude of their task is suggested by the fact that nearly half the weight of the original hides and skins remains as solid waste which is not converted into leather.

Table 7.1 illustrates the complexity of these environmental problems, showing the typical composition of untreated effluents which result from two different methods of leather tanning. No less than 15 different types of pollutants are found in tannery effluents. Some occur in negligible amounts although the overall impact on the environment is certainly not negligible. The global magnitude of the environment problems can be gauged on the basis of production levels and information on the pollution intensity of the tanning process. For example,

annual world production of light leather generates around 1.47 million tonnes of chemical oxygen demand (COD), 0.61 million tonnes of biochemical oxygen demand (BOD), and 0.92 million tonnes of suspended solids (Higham, 1991).[1]

Box 7.1 Questioning the economic efficiency of cattle production

Environmental groups argue that the world's producers of cattle and beef are a cause of environmental damage and poverty. They point out that the world's cattle population, which is nearly 1.3 billion, occupies almost a quarter of the total land space and consumes about a third of the world's grain.

The environmental case against cattle is based on the fact that herds can destroy natural habitats, strip away vegetation, erode soil and contribute to desert-like conditions in many parts of the world. Some 40 per cent of the Amazon rain forest is said to have been cleared for cattle-grazing, despite unsuitable soil conditions. Large herds also put heavy demands on water supplies. Environmentalists maintain that nearly half the water consumed in the United States is used to grow feed for cattle and other livestock. Meanwhile, the livestock population in countries such as Belgium and France is thought to produce more waste than the environment can absorb.

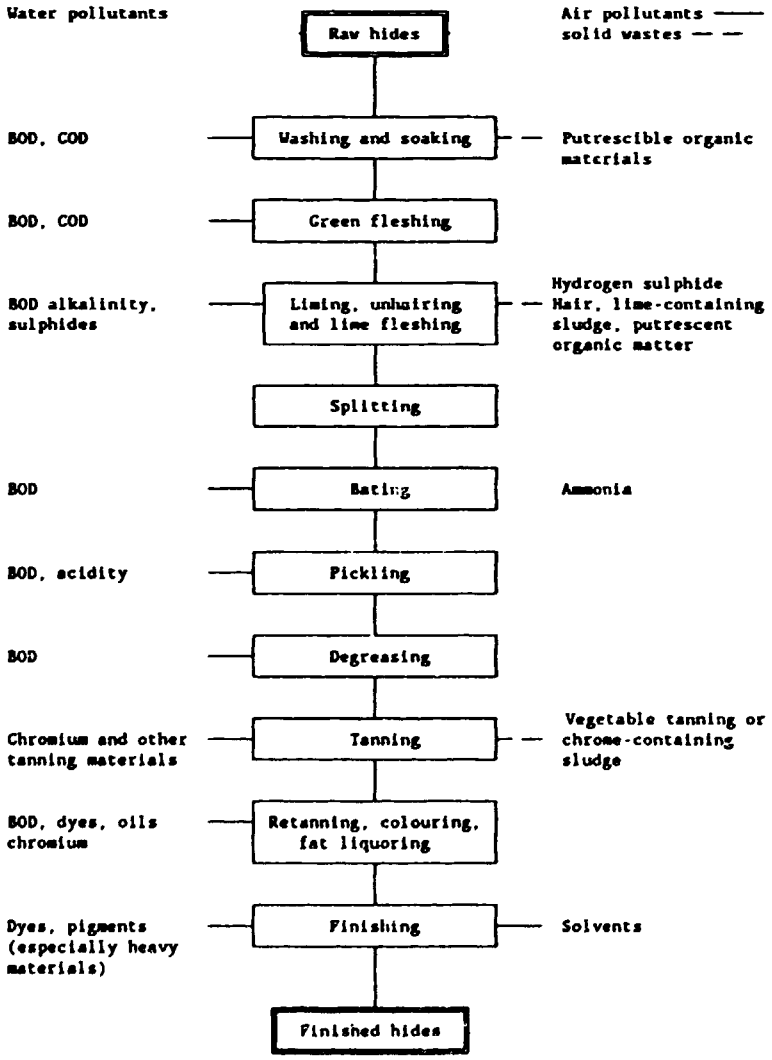
Arguments about poverty are based on estimated yields for crops and livestock. For example, an acre of cereal is thought to produce five times as much protein as an acre devoted to meat production; an acre of legumes may produce 10 times more; and an acre of leafy vegetables will supply 15 times more. If a portion of the land occupied by cattle were devoted to crop production, the food needs of many of the world's chronically underfed could be met at little or no net cost.

Economic issues

The issue of environmental degradation arises because it is not accurately reflected in the costs and prices that guide the decisions of tanners and finishers. In the parlance of economists, certain external or "spillover" effects prevent the market system from operating efficiently.

These externalities depend on two basic facts of economic life. First, there is some degree of interdependence between economic agents such as producers or consumers. Second, the consequences of interdependence are not accurately reflected in the economic transactions of these agents. It is this latter characteristic which is of particular importance: the market's failure to take account of all relevant costs means that prices, levels of production and consumption are all sub- optimal. Because of these distortions, producers' costs could be less than those borne by society as a whole. Private firms are guided by existing prices

Figure 7.1 Flow chart of the tanning process and associated pollutants



Source : UNIDO

Table 7.1 Composition of typical untreated tannery effluents (mg/l)

Pollutant	Technology	
	Chrome tannage	Vegetable tannage
Total solids	10,000	10,000
Total ash	6,000	6,000
Suspended solids	2,500	1,500
Ash in suspended solids	1,000	500
Settled solids	100	50
BOD	900	1,700
$KMnO_4$	1,000	2,500
COD	2,500	3,000
Sulphide	160	160
Total nitrogen	120	120
Ammonia nitrogen	70	70
Chrome	70	-
Chloride	2.500	2,500
Sulphate	2,000	2,000
Phosphorus	1	1
Ether extractable	200	200

Sources: Higham, R. (1991)

and allocate resources according to existing costs, but not with the costs incurred by society as a whole.

Environmental externalities can be represented by the gap between private and social costs which result from the damages of pollution-intensive production. Alternatively, they can be measured in terms of the outlays a society must make in order to return the environment to its original state. Government officials seek to correct for the gap by introducing various controls or by trying to extend the application of market forces to include the "offending" activities. If they are successful, private costs would be equated with social costs and the pattern of resource allocation becomes efficient.

Prices which equate private and social costs must take into account the use of resources such as air, water and land, as well as the costs of any environmental clean-up necessitated by tanning operations. Intervention can take several forms: alterations in the prices of inputs or outputs, changes in land-use rights, or the imposition of environmental controls. The challenge for a policy maker is to identify the right mix of incentives and regulations for each target group and for each set of environmental conditions.

Unfortunately, the environmental issues referred to here may not be the only ones the policy maker must address. In fact, this brief description touches on only one specific problem - ensuring that economic externalities do not result in a drastically inefficient pattern of resource allocation. The restoration of allocative efficiency may not be sufficient, by itself, to halt environmental degradation. Complications can arise, for example, if the maximum level of output which is "ecologically safe" is significantly less than the level of output which is economically optimal. The difference between these two output targets is known as the "ecological gap" (Pearce, 1976, pp. 63-68).

In summary, this brief excursion into the realm of environmental economics illustrates several points which help to put the following discussion in a sharper perspective. First, the environmental argument embraces both economic and non-economic issues although the discussion here focuses on only one economic issue - specifically, that of allocative efficiency. Second, most policies are intended to achieve rather general goals and are not aimed specifically for the leather industry. Policies are treated as exogenous factors and their consequences are assessed solely in terms of their impact on the industry's economic performance - in particular its cost competitiveness in international markets. Finally, both production and consumption may

have adverse external effects on the environment. In a few instances legislators have attempted to address the external effects of leather consumption - for example, by banning the sale of leather products that contain PCP. Such efforts are rare, however, and the following discussion concentrates on the problems posed by production externalities.

The framework of environmental regulation

Regulatory measures which impact on the industry deal with at least six different subject areas.
These include:

(i) land-use planning and zoning;
(ii) environmental impact assessments and risk assessments for new plants;
(iii) controls on effluent discharges, air emissions and solid-waste disposal;
(iv) occupational health and safety standards;
(v) requirements for storage, transport, labelling and packaging of chemicals;
(vi) restrictions on the use of certain chemicals like biocides or dyes.

The most critical regulations in terms of their costs of compliance are probably those dealing with the pollution of water, air and soil and the following discussion focuses mainly on these.

Policies to limit pollution due to effluents, emissions or the disposal of solid waste are usually expressed as environmental standards. This practice, itself, is the source of some controversy. Most economists argue that such a method is inefficient, since neither costs nor benefits are explicitly considered. Instead, standards are the outcome of a negotiating process between industry representatives and environmental officials. The outcome of these negotiations will depend largely on the strength of the pressure groups taking part in the bargaining process. Although criteria of environmental quality should be satisfied by these "politically" determined standards, it can only be by chance that environmental costs and benefits are balanced.

The way in which a standard is specified is another source of controversy. Once a decision has been made to use an environmental standard rather than another form of policy (for example, a tax), government officials can choose any of three methods of application.

The first relies on an empirical approach which means that the acceptable standard for a polluting activity will vary, depending on the quality of the receiving environment. Another option is to take an absolute approach which sets a uniform standard or criterion for all sources of pollution. Finally, policy makers may choose to prescribe the technology for pollution abatement by demanding, for example, the use of "best practice technology" (BPT) or "best available technology" (BAT).

From the economist's point of view the three methods of application are not equivalent. Standards which require that a specific technology be used are inflexible; they do not allow firms to take into account economic criteria in their attempt to meet environmental standards. Nor is a uniform standard for all sources of pollution likely to yield an efficient result since costs and benefits will vary across industries and producers. Empirical standards are the only method by which costs and benefits can be equated other than merely by chance.

If efficiency were the only criterion, policy makers would opt for an empirical approach. A final decision, however, also depends on the costs of administering, monitoring and enforcing. Empirical methods tend to be costly since they require extensive supervision and the most complex forms of monitoring. Standards expressed in terms of BPT or BAT regulations are usually the cheapest to administer and monitor while the costs of a uniform standard would be somewhere between these two extremes. Thus no overall preference for a method of application can be stated with any degree of certainty: the most effective approach must be determined on a case-by-case basis.

All three approaches can be found in countries which are large producers of leather. Uniform or absolute standards are popular within the EC. The European Commission also supports the concept of absolute limits, though most decisions on the limits to be imposed and methods of interpreting the standards are left to individual member States (see box 7.2). Officials in the United States have adopted BPT or BAT for some regulatory purposes but in other areas are gradually moving towards empirical methods.[2]

Table 7.2 gives a specific idea of the types of standards set for waste waters from tanneries, along with comparative standards for sewer systems. A rigorous evaluation of environmental standards in different countries would be a complex undertaking, even for the narrow selection of control measures shown here. Nevertheless, the data convey the impression that differences in the environmental standards of different

countries are not great. This seems to be the case despite substantial variations in environmental conditions. The implication is that policy makers generally prefer to apply standards on the basis of "absolute" measures rather than empirical methods.[3]

Box 7.2 Regulatory approaches in Europe's major leather-producing countries

Germany has a complex set of environmental regulations covering solid residues, effluents and aerial emissions. The most problematic of these is the limits on aerial emissions. The country's Technical Air Guide serves more as a manual for authorities than a legal instrument, though some legislation deals specifically with air pollution resulting from hide processing and tanning. Assent procedures, for example, are specified for storage of hides, drying, salting and dehairing operations, and tanning and finishing. In general, the industry faces difficulties in complying with these guidelines. Regulations governing solid waste disposal and effluents pose fewer problems and are no more stringent than in other countries.

Italy's "Merli Law" imposes quite stringent limits on pollutants such as chlorides, sulphates and total ammonia which are discharged with effluents. This means the costs of compliance are high in comparison with other leather-producing countries. Regulations governing disposal of solid waste and sludge call for research on ways of recovery and re-utilization in order to avoid dumping. Standards for air pollution are still evolving though a set of guidelines which describes emission limits and methods of containment has been issued.

Authorities in the United Kingdom have generally opted for an empirical approach. The limits associated with various standards are usually set by municipal authorities with allowances made for variations from company to company and from area to area. This flexible approach is one reason why the country, unlike others, does not have an "eco industry plan" or a set of national standards.

Regulatory effectiveness depends not only on the stringency of the standards, but also on the rigour with which they are enforced. Here, the differences between developing and industrialized countries are pronounced. Some industrialized countries have zealously enforced their standards, even if it meant the closure of many plants. For example, United States tanners in California and New England have shut down rather than face the capital outlays needed to comply with local or State standards on effluents. Tanneries in Denmark and the Netherlands have also had to close when authorities insisted on strict enforcement of standards.

Enforcement in developing countries is systematically weaker than in industrialized countries.[4] Officials in these countries rarely have the

means to monitor compliance on a regular basis and sometimes have no legal grounds to impose penalties. There are exceptions, however. Indian authorities, for example, recently ordered the closure of 76 tanning plants in the Kanpur district of Uttar Pradesh because they had failed to set up waste treatment facilities.

In general, standards are fairly homogeneous among the industrialized countries but tend to be weak in developing countries where production is substantial.[5] When both regulatory stringency and levels of enforcement are considered, there is probably a marked difference between the two groups of countries. Firms in industrialized countries are under the most pressure to respond to the environmental challenge though it is only a question of time before those in developing countries will have to make similar commitments. The following section looks at some of the firm's possible responses.

The industry's responses to regulatory controls

Once environmental regulations are in place and are being enforced, firms must find some means of compliance. The usual way of doing this is through technological improvements or changes in the composition of inputs and materials used.

Technological change is part of the normal course of events for any industry and will have ecological implications, whether environmental regulations exist or not. In general, pollution levels are assumed to increase as output rises, although improvements in technology can alter the rate of waste generation. The introduction of newer, more efficient production methods will often reduce the amount of pollution per unit of output. Thus pollution abatement is frequently part of a normal process of technological development.[6] In other cases the first step in resolving an environmental problem is not made until environmental regulations are enforced. Cutbacks in output or the introduction of cleaner technologies are the typical responses.

For leather tanners there is no such thing as a uniform technological solution to environmental problems. Their products come in many versions and the production processes are fairly complex. As a result, a number of different options have been tried. These fall into four categories:

(i) avoidance of the most pollution-intensive steps in the tanning process,
(ii) zoning,

Table 7.2 Effluent standards affecting the leather industry in selected countries, recent years

A. Standards for tannery wastewaters

Parameter[b]	Brazil	Denmark	France	Germany, Federal Republic of	Hungary	India	Italy	Japan	Netherlands	Switzerland	United Kingdom	United States
pH units	5.0-9.0	6.5-8.5	5.5-8.5	6.5-8.5	5.0-10.0	5.5-9.0	5.5-9.5	5.0-4.0	6.5-8.5	6.5-8.5	6.0-9.0	6.0-9.0
Temperature (C)	40	30	30			30	25		30			
BOD_5	60		40-200	20-25		30	250	160	5	20	20-130	40
COD				200-25	50-150	250	500	160				
Susp. solids		30	30-100			100	40	300	80	20	30-50	60
Sulphide	1.0	2.0	2.0	1.0	0.01-5	2.0	2.0			1.0		
Chrome (III)			1.0	2.0	2.0-5.0	2.0	4.0			2.0	2.0-3.0	
Chrome (IV)			0.1	0.5	0.5-1.0		0.2			0.1	0.1	
Chrome total		0.2						2	0.05			1.0
Chloride							1,000		1,200	200		4,000
Sulphate		300				1,000	150					
Ammonia		2.0	15-80	5-10	2.0-3.0		15				100	
TKN		5.0	10-60						3.0			
Oil/grease	20	5			8-50		30	50		20		

Sources: United Nations Environment Programme (1991).
Notes: [b] mg/l unless stated otherwise.

B. Standards for sewer systems

Parameter *	Brazil	Denmark	France	Germany, Federal Republic of	Hungary	Netherlands	New Zealand	Switzerland	United Kingdom	United States
pH units	5.0-9.0	6.5-9.0	6.5-9.0	6.5-10.0	6.5-10.0	6.5-10.0	6.0-9.0	6.0-9.5	6.0-10.0	6.0-10.0
Temperature (C)	40	35	30	35		30	55	40	40	
BOD_5			1,000			no limits				
COD									3,000-6,000	
Susp. solids			500		75				500-1,000	
Sulphide	5.0			2.0	1.0		1.0-5.0	1.0	5.0	24
Chrome (III)	5.0				5.0			2.0	10-20	8-19
Chrome (IV)				0.5	1.0	0.0				
Chrome total		2.0		3.0		2.0	5.0-50			
Chloride				600						
Sulphate					400	300		300	1,000-1,200	
Ammonia					200					
TKN Oil/grease	100			250	60					10

Sources: United Nations Environment Programme (1991).
Notes: * mg l unless stated otherwise.

(iii) incremental improvements in production technologies and
(iv) the addition of treatment technologies to the production technology proper.

Methods three and four are the only ones which can be considered true solutions to environmental problems. The first method is an attempt to circumvent these problems while the second is often merely an auxiliary measure.

There are numerous examples of the first method. Some firms have simply withdrawn from those parts of the tanning process that have the highest potential for pollution. These companies arrange for much of the tanning to be done abroad; they then buy in wet-blue or leather crust and thereby avoid the main pollutant load. Such an arrangement is doubly attractive since the parts of the tanning operation which are retained have the highest value added content.

The second method - zoning or controlled siting of plants - is often practised because of the odours associated with tanning operations but there are economic reasons as well. When tanners are in close proximity, they can economize on environmental expenditures by using common facilities for the treatment of solid wastes and effluents. Italy offers one of the most advanced and comprehensive examples of a zoning strategy which is focused on nine areas with central treatment plants. The high concentration of small tanneries in each of these areas preceded this approach and encouraged it. Firms banned together to finance common treatment facilities or to set up joint ventures with municipalities or the state. Tanners in other countries have also tended to congregate in the same areas though similar policies did not evolve. One reason was that many publicly-owned treatment works were willing to accept tannery effluents. Another was that the concentrations of tanneries were gradually dispersed as a result of closures, mergers or relocation to low- cost sites.

The third method for dealing with environmental problems - changes in production technologies - is the classic solution. Tanners have different objectives when they upgrade technologies, however. Their motives may include a reduction in the consumption of water and/or energy, more efficient use of chemicals, and higher rates of recovery or recycling for rejected materials. New techniques to cut water requirements have been perfected (see box 7.3) but advances in other areas have been slow. One of the researchers' goals is to find tanning materials that perform as well as chrome but are not as harmful to the environment. Alternative agents such as aluminium, titanium, zir-

conium and dialdehyde have been tried with little success. The leather lacks the softness, flexibility and resistance to water, perspiration and heat which is obtained when chrome is used.* The problems encountered in finding a substitute have forced researchers to look for ways to reduce the amount of chrome discharged, improve recycling techniques, or increase rates of precipitation and recovery.*

Meanwhile there is a search for new production methods to reduce the amount of organic pollution that occurs during the unhairing or liming process. The benefits could be substantial since these materials typically account for over half of the BOD and COD load in tannery effluents. Other technologists are working to find a substitute for the sulphides used in tanning, to increase the amount of lime/sulphide liquors which is recycled, and to develop more effective systems for recycling sulphides and organic pollutants.

Not all the options available to firms depend on technological breakthroughs. Modifications in production processes can also reduce the chrome discharge. One method is to ensure that hides are sorted and levelled in a precise manner before tanning. This decreases the amount of variation in hide substance and allows the tanner to cut back the deliberate excess of chrome which is needed to ensure complete penetration. Another method is to inject tanning liquors into each hide individually to ensure optimum penetration with a minimum concentration of chrome.

Box 7.3 Conserving on water requirements: new technologies and practices in tanning operations

The water consumption of tanneries varies between 20 and 100 litres per kilogram of raw hide, though only about half of this amount is actually needed. These large requirements can be reduced in a number of ways. First, with computer-controlled dosing and rinsing systems, water floats can be monitored precisely. The method avoids operational wastage which occurs during traditional tanning and general housekeeping practices. Second, simple precautions such as operator training and installation of control valves can substantially reduce water usage, particularly for tanners in developing countries. Third, batch washes instead of running water washes and low-float techniques can save up to 70 per cent of the water traditionally used. Further savings are possible by recycling rinse- and wash-waters to other processes.

Modifications in production processes are rarely sufficient to meet environmental regulations, however. End-of-pipe treatment is usually

necessary as well. Because a variety of pollutants are involved, the operation usually consists of several steps. First, effluent streams are screened prior to treatment to remove coarse material. These preparatory measures improve the efficiency of the treatment system since they permit flow equalization and allow the COD load to settle. Primary treatment is a second step which entails the removal of major pollutants (BOD/COD, sulphide and chrome) from the waste water. Relatively simple methods of primary treatment can remove over half of these pollutants while more sophisticated processes can achieve higher levels of treatment. A third step is secondary treatment. The methods are usually biological and may be necessary if high effluent quality is required. Tertiary treatment to reduce the nitrogen load (which otherwise can lead to eutrophication of inland waters) is the fourth and most costly step. Once all these processes are in place, tanks and basins are required for sedimentation. Depending on its nature, the resulting sludge is either used as a fertilizer or disposed of in landfills.

In summary, the final design for an end-of-pipe treatment system depends on the production technologies in use and the regulatory constraints in effect. Much the same applies for the entire range of environmental alternatives which are available to tanneries. A firm's decisions on these matters are largely governed by the costs involved and are discussed in the following section.

Cost implications

The variety of production technologies and environmental controls which exists is so complex that any assessment of compliance costs must begin with some simplifications. The approach adopted here is to take the industry's response to environmental pressures as given and then attempt to gauge the cost implications for plants in a particular country.

Such a method represents an *ex post* assessment of compliance costs and several features should be noted. First, only the industry's technological responses to environmental controls are considered. Second, the analysis distinguishes between two types of costs - the capital expenditures incurred when new technologies are introduced and the operating costs which result from these modifications. Capital costs consist mainly of the purchase and installation of devices for water conservation, equipment for the collection and reuse of waste water, and systems to monitor production processes and emission of effluents.

Capital costs will obviously rise as a result of environmental compliance but the overall effect on operating costs is less certain. The use of special chemicals to treat pollutants and the cost of extra personnel for technical control of low-waste technologies and effluent treatment will push operating costs up. However, the new technologies could also be more efficient, so the overall impact on operating costs may be cost-neutral or even cost-reducing.

How will environmental compliance affect total costs? Rough estimates indicate that about half of the leather industry's pollution load can be eliminated with only marginal investments. The distinction between changes in production technology and the introduction of treatment technology should also be borne in mind. The former will not necessarily lead to an increase in operating costs, whereas the latter (for example, end-of-pipe treatment) is cost-increasing. In general, the added burden of environmental compliance need not be great provided that some of the modifications are cost-neutral or cost-reducing.

The main determinants of these costs are the types of environmental regulations, their stringency and the level of enforcement. Each of these characteristics will affect production costs differently, depending on the country, the type of plant and its location. For example, the location of a tannery will help to determine the level of effluent treatment when an "empirical" method of regulation is used. Location will also be important if there are opportunities for firms to pool their pollution-treatment activities. Characteristics of individual plants - for example, the amounts and types of intermediate products and chemicals - will also affect costs. As a result, the overall cost of treating effluents, disposing of solid wastes and reducing pollution varies not only between countries but from one tannery to another.

Averages calculated for a large number of tanneries eliminate some cost variation, though differences in plant characteristics and locational attributes still mean that generalisations are difficult. Examples are nevertheless helpful since they give some idea of the relative magnitudes involved. According to case studies, leather tanneries processing 100 tons of raw bovine hides per week can provide conventional effluent treatment for 200 ppm BOD and 30 ppm of suspended solids at a cost which is 3.2 per cent of the sales value for full-chrome side-upper leather (UNEP, 1991, p.56). A similar study of a sheepskin tannery processing 3000 pickled pelts per week found that the costs of treatment were 2.1 per cent of the sales value for leather. These detailed figures are consistent with more wide-ranging estimates of environmental

expenditures in different parts of the world (see box 7.4).

Country-wide estimates of spending on pollution control conceal one important feature, namely the relationship between the costs of environmental compliance and the size of the tanning plant. The significance of scale economies is demonstrated by the data in table 7.3 which shows environmental spending for capital equipment and operating costs for seventeen United States tanneries of different sizes. The measure of "pollution size" used here is the daily volume of effluents which range from 18 m^3 to 3,860 m^3 per day. What is surprising is the equally large variation in relative costs of environmental protection. This applies even after both cost components have been standardized - that is, corrected for differences in plant size. In general, relative variations in cost are comparable to those for plant size.[10]

Box 7.4 Relative expenditures on pollution treatment in selected countries

Estimates on pollution treatment reveal a similar pattern among the industrialized countries. For example, the European Commission has concluded that in the leather industry the costs of treatment for environmental pollution range from 2 to 4 per cent of the value of output, or 4 to 8 per cent of value added. Detailed country estimates vary slightly around this average. Expressed as a percentage of the value of total output, the costs of environmental compliance in leather production are 2 to 4 per cent for Italy, 2 per cent for Spain, 2 to 2.5 per cent for France and 3.5 per cent for the United Kingdom.

Relative spending in developing countries should be less since regulatory stringency and enforcement efforts are rather limited, although the value of the final product, leather, is not appreciably lower. This expectation is confirmed in the case of India, where treatment costs are estimated to be 1.5 percent of the value of output (UNEP, 1991, p.56).

Detailed comparisons show that as plant size increases, there is a sharp fall in the operating costs of pollution abatement. A similar but weaker relationship holds between plant size and relative capital expenditure for environmental purposes.[11] These results suggest that scale economies in the treatment of pollutants are probably substantial. Such a claim is admittedly based on a rather small sample of tanneries in a single country. However, the mix of production technologies is representative of those used elsewhere, while the degree of regulatory stringency and enforcement in other countries is similar to that in the United States. To the extent that these conditions hold, scale

Table 7.3 Capital expenditure and operating cost for effluent treatment for selected United States tanneries, 1982

Tannery	Effluent flow (m^3/day)	Total capital costs to upgrade facilities to BPT (dollars) [a]		Annual operating and maintenance costs (dollars)[b]	
1	18	0	(0.0)	34,100	(1.9)
2	114	150,000	(1.3)	57,700	(0.5)
3	182	543,000	(3.0)	198,200	(1.1)
4	189	0	(0.0)	65,800	(0.3)
5	242	290,900	(1.2)	108,800	(0.5)
6	246	93,000	(0.4)	73,000	(0.3)
7	360	944,000	(2.6)	138,100	(0.4)
8	541	300,000	(0.6)	332,000	(0.6)
9	549	547,000	(1.0)	189,300	(0.3)
10	712	1,303,000	(1.8)	174,300	(0.2)
11	871	12,000	(0.0)	303,300	(0.3)
12	1,260	1,161,000	(0.9)	521,900	(0.4)
13	1,400	344,000	(0.2)	221,600	(0.2)
14	1,550	24,000	(0.0)	423,200	(0.3)
15	1,590	1,541,000	(1.0)	274,300	(0.2)
16	3,200	2,016,000	(0.6)	692,000	(0.2)
17	3,860	1,327,000	(0.3)	570,800	(0.2)

Sources: United Nations Environment Programme (1991)

Notes: [a] Adjusted to reflect local conditions; relative costs per m^3 of effluent are shown in parentheses. [b] Based on full capacity operation; relative costs per m^3 of effluent are shown in parentheses.

economies will be an important determinant of compliance costs.

Finally, environmental costs should be seen not only in relation to the total production costs but in comparison with similar outlays in other manufacturing industries. Here, the general impression is that the costs for tanners are high, relative to those in other industries. Tobey (1990), for example, defines pollution-intensive industries as those where the costs of abatement account at least for 1.85 per cent of total production costs.[12] The leather industry, with costs equivalent to at least 2 per cent of output value, easily qualifies. Thus, environmental pressures are of moderate-to-great significance for tanners, just as they are for other polluting industries such as non-ferrous metals, paper and pulp, iron and steel and chemicals (Tobey, 1990, Table 1).

Environmental policy and international competitiveness

Marked differences in the stringency of environmental controls are reflected in production costs and can affect the competitive position of producers. As already noted, regulations on industrial effluents carry the most important cost implications for tanners. There appears to be little difference in the stringency of these regulations or in the degree of enforcement among the industrialized countries. Thus environmental policies are unlikely to be an important determinant of competitive abilities, at least within this group of countries.[13]

The implications are different when attention turns to developing countries. Environmental controls which are exceptionally lenient will bestow some cost advantage on these producers. The availability of cheap labour is still the main reason why capacity has moved to developing countries, although differences in the costs of compliance would also be a factor. It is possible that the impact of environmental policies will diminish over time, provided that regulations in different parts of the world converge as awareness of the problem grows.

Developments in technology that are spurred by environmental regulations will also influence the pattern of international competitiveness. Here, a crucial point is that new and environmentally sound technologies can yield an overall reduction of production costs. The opportunities for leather firms to meet environmental standards without significant increases in costs depend on the use of clean technologies that do not require end-of-pipe treatment. As already noted, the tanning process can be modified in a number of ways to reduce emissions and thus avoid the costly treatment of effluents. If future

innovations give priority to these types of development, the implications of environmental regulations for patterns of international competitiveness should be reduced even further. Improvements in the industry's environmental performance would then go hand-in-hand with a reduction of total production costs.

Finally, the relationship between market structure and environmental costs is relevant here. If scale economies are as important for compliance as the empirical evidence suggests, the way in which environmental policies affect competitive abilities would depend on the degree of firm concentration. A country with a highly concentrated tanning industry should be able to retain its competitive position despite comparatively stringent environmental regulations. By contrast, in a country where concentration is low, tanneries are likely to incur relatively higher environmental costs and a concomitant loss of competitive ability.

In summary, environmental policies are likely to accelerate the movement of capacity from industrialized to developing countries so long as there are marked differences in the degree of stringency and enforcement between the two country groups. Expectations are that this factor's significance will diminish over time, however. Reasons for the change are the likely convergence of environmental regulation in various countries and the development of technological options that meet environmental standards without substantial increases in total production costs.

Endnotes

1 COD is a measure of the quantity of oxygen consumed during the chemical oxidation of the constituents. BOD represents the quantity of oxygen consumed in the biological degradation of the organic constituents of an effluent.

2 The country's Clean Air Act, which focuses on volatile organic compounds (VOC's) and air toxins, calls for a drastic reduction in emissions from tanneries based on BPT although forms of regulatory control for air toxins have yet to be determined. The Environmental Protection Agency of the United States determines the toxicity of effluents which can be discharged into municipal sewage treatment systems.

3 To the economist, such evidence would also imply that the standards are probably not being applied efficiently in the sense that costs and benefits in different industries are taken into account.

4 Even industrialized countries can not claim to have uniform levels of enforcement. However, according to anecdotal evidence some European tanneries that

were found to be heavy polluters were not penalized.

5 Information on this subject is limited. Only two developing countries – Brazil and India – could be included in table 5.2. Brazil apparently has no standards for 7 of the 14 measures listed in the table while in India the same applies to 5 of the table's entries.

6 Not all economists agree with this general interpretation. Some suggest that, on balance, changes in technology will add to the burden of pollution. They argue that the amount of waste tends to increase as productivity rises and that more sophisticated technologies have a tendency to alter the nature of waste in ways that are generally unfavourable to environmental goals (Pearce, 1976, p.69).

7 Central treatment plants are found at Turbigo, Robecchetto con Induno, Arzignano, Montebelio-Zermeghedo, Santa Croce sull Arno, Castelfranco di Sotto, Ponte a Egola, Ponte a Cappiano and Solofra.

8 Some substitutes for chrome – for example, aluminium or aldehydes — pose their own threats to health and safety. Others like titanium hold promise although its lower toxicity must still to be proved.

9 The small amounts of chrome which are fixed in the tanning bath can be raised through a combination of techniques to levels as high as 90 per cent (UNEP, 1991, p.39). A high chrome-fixation system can achieve significant reductions in chrome effluents and solid waste. Techniques for high fixation also appear to be the most effective way of reducing chrome discharge.

10 The coefficient of variation is the most common way of comparing this feature. The coefficient, which is defined is a ratio between the standard deviation of the variable and its mean, is expressed in percentage terms. The coefficient of variation in plant size is 100 per cent for the sample shown in table 5.3. Corresponding estimates for capital outlays and operating costs were 101 per cent and 92 per cent, respectively.

11 A Spearman rank correlation between plant size and operating costs associated with environmental protection yielded a coefficient of -0.83 which is significant at any level. Similar calculations relating plant size and capital expenditures for environmental purposes resulted in a rank correlation coefficient of only -0.16 which is not significant at any accepted level.

12 This threshold is in no way absolute since it is derived from United States data for 1977 and is chosen subjectively rather than on the basis of statistical criteria. Nevertheless, it can provide some guidance as to the position of the leather industry within the whole of polluting manufacturing activities.

13 Italy could be an exception to this general rule for two reasons. First, environmental regulations are thought to be somewhat more stringent than in other industrialized countries which are major leather producers. Second, the country's low degree of industrial concentration in the tanning stage does not immediately allow for the exploitation of scale economies in effluent treatment.

CHAPTER EIGHT

Case studies of industrialized countries

Tanners and manufacturers in the United States and Western Europe have seen drastic changes over the past 30 years. The result has been a sharp decline in the market share of many firms, along with corresponding decreases in the number of establishments, employment levels, volume of output and so on. Figures for several industrialized countries suggest a virtual collapse in some parts of the industry.

There is no question that the industry has contracted, though the data for some industrialized countries may overstate the extent of this structural shift. Many firms have proven to be rather nimble, moving out of their traditional operations into design, marketing or the organization of overseas production (outsourcing). When the industry is viewed in this broader context, it is an oversimplification to characterize the pattern of structural change as merely a movement of capacity from North to South.

Producers have responded to challenges in different ways. Much depends on conditions in the home market of the industrialized country as well as the strengths and flexibility of the firms involved. This chapter examines the experience of three industrialized countries where producers were well placed to defend their market share and competitive position against new entrants. At the start of the industry's transformation the United States had an abundance of raw materials and the world's largest domestic market for finished products. Germany also had a vast domestic market as well as a deserved reputation for high-quality products. Italy, thanks to its leadership in design and flexible forms of specialization, was the dominant supplier in the markets for many products. Despite these advantages, all three countries have lost most of their home and export markets for standard

products. Their responses in each case have been different, and each country's experience is discussed here.

The leather industry in the United States

As recently as 1970 the United States had the world's largest tanning and finishing subsector. The quantity and quality of the country's bovine hides were unmatched, while consumer spending on footwear and leather products was the highest in the world. United States tanneries absorbed almost all the domestic supply of hides, which in 1970 was much greater than today (40 million units compared with 27 million units at present). Footwear manufacturers were the major users, producing up to 250 million pairs of leather shoes each year.

Based on these facts the country's tanners and manufacturers seemed to enjoy a significant, and perhaps lasting, competitive advantage. In reality, the circumstances were more precarious than they appeared. Table 8.1 compares the industry's size in 1972 and 1991. Producers of footwear have been the hardest hit. Shipments increased only slightly during this period. Exports did show a substantial rise, although they began from a rather low initial level. Meanwhile, imports increased almost thirteenfold while employment declined to less than a third of the 1972 level. Year-to-year changes have been irregular, owing to the imposition and withdrawal of import restraints and wide swings in the value of the United States dollar relative to the currencies of major competitors. Nevertheless, the decline of the footwear industry in the United States is unmistakable.[1]

The most important reason for contracting of the footwear production was a large differential in labour costs which emerged between producers in developing countries and those in the United States. These and other factors have been described in earlier chapters, but the industry's decline would not have been so intensive if other, secondary conditions had not also been met. These include the following:

(i) The new production sites set up by rivals in developing countries were predominantly export oriented;
(ii) Transaction costs had to be low enough to allow profitable collaboration between producers in developing countries and distributors and marketers in rich countries;
(iii) The volume of imports into the United States was not be so great as to threaten a complete collapse of the home industry.

Table 8.1 The leather and leather products industry in the United States, 1972-1991 (Millions of dollars and numbers employed)

	Shipments		Exports		Imports		Employment	
	1972	1991[a]	1972	1991[a]	1972	1991[a]	1972	1991[a]
Tanning and finishing	1,065	2,900	66	676	140	533	25,500	11,400
Footwear[b]	3,250	3,942	10	290	653	8,400	175,000	54,700
Other leather products[c]	1,240	2,215	16	214	300	3,111	63,000	28,200
TOTAL	5,555	9,057	92	1,180	1,093	12,044	263,500	94,300

Sources: Data from the US Department of Commerce, International Trade Administration; US Industrial Outlook, 1991, pp.35, and US Industrial Outlook, 1992, pp 34.

Notes: [a] Estimate. [b] Non-rubber footwear [c] Luggage and personal leather goods.

The first of these criteria was satisfied by policy makers in developing countries who introduced various schemes to encourage exports. Transaction costs were kept to a minimum by importers in the United States who provided massive technical assistance.[3] Finally, the new market created by the popularity of athletic shoes coincided with the establishment of production facilities in Asian countries. The fact that these items were not in direct competition with domestically-produced shoes helped to deflect protectionist appeals. Domestic manufacturers themselves were quick to establish foreign production sites or commission foreign subcontractors. Because of these commitments, some firms were reluctant to press for import restraints.[3]

Foreign competition forced firms in the United States to increase their productivity. Sometimes this meant that plants were closed, though in other instances firms were able to introduce greater automation, employ modular techniques or otherwise modernize their production processes. Some companies were able to defend certain market niches, but for the industry as a whole the gains in productivity were not sufficient to offset their growing disadvantage.

The contraction of footwear manufacturers had repercussions for upstream suppliers. Traditionally, most hides had been sold to United States tanneries but by the beginning of the 1990s producers were exporting more than 80 per cent of their output (27 million cattle hides in 1990). The main buyers were in Japan, Mexico, Republic of Korea and Taiwan Province.

Tanners also had to make adjustments as their local markets were halved by importers of leather footwear and leather goods.[4] Suppliers suffered, although they have probably not been so hard-hit as footwear manufacturers. Table 8.2 shows that when growth of shipments is expressed in values rather than quantities, tanners have fared relatively better. This discrepancy suggests that prices of leather have risen faster than footwear. Prices of cattle hides jumped in the latter half of the 1970s and that differential was sustained in latter years. Hides also represent a greater proportion of the value of leather than leather represents in the value of footwear. Thus, the upward trend in prices of hides has had a greater impact on the value of leather shipments than on footwear shipments.

These aggregate figures show a widespread contraction of tanning activities but there have been successes as well. Examples include:

- Development of niche markets such as oiled and waxed

leathers used in outdoor shoes;

* The growth of markets for upholstery leather, not only at home but abroad;
* Healthy increases in the production of wet-blue leather.

Some of the production for niche markets is sourced outside the country (often in Puerto Rico or the Dominican Republic), but the leathers employed are made in the United States. Upholstery leather is in demand by domestic makers of automobiles and furniture and is exported to Canada, Japan and Germany. US tanneries, because of their access to hides of high quality, are in a good position to take advantage of this market. Finally, growth of wet-blue production has been spurred mainly by considerations relating to price and cost. Raw hides must be salt-cured before shipping but they can be tanned at their destination or point of origin. The latter method increases value added and is preferred if the product must be transported over long distances. Moreover, when hides are wet-blue tanned at the point of origin, buyers avoid some pollution costs and can better control the quality variance of the raw material.

Relative to meat, the prices of hides have risen as demand for the former stagnates. This development makes it more profitable for meat packers to move downstream into the processing of hides. They are in a good position to do so: approximately 70 per cent of the country's cattle are raised in feedlots, and only three meat packers control roughly 75 per cent of all feedlot cattle.

Twenty years of decline have changed United States tanning operations considerably. The volume of the industry's shipments has been almost halved, while the number of firms has been reduced by more than two-thirds. As the contraction worsened, tanners began a search for new downstream markets. In 1970 virtually all the country's tanned leather was sold to footwear producers, but today leather footwear represents only 55 per cent of all sales. Upholstery leather accounts for more than one fifth of the total, and garment leather makes up another 17 per cent. Moreover, rather than being almost entirely oriented towards the home market, the industry now exports a third of its production.

In summary, the manufacture of leather footwear in the United States continues to decline, although certain parts of the business remain very healthy. Major firms marketing athletic shoes are among the best performing corporations in the country, with rates of return on

sales and invested capital that are double those for most industries.[6] These companies are not manufacturers but distributors of footwear. Indeed, in a rich market like the United States, opportunities appear to be better in selling than in manufacturing. As distribution assumes greater significance, firms have had to master more complex elements of the operation. Examples include: company-wide systems to minimize handling and storage costs, centralized inventory updates from widely dispersed points of sale, inventory control through JIT and other advances. Thus, decisions with regard to product strategy in the distributive stage have technological implications for manufacturing.

The leather industry in the Federal Republic of Germany

Until the 1970s, the Federal Republic of Germany was home to one of the world's most prosperous leather and footwear industries. All the ingredients of success were at hand - a large market, experienced firms with easy access to good raw materials, and high-quality suppliers of chemical dyestuffs and leather machinery.

These advantages did not prevent a steady contraction in later years. As in the United States, the decline was led by the footwear industry. According to table 8.3, the volume of shoe production fell by more than 55 per cent in the period 1967-1991. The number of establishments and the work force size declined sharply. Makers of leather footwear were the hardest hit: they accounted for about 70 per cent of the total market in the late 1960s, but 20 years later their share was just over one-half. By 1991, the volume of leather footwear being produced was only 31 per cent of the 1967 figure.

The industries in the Federal Republic of Germany and the United States have experienced similar fates, although they differ in several respects. The typical German firm tends to be smaller and more specialised than its United States counterpart. On average, it employs about 135 persons and makes 299,000 pairs of shoes per year, while the corresponding figures for the United States are 219 persons engaged and 748,000 pairs per year. Germany's manufacturers have always had an outward orientation, and it is customary that a share of the domestic market is served through imports (see box 8.1). This was not the case in the United States where foreign markets and foreign suppliers were of little significance until the industry began to contract.

Today the German footwear industry consists of two distinct groups. Small-scale firms specializing in undifferentiated products such as classi-

Table 8.2 Growth of footwear and tanning operations in the United States, 1972-1991 (Annual percentage growth rates)

Years	1972-1986	1981-1986	1986-1987	1987-1988	1988-1989	1989-1990	1990-1991
Footwear*	-5.8	-8.2	-4.9	5.8	0.4	-9.6	-2.3
Tanning and finishing	-3.8	-5.3	2.8	-10.7	-0.8	5.3	9.4

Sources: Data from the US Department of Commerce, International Trade Administration; US Industrial Outlook, 1991, pp.35.

Notes: * Non-rubber footwear.

cal black or brown women's dress shoes represent one group. The other is composed of units belonging to conglomerates; they are involved in diverse activities and are geographically dispersed in order to exploit cross-country differences in costs. These large units specialize in differentiated products such as elderly ladies' comfort shoes, children's footwear, safety footwear, orthopaedic footwear and sports articles. Both groups have the advantage of being long-term incumbents in the home market. They have well-established links with commercial channels and easy access to leather and chemical outputs from local suppliers.

Box 8.1 Outward orientation among German producers of footwear

In 1990 the Federal Republic of Germany exported 46 million pairs of shoes, or 71 per cent of total production. This amount included 32 million pairs of leather shoes, equivalent to 94 per cent of production in this subsector. An unknown portion of this production was re-exports - made outside Germany and then sold by German firms in other markets. However, there is no doubt that the country has had a long-standing dependence on foreign markets and suppliers. Austria, Belgium, France, Luxembourg, the Netherlands and Switzerland account for 65 per cent of Germany's footwear exports, most of which are distributed through German-controlled channels. Orders from the former USSR have sporadically accounted for up to 10 per cent of exports, although they are unimportant at present. Germany's imports are principally from Italy but suppliers in China, Portugal, Spain and Taiwan Province are steadily gaining market share in Germany.

Many of the companies in the first category - because they are small, relatively unprofitable and conservatively managed - face an economic impasse. Their products are easily copied, and the competitive pressure from producers with access to cheap labour is relentless. The option of closing existing German plants and starting operations in other countries where labour is much cheaper is too expensive for most to contemplate. Their only alternative is to minimize costs, import uppers from cheaper foreign suppliers, and then assemble the footwear locally.

Firms in the second category are in a stronger position. They have well-established export markets and financial support from the conglomerates which own them. Unlike their United States counterparts, which are mainly interested in developing sub-contractual relationships with foreign suppliers, German footwear companies have made equity investments in foreign firms (see box 8.2). So far, most of these

investments have been in Portugal. The main attraction has been Portuguese wages which in the 1980s were about a quarter of those in the Federal Republic of Germany. Other factors have also played a role. Inputs, for example, can be obtained with almost the same ease as at home, lead times are not much longer, and the Community's European Fund provides generous grants to investors in northern Portugal for infrastructure, fixed capital and training. Portugal's advantage will gradually disappear as wage equalization occurs within the EC. Anticipating this development, German firms are already searching for new locations in Eastern Europe and elsewhere around the Mediterranean. Eastern Europe is particularly attractive because countries there may eventually become part of the Common Market.[7]

German tanners have suffered from the contraction in the footwear industry. Between 1970 and 1990 the number of tanneries fell from 200 to less than 60, while employment and production of leather decreased in similar proportion. The decline would have been even more severe were it not for the growth in demand for upholstery leather. This market is now larger than that for footwear, accounting for about 50 per cent of all leather produced. Furniture makers and automobile firms are the main buyers. In the latter application, German tanners benefit from the presence of a strong domestic automobile industry which produces a relatively large number of luxury cars (see table 8.4).

The advantages of an affluent market have not been sufficient to offset effects such as high wages, a strong currency which limits exports, strict anti-pollution regulations and open borders. In order to survive, many German firms have begun to specialize in specific types of finishing activities or in the treatment of particular materials. However, unlike their United States counterparts, there are relatively few large-scale tanneries specializing in contract work or production of wet blue leather.

The above comments apply to the former Federal Republic of Germany in what is now the western part of Germany. The industry in the former German Democratic Republic, now the eastern part of Germany, has proceeded along quite different lines. The major differences between the two industries are the following:

(i) Firms in the former German Democratic Republic have invested very little over the past 20 years. As a result, their technologies and products are inferior to those in the western part of Germany.

(ii) Policy dictated that tanners in the former German Democratic

Republic should use an exceptionally large amount of pigskin for leather making. The material is cheap but not of good quality.

(iii) The orientation of the industry, in terms of product mix, marketing methods and employment structure, is quite different from that of producers in the western part of Germany.

Box 8.2 Sourcing strategies among German producers of athletic footwear

A noticeable exception to the German practice of equity investment in foreign firms is found among the big producers of athletic footwear. Firms such as Adidas and Puma have chosen to rely on subcontractual hook-ups with partners in Asia and Brazil. This strategy parallels that of other major producers of sport shoes, although the firms have not fared well in recent years.

Adidas and Puma previously controlled three quarters of the European market and were prominent in the United States. But the firms missed out on the big surge in demand for aerobics and related footwear in the United States market. The high costs of European production, the failure to get product endorsements by top athletes, and organizational problems in handling as many as 1,200 varieties of footwear handicapped the two firms.

Adidas is still the leading supplier in Europe, with sport footwear sales close to US$900 million, but it will have to defend its own territory against rivals that have demonstrated great organizational skills in the United States market. Adidas now makes only 10 per cent of its own products, the rest being subcontracted to firms in India, South East Asia, Eastern Europe and Brazil. The firm's strategy is to locate production in low-wage countries, trim down the product line and better coordinate the vertical interactions between producers, distributors and customers.

The cumulative effects of limited investment mean that a complete overhaul of the industry in the former German Democratic Republic is now needed. Substantial improvements in product design, modernization of production processes and greater inter-firm cooperation in research and management will be required. This could be more expensive than greenfield investment, and firms in the western part of Germany are reluctant to become involved. Even the lower wage scale in the former German Democratic Republic does not represent a lasting competitive advantage. Since the conversion rate between the currency units of the eastern and western parts of Germany was set at one-to-one, labour costs in some firms in the eastern part were initially higher than in parts of western Europe and could reach soon levels in western Germany.

Table 8.3 Selected characteristics of the footwear industry in the Federal Republic of Germany in 1967, 1977, 1989, 1990 and 1991

	1967	1977	1989	1990	1991
Sales (in billion DM)	2.80	4.40	5.90	6.08	6.23
Number of establishments	775	464	244	233	217
Number of persons engaged	90,909	54,878	31,809	30,467	29,288
Production (1,000 pairs)	148,371	114,361	69,000	64,700	64,900
of which: leather footwear	103,900	77,700	36,600	34,300	32,100
Imports (1,000 pairs)	66,866	170,704	277,900	317,100	392,000*
of which: leather footwear			169,300	185,400	220,700*
Exports (1,000 pairs)	12,447	21,181	48,100	46,100	58,400*
of which: leather footwear			34,700	32,200	40,400*

Sources: Leder und Hautemarkt, No. 12, April 1988, p.22; Schuh-Technik, August 1990, pp.586-587; April 1992, pp.226-228.

Notes: * Figures include the former Democratic Republic of Germany.

Traditionally, as much as 45 per cent of the leather produced in eastern Germany was from pig skins. The high percentage resulted from policies requiring the use of this material. Because no similar policies exist in western Germany or West Europe, this heavy reliance on pigskin for leather may soon vanish. Top-quality pigskin makes high-grade garment leather but most of the material is of inferior quality and is used to produce low-priced lining leather. Pigs are also difficult to skin and butchers need a special inducement not to sell the skin as meat.

Finally, the unique orientation and structure of the industry in the former German Democratic Republic is reflected in several characteristics. Tanners produce a much higher percentage of shoe uppers but a lower percentage of garment and upholstery leather than in the western part of Germany. They also tend to operate with long production runs of a few articles. Staffing includes a relatively large number of planning personal and a rather small sales force. Such characteristics can be mainly attributed to the weak marketing programmes in the former German Democratic Republic, the absence of brand names and the lacklustre operation of retail outlets.

In conclusion, German markets for footwear and leather products have a bright future despite the long-term decline in production. Consumers are willing to pay premium prices for high-quality products, and local firms have the advantage of being close to the final clients.[4] But good prospects do not necessarily mean that manufacturing will take place in Germany. As the EC's markets become more closely integrated, the opportunities for cost-minimization - for example, by locating foreign plants around the European periphery - will become more difficult. Overseas acquisition or direct investment may no longer be viable options as host countries increasingly insist on firms with local pedigrees. As a result, more German firms are likely to cease (or de-emphasize) production, while placing a higher priority on distribution. This option should become even more attractive with the creation of the single market, since the mobility of goods is enhanced and firms will have more opportunities to develop European-wide operations.

The leather industry in Italy

The Italian leather industry entered the post-war period with an abundance of local raw materials and labour. Consequently, the early development of the industry was along relatively labour-intensive lines.

Many small enterprises were created but Italian consumers were still comparatively poor, and domestic demand grew slowly. Mass tourism helped to introduce Italian products to other Europeans, while the creation of the European Community provided them with easy access to the richer markets of the region. Thanks to this combination of factors, Italian exports flourished.

A steady stream of product innovations, improvements and forms of differentiation followed. These were offered at relatively low prices which gave the Italians a strong competitive edge in world markets. The country's exports of leather soon amounted to a quarter of the OECD total, while it accounted for half of all the OECD footwear exports. Italian consumers developed a strong preference for national styles, which meant that imports remained low even though income was growing. Producers ultimately proved to be not just export-oriented, but also remarkably self-sufficient.

With these advantages, the industry transformed itself from one characterized by a reliance on craftsmanship and price competition, into a complex organization using state-of-the-art techniques to make top-scale differentiated products. Tanners, finishers, makers of footwear parts and manufacturers of footwear, garments and leather articles all participated in this process. They benefited greatly from close working relations with local suppliers of services, machinery and inputs that are world leaders in their respective areas.

The high degree of cooperation and information exchange became a unique feature of the Italian industry. Manufacturers and clients are in constant contact, discussing colours, textures and the styles of shoes and garments while the designs are still on the drawing boards. The result is that firms work within a framework of "competition cum cooperation" that allies the benefits of specialization with the economies of scope enjoyed by large organizations. Although firms are small, an extremely fine division of labour allows each establishment to use modern production processes and still obtain economies of scale that larger enterprises are unlikely to achieve.

Such an environment proved to have several significant benefits:

- Extensive specialization led to a highly differentiated product range that insulated the industry as a whole from capricious shifts in demand.
- Informal cooperation ensured that all participants got a share of the workload. This enabled firms to reduce the burden of

fixed capital costs and avoid underutilization of workers or plants.

- Cooperation led to the gradual clustering of firms in particular regions. This permitted them to share even more common facilities such as effluent plants and research centres (see box 8.3).

Excellence in production was not the only criterion for success in later years. Italy's industry was specialized in high-quality shoes and leather products, but it lost out in two key markets. First, steady increases in costs could not be passed on to those consumers that had little interest in fashion or appearance. Italian makers of low- and medium-priced shoes lost a significant portion of their world market to competitors in Spain, Portugal, Brazil and, eventually, Asia. Second, the Italian industry was largely an onlooker in the sudden and spectacular development of markets for athletic and outdoor shoes.

Box 8.3 The regional character of Italy's leather industry

Leather-making communities are located in the so-called "Third Italy" which belongs neither to the industrial triangle in the North nor to the South. In this region rural labour was traditionally employed part-time in agriculture and part-time in handicrafts or home activities. Through marginal innovations in processes and products, these simple activities developed into family-owned establishments which became a permanent source of employment for workers released from agriculture. These establishments were economically independent of each other and rivals in the market, but, due to the sociological links between the persons engaged as well as to a common wish to escape contacts with extra-regional authorities, they maintained a fluid circulation of information and an inclination to coordinate their work.

The "comprensorio del cuoio" around Santa Croce sull' Arno is one such regional community. With 480 tanneries employing 10,000 persons and 400 sub-contracting firms specialized in finishing, shaving, buffing, dyeing and many other operations, the comprensorio accounts for 35 per cent of the Italian production of leather for shoe uppers, leather goods and garments. The comprensorio has set up a common research and quality control laboratory as well as a communal effluent plant able to treat the equivalent of effluent from a city of 3.5 million people.

By the beginning of the 1990s it was evident that even top-scale leather products were no longer immune to foreign competition. Consumer tastes had been reshaped - in part by the marketing campaigns undertaken by distributors of athletic shoes - and their preferences had shifted towards comfortable but rugged-looking shoes. These develop-

Table 8.4 Activity of the tanneries in 1987-1990 in the Federal Republic of Germany

Item	unit	1987	1988	1989	1990
Domestic shipments	(DM 1,000)	1,118,396	1,072,467	1,039,630	1,069,570
Export shipments	(DM 1,000)	335,983	342,802	392,370	358,430
Shoe uppers	(1,000 sqm)	6,958	7,217	6,919	7,562
Lining	(1,000 sqm)	1,532	1,557	1,456	1,282
Upholstery	(1,000 sqm)	11,392	10,242	9,538	9,128
Garments and leather goods	(1,000 sqm)	3,259	1,940	n.a.	815
Soles	(Tonnes)	2,667	2,288	2,337	2,130
Calf hides processed	(1,000 pieces)	728	638	500	514
Cattle hides processed	(1,000 pieces)	4,781	4,480	4,706	5,431
Sheep and kid processed	(1,000 pieces)	925	967	843	1,045

Sources: Leather, June 1989, p.18; June 1991, p.20. Leder und Häute Markt, No. 18, June 1991, p.8; No. 19, July 1991, p.3; No. 26, September 1991, p.78.

ments were at the expense of Italian exporters which had established reputations for elegance. The consequences were obvious even in the home market where, after decades of self-sufficiency, Italy began to import shoes from East Asia and the United States.

The country's manufacturers of shoes and leather products were not the only ones to suffer. Leather makers also face stiff price competition from suppliers in East Asia and Turkey, and have responded by upgrading the quality of their output. Their ability to come up with cost- effective, high-quality products depends in part on their skills in transforming raw materials of average quality into excellent leathers. These skills, however, are threatened by the export bans on unprocessed hides and skins which suppliers have imposed in an effort to promote their own domestic industry.

In summary, the strength of the Italian industry results from productive excellence in fashion-dominated markets, which depends, in turn, on close but informal co-operation between small units. High turnover in top-scale fashion products can only be achieved through global marketing. So long as the country's products enjoyed an unrivalled reputation in high-fashion products, firms did not assign a particularly high priority to marketing, however. Now that competition is more intense, a superiority in production know-how is not sufficient.[2]

Some Italian firms have already gone to great lengths to accommodate changes in global markets. Several have created strong links spanning the entire industry - from leather-making through manufacturing, machinery, turnkey factories and consultant services. At the same time, they have assumed a coordinating role in setting norms for research, design and quality. Nevertheless, a weakness in distribution remains. While producers in other industrialized countries have seized control of the lucrative business of selling leather to retailers or to final consumers, Italian firms still deal with wholesalers or importers.

Endnotes

1 The contraction is reflected in the structure of firms. There were 990 plants producing non-rubber footwear in the United States in 1965, but today the total is less than 300. Over half of all this footwear comes from the 20 largest establishments. Another 76 medium-sized establishments produce around 0.9 million pairs each year, while the 200 smallest firms account for 150,000 pairs.

2 Most of these importers control hundreds or even thousands of shops. Their large size enables them to maintain a global operation in order to search for

cheap potential sources of supply. As soon as suppliers are open to trade, the importers establish links and offer assistance.

3 Tariffs were around 8.5 per cent or more during most of this period, quotas were occasionally introduced and subsequently withdrawn, and an orderly marketing agreement was in force for some time to limit imports from the Republic of Korea and Taiwan Province. However, leather athletic shoes were never restricted by this arrangement.

4 By 1990 total leather shipments were the equivalent of 13.9 million cattle hides, down from 26 million in 1970.

5 Much of the polluting effluent is unloaded in the tanning process. Moreover, when buying wet-blue, the downstream tanner can specify the thickness and grade of the hides he wants to purchase.

6 The three largest makers of athletic shoes, all of which subcontract production to foreign manufacturers, reported a 48 per cent turnover and 76 per cent of the profit in 1989.

7 In the 1970s and 1980s firms in the Federal Republic of Germany operated joint ventures in Eastern Europe and provided technical assistance. These operations, which were primarily geared to serve markets in the former USSR, came to a halt following the breakup of that country and a fall in demand.

8 German firms will have challengers in their home market. In 1991, a French firm, André, merged with a United Kingdom firm, Sears, in order to strengthen the..' competitive position in the German market. André was previously the fourth largest distributor of footwear in Germany with 110 shops while Sears operated 272 shops in the Netherlands.

9 Today the annual slaughter in Italy is around 3.6 million cattle, 8 million sheep and 1.4 million calves. This means the industry depends on imports for between 75 and 80 per cent of the raw materials used in production.

CHAPTER NINE

The leather industry in developing countries

Though it is generally regarded as a senescent industry, leather has proven to be one of the more dynamic manufacturing industries in many parts of the world. A few countries have recorded spectacular gains, while in half a dozen others the industry enjoys rapid growth. This chapter examines the progress of four leading producers. Two of these, the Republic of Korea and Taiwan Province, have almost no domestic supplies of raw materials, but the others, Brazil and India, have large cattle populations. The following discussion focuses mainly on the conditions that have made it possible for the leather industry in these countries to develop so rapidly.

Republic of Korea and Taiwan Province

Only twenty-five years ago neither the Republic of Korea nor Taiwan Province had a leather industry of any significance. Today both rank among the world's leaders, not only with regard to the volume of tanning and manufacturing operations they carry out, but also with respect to exports, international investment and marketing expertise.

Three factors help to explain this success. One has been the availability of a relatively efficient and comparatively cheap labour force. Exporters of leather products have prospered not because their workers were especially skilled, but because they enjoyed a significant wage advantage in activities which required substantial amounts of labour. A second factor was the energetic promotion of exports by governments. Policy makers determined very early that exports would receive a high priority. They then went on to introduce a set of policies

to ensure that this goal was met.[1] Finally, substantial technical assistance was received from collaborating firms and distributors in industrialized countries.

The first two reasons for this success are well known and straightforward, but the support provided by collaborators in industrialized countries requires further elaboration. Japanese companies were the first to undertake such a programme. These companies had previously created their own export niches in markets for leather sporting goods, working gloves, low-priced dress gloves and cases for cameras and binoculars. The manufacture of these products was (and still is) exceptionally labour-intensive. As industrialization proceeded, Japan needed to make room for more capital-intensive activities and the production of leather articles was moved to the Republic of Korea and Taiwan Province (see Westphal, 1978). The fact that leather was not produced locally posed no problem: this input was to be obtained from the same Japanese tanneries that had previously served buyers when they were based in Japan. With export markets already in existence, the success of firms from the Republic of Korea and Taiwan Province was assured.

Once the Japanese experiment demonstrated that offshore factories in Asia were capable of meeting predetermined standards, firms from the United States and elsewhere joined in the process. The practice was especially appealing to distributors in industrialized countries that specialized in standardized footwear. Markets for these products are not sensitive to the longer lead times required by offshore suppliers, and orders are in sufficiently large quantities to nullify transaction costs. The distribution of footwear is also under the control of a very few large firms.[2] These firms are extremely cost-conscious and prone to shift their orders to new suppliers. Once it became apparent that Korean and Taiwanese suppliers were reliable and cheap, the big distributors were ready to offer technical and marketing assistance with regard to patterns, packaging, labels and specifications.

Such collaboration had unforeseen benefits for manufacturers. The Korean industry received a big boost in 1976 when Nike placed its first orders for jogging shoes. The shoes were made from nylon uppers rather than leather, but the move nevertheless opened doors for Korean producers of leather footwear. First, the success of jogging shoes started a race between Nike and Reebok to develop all sorts of new product niches. Several of the subsequent versions - for example, aerobic shoes and tennis shoes - were made from leather. Thus nylon jogging shoes paved the way for later development of other models

using leather uppers. Second, the process - which moulded rubber soles to nylon uppers - could also be used for leather uppers; the fabrication of jogging shoes thus created the technical basis for introduction of athletic shoes made of leather. When demand for athletic shoes surged, these Asian producers were well placed to become the leading suppliers to consumers in industrialized countries.

The structure and product composition of footwear producers in the Republic of Korea and Taiwan Province is markedly different. Korean firms are generally larger than their counterparts in Taiwan Province. In the former case there are around 100 firms; 40 of these employ more than 500 workers and the five largest account for half of total footwear production. A total of about 700 footwear manufacturers are found in Taiwan Province, but the average size is much smaller. Firms in the Republic of Korea also tend to specialize in athletic footwear which is made under license or joint venture. The firms' involvement in chaebols (the giant conglomerates which are the hallmark of Korean industry), their mandatory membership in the Korean Footwear Exporters' Association, and the support of experienced trading institutions has given them world status. Some have created their own brands (Le Caf and Prospecs) which are now sold overseas. Others are working to establish diversified marketing channels in industrialized countries. The companies rely on direct investment and joint-venture participation in foreign firms to gain market access and to gather information on technologies being developed abroad.

Spurred by the success of footwear producers, other parts of the leather and leather products industry have flourished. The Republic of Korea has become the world's largest exporter of leather garments, with buyers scattered across Europe, the United States and Japan.[1] Upstream, the country has around 160 tanneries. Some of these are among the largest in the world and national capacity is about 16 million hides a year. The tanneries pursue a continuous strategy of upgrading and diversifying in order to keep abreast of users' needs and to gain access to foreign markets. Several, such as Tae Heung and Shirikwa, export 30 million to 40 million square feet of leather each year to manufacturers in Europe and the United States where the materials are used to make garments, upholstery, sport shoes, gloves and bags.

In Taiwan Province, the workforce employed in both the tanning and manufacture of leather products is larger than the numbers found in the footwear sector. The island's tanneries were originally developed with the help of a 50 per cent tariff on imports of wet-blue and crust leather.

Protection has now been cut to 6 per cent in order to promote upgrading of local quality and allow leather users more freedom to select the best source of input in terms of cost, quality and speed of delivery. More than 90 per cent of the tanneries' hides and skins are imported. Local makers of footwear are still the main buyers of this leather (70 per cent), with the remainder being used for handbags, garments belts and gloves.[4]

Having established a large manufacturing capability, footwear firms in the Republic of Korea and Taiwan Province now face new challenges, both in international markets and at home. At the international level, the extent to which these firms are specialized in standardized products leaves them vulnerable to pressure from buyers and distributors. The latter may have contracts with 50 or 60 different suppliers and use their position to squeeze the profit margins of individual firms. In contrast, the dependence of the supplier on foreign distributors tends to be great. For instance, 90 per cent of shipments by the three top shoemakers in the Republic of Korea are made under contract to big buyers. Thus the manufacturer tends to have a rather weak negotiating position. In order to improve bargaining power, firms in the Republic of Korea and Taiwan Province have often established their own trading companies.[5]

Several other trends have helped to erode the competitive position of footwear manufacturers in the Republic of Korea and Taiwan Province. First, the export successes recorded during the first half of the 1980s triggered protectionist responses, not only in industrialized markets but also in some developing countries (Argentina, Nigeria and Venezuela). Second, the real exchange rates of both currencies have risen relative to the dollar. Third, labour shortages have pushed up real wages. Together, these factors were responsible for an upward trend in the export prices of leather footwear coming from Korea and Taiwan Province.

The manufacturers' response has been to move some production facilities to lower-wage countries - principally China, Indonesia and Thailand, but also Bangladesh, India, Malaysia, Philippines and Sri Lanka. The process is not a smooth one, since world standards for quality and reliability cannot always be achieved in new locations. Occasionally, problems have proven to be too great, and the newly opened facilities had to be closed. Nevertheless, roughly one-fifth of all footwear production in the Republic of Korean and Taiwan Province is expected to be relocated during the first half of the 1990s.

The process of relocation has slowed (or even reversed) development

of the home industry. Table 9.1 shows the number of firms involved in footwear exports and production during the period 1970-1990. Rapid growth during the first 15 years of this period has given way to maturity and some contraction. Preliminary figures for the early 1990s show a decline in exports from the Republic of Korea. A similar downward trend began even earlier in the case of Taiwan Province. Altogether, the island's footwear sector lost 70,000 jobs and more than 500 factories between 1988 and 1990, while experiencing a 30 per cent drop in exports.

These contractions, which are mainly the result of relocational moves, were not particularly painful in fast-growing Asian economies, but they did introduce a new strategic dimension to the industry. With their own brands and trading corporations, firms in the Republic of Korea and Taiwan Province firms have become more ambitious, trying to claim a portion of the world's markets for high-quality shoes. This is a risky strategy requiring that designers, tanners and manufacturers all respond to rapid changes in consumer preferences and that the firms compete in markets where established suppliers are protected by lavish advertising campaigns. If they could acquire enough influence to shape the preferences of at least some consumers, Asian firms will have succeeded in reducing the risk of these up-market ventures as they claim a larger share of European and North American markets. Alternatively, the growing number of affluent Asian consumers may provide fresh opportunities within the region that local designers are well placed to exploit.

The preference for offshore production among makers of leather garments and footwear is helping to internationalize other parts of the industry. Tanners have traditionally followed their downstream customers to the new offshore locations. The host country welcomed such moves since they create more jobs and increase the total value added generated by the industry. Today, however, the labour markets in some Asian countries are tight and tanners must compete fiercely for capital and labour. Policy makers in the host country often prefer "cleaner" industries which can generate exports without also drawing in large amounts of imported inputs.

Thus the links between tanning and manufacturing may not be as strong as in the past. Some investors in the Republic of Korea and Taiwan Province question the desirability of expanding local tanning capacity in order to serve offshore factories. Concerns about pollution

Table 9.1 Footwear exports of the Republic of Korea and Taiwan province, 1970-1990

	Republic of Korea			Taiwan Province		
Year	Total export value (million dollars)	Number of firms	Average export value per firm (million dollars)	Total export value (million dollars)	Number of firms	Average export value per firm (million dollars)
1970	18	...	...	40	105	0.5
1975	200	16	12.5	258	305	0.8
1980	904	25	36.1	1,411	582	2.4
1985	1,571	68	23.1	2,301	1,140	2.0
1990	4,300	...	...	1,900	700	2.7

Sources: Taiwan Footwear Manufacturers' Association, Analysis of Footwear Industry (Taipei, 1986), and unpublished data provided by the Korea Footwear Exporters' Association, quoted in B. Levy, (1991).

mean that new tanneries must allocate a portion of finance to environmental safeguards, placing them on the same footing as the giant tanning units now being created in cattle-rich countries. The latter units should still be very competitive since they will be located in the proximity of slaughterhouses whereas, Korean and Taiwanese tanneries must import hides and skins before treating them.

This development raises the possibility that the geographical pattern of the world's tanning operations could be the next to change. If so, the relocation of these operations will not be along North-South lines but between cattle-rich and cattle-poor countries. Tanning is a capital- and chemical-intensive phase of the industry which is not necessarily suitable for low-wage countries unless supported by policy incentives. Investors themselves may consider it unwise to tie tanning to a set of "footloose" manufacturers that could easily move to cheaper locations if relative wages increase.

A more logical option could be to supply offshore manufacturers with leather imported from tanneries in cattle-rich countries. This method offers several advantages. Large-scale production minimizes pollution cost and tanneries can select their raw materials on the spot. In addition, the costs of transport are cheaper for leather than for raw hides, and the material can be shipped directly to the final user. Not surprisingly, several firms in the Republic of Korea have plans to build tanneries in the United States, Canada, China (where pigskins will be the raw material), the former Union of Soviet Socialist Republics and Australia.

Brazil

Like their Asian counterparts, Brazilian firms began to export footwear in the 1960s. However, they had advantages that producers in other parts of the world lacked. The country produces around 10 million bovine hides per year; even though the quality of hides is low, there is no structural dependence upon imported hides, skins or leather.[^] Brazil also has a much longer tradition in the leather and leather products industry than most of its competitors. Tanning and footwear operations were introduced by German immigrants more than a century ago in the region of Rio Grande do Sul. The domestic market, protected by long distances and heavy tariffs, grew steadily for many years.

A captive home market created much complacency. Despite its competitive advantages, Brazil's combined exports of leather and

leather shoes amounted to only about $1.2 million in the early 1960s (Teitel and Thoumi, 1986). The industry was locally owned, and unlike the situation in most other developing countries, that pattern of ownership has persisted. Even today, most of the country's largest shoe factories are controlled by Brazilian interests, and over 90 per cent of its biggest tanneries are owned domestically (Baer, 1989).

One change which occurred in the late 1960s was the attempt by the government to remove the anti-export bias of its policies. Administrative procedures were simplified, subsidized credits were provided, and tax incentives were offered to exporters. A system of frequent and unannounced mini-devaluations of the national currency also served to encourage exporters. At the same time, Brazilian centres for shoe research and training embarked on a concentrated programme to develop export-oriented skills. The programme's focus was on sandal-making and men's casual footwear, both products for which Brazilian zebu rawstock was particularly well suited.

This combination of favourable policies and useful skills translated into an immediate export stimulus. The "softee look" which became popular in the United States provided a secure international market, giving Brazilian tanners the opportunity to develop speciality leathers out of their relatively low-grade livestock. When this fashion craze ended, Brazilian shoemakers found an alternative export market in ladies' fashion casuals. Producers, however, needed a higher grade raw material base and indigenous supplies were not sufficient. The government offered manufacturers special concessions to import Argentinean crust but did not extend the same concessions to Brazilian tanners.

Footwear companies established their own finishing plants, together with rapid colour-matching facilities which enabled them to provide colour samples only hours after receipt of an enquiry. A number of independent firms also began to specialise in contract leather dressing, using stocks provided by the manufacturer and generally finishing the leathers according to instructions rather than developing speciality finishes of their own. First-stage tanners in Brazil had no choice but to respond to this new source of competition. They modernised and reconverted plant facilities to use the better quality hides available from feedlot cattle and moved close to the feedlot areas.

Only about 15 per cent of the country's hides are of superior quality, meaning that any additional materials in this quality range must be imported. To offset this problem Brazilian exporters have concentrated

on high quality items which require relatively labour-intensive production techniques but can be made with leather of only medium quality. Branded lines of dress shoes -particularly women's all-leather summer shoes - account for the bulk of these exports. Open sandals with stitched leather uppers and cemented soles have been one popular export model. These require less upper leather than men's shoes and lasting operations are relatively simple.

Brazil's export performance has been impressive, although its success is attributable to a rather small number of large firms and even today a third of all the country's footwear exports comes from only 16 companies. Having mounted a successful export programme in markets for women's shoes, these firms now hope to repeat the process for leisure and children's shoes.

By the 1990s, the Brazilian industry had reached maturity. The country has over 400 tanneries employing around 40,000 persons. Most of it is located in the region of Novo Hamburgo, which has one of the densest concentration of footwear firms, input suppliers and technological institutes in the world. Brazil's tanners treat 20 million locally produced hides each year, along with another 2-3 million imported hides. Some of this leather is exported, but about 85 per cent is sold to domestic firms which make footwear, garments and small articles for sale at home and abroad. Altogether, the country has nearly 4,000 footwear establishments with a workforce of 300,000. These firms produce about 500 million pairs of shoes each year, half of them from leather.

As overseas markets for Brazilian footwear have grown, exporters have encountered greater resistance in the form of protectionist barriers. Shoemakers are aware that they must diversify in order to maintain export volume. Any efforts to develop European markets will face strong competition from rivals in Italy, Portugal, Spain, Turkey and North Africa. Eventually, producers in East Europe, with their long traditions of skilled shoemaking, will also turn their attention to this market. Nor do Brazilian shoemakers have the same options as competitors in the Republic of Korea and Taiwan Province. The Brazilian firms have much closer and stronger linkages with specialized leather makers and cattle breeders in their own country than is true in Asia. As a result is that they cannot readily resort to offshore operations, meaning that they are at a disadvantage in price-sensitive markets for standardized shoes.

India

India, like Brazil, has an enormous animal stock, a long tradition of leather craftsmanship and firms with considerable experience in tanning and shoemaking. The main differences between the countries are two. First, Indian animals are not slaughtered until their working days are over and feed-lot operations are uncommon. As a result, the quality of Indian hides is relatively poor. Second, the policy environment in which the two industries have operated differs. The government of India has been the more aggressive in pursuing policy goals of promoting exports and increasing domestic value added.

A milestone in India's leather and leather products industry was reached in 1973 when exports of simply tanned, unfinished leather was subjected to a quota, with the objective of phasing them out altogether. The immediate aim was to encourage more domestic processing of India's vast stock of hides and skins. In the longer term, policy makers sought to maximise added value and export earnings and to increase employment opportunities by focusing on finished leather, footwear uppers, small leather goods and eventually leather garments and completed footwear (see box 9.1).

Box 9.1 Policy goals in the Indian leather industry

India is a country with a long tradition in economic planning and regulation of industrial enterprises. Throughout most of the period since independence the goals which received highest priority were employment generation and greater self-reliance. The main responsibilities of the leather and leather products industry were to satisfy domestic demand - essentially the home market for leather sandals - using locally available resources (see Teitel and Thoumi, 1986). Most firms responded by adopting labour intensive techniques and attempting to minimize the use of imported inputs. These methods were compatible with the policy goals but resulted in very low levels of productivity. It soon became apparent that progress would be very slow as long as the downstream manufacturers were focused purely on the domestic market. This conclusion led to the decision to promote exports and to relax the constraint of local inputs.

Traditionally, India's production of vegetable-tanned crust leather was geared to serve export markets, selling mainly in Europe and later in Japan. Tanners were generally small-scale, making large volumes of crust leathers of medium to high quality. Under government pressure and with the added incentive of export subsidies, they moved upmarket into products of higher value such wet-blue, chrome crust and ready-to-

finish leathers. The change qualified firms for export subsidies and other privileges while allowing their customers the opportunity to strip out some of the finish and then retan or refinish leathers to western specifications. A subsequent ban on exports of unfinished leathers forced Indian tanners to focus on finished leathers in the piece and the more advanced form of stitched uppers. The move, which built on established links with European markets, allowed producers to gain a foothold first in Europe and later in the United States. With the help of joint ventures, stitched uppers soon became the main export earner of the Indian leather industry. Another reason for success was that production of stitched uppers made use of the country's vast reserves of cheap labour, traditional skills and relatively simple technologies.

Because of the country's shortage of capital, it was decided to focus on exports of leather uppers rather than footwear. The techniques used to produce the former products are labour intensive, they are made to order for shoe assemblers near the final market, no design or marketing responsibilities are required of the supplier, and other inputs (including expensive chemicals) need not be imported. Purchases of finished leather and uppers proved to be the only way the rest of the world could tap India's vast livestock resources. The demand for leather uppers was also strong because shoe manufacturers in industrialized countries were anxious to incorporate cheap manual work into their products.

Following this breakthrough, a comprehensive programme of incentives was set up to promote the exports of other processed products. The policy has both restrictive and supporting components. Among the restrictive features, exports of raw and pickled hides and skins are forbidden, while exports of finished leather are limited by imposing stringent quotas and an export tax. Four measures to support, or encourage exports, are also included. First, exports of shoe and other leather goods all receive subsidies. Second, exporters of finished leathers and leather products are eligible for tax rebates and duty drawbacks. Third, the government actively encourages joint ventures. Finally, exporters may import their inputs either duty-free or at reduced rates.[7] The new policy mix eventually led to a marked change in the export composition. Between 1973 and 1988, the share of semi-finished leather in total exports fell from 79 to 6 per cent; that of finished leather increased from 9 to 39 per cent; and the share of leather goods rose from 12 to 55 per cent. By the beginning of the 1990s the industry's annual shipments exceeded $2.2 billion and its exports were more than $1.1 billion.[8]

These achievements were largely due to the successes of India's modern tanneries. At the time when the government switched to outward-looking policies, these were the only firms which had assured access to foreign currency (through exports of crust) and the necessary financial resources. Leading tanneries quickly integrated downstream, producing shoe uppers, garments, saddlery, complete shoes, and small leather articles.

The Government's decision to encourage exports of downstream products has already led to many changes within the industry (see box 9.2). To maintain this momentum and build on recent successes, the industry must respond to several challenges, such as the following:

* Developing new sources of raw material and ensuring that more hides are of higher quality;
* Competing more effectively with other highly successful Asian exporters shoes and leather products;
* Developing their own brands and designs (particularly for shoes) in order to increase the value of exports.

Box 9.2 Structure of the Indian leather and leather products industry

The industry was originally comprised almost exclusively of small and medium sized firms, but the development of export markets led to a significant change in structure. Today, there are at least 65 large-scale tanneries as well as a much larger number of small tanneries and unlicensed units which produce finished leather and handicrafts. The structure is similar for makers of leather garments. Only a few factories have a capacity of 5,000 to 10,000 pieces per month; the remainder are very small.

Among footwear firms there is a group of about 15 factories that have a combined production of 30 million pairs per year. Alongside these giants are another 15,000 handicraft firms with annual production of only 1,000 pairs and fewer than 15,000 medium-sized companies producing between 10,000 and 60,000 pairs a year. The small and medium-sized firms sell their shoes locally. Among the large manufacturers, roughly half of all shoes are sold domestically through nationwide distribution channels with the remainder being exported.

In addition, there are companies specialized in the manufacture of shoe uppers which are exclusively for export to factories in industrialized countries. This form of specialization has served as the springboard for the launch of exports by tanneries that had decided to integrate downstream. In 1990 India exported roughly 27 million pairs of shoe uppers.

Demand for materials is growing rapidly in some parts of the industry. This is particularly true for producers of apparel where the

amount of leather being used is increasing by 30 to 40 per cent a year. New sources of supply will soon be needed. Additional hides and skins of good quality can be imported, while the quality of domestic supplies can be improved by increasing the proportion of slaughters relative to natural deaths; by reducing the time between collection and processing; and by establishing more procurement centres.

Besides securing adequate raw materials, the industry must find ways to compete more effectively with firms in the Republic of Korea, Pakistan and Turkey. Indian firms have had to begin by exporting products at the low end of the market, but they are gradually trying to move into medium-priced and higher quality items. Some of the bigger companies have begun to invest in the design and marketing technologies needed to compete in up-market products, others are exporting according to the importer's specifications, and a few have signed licensing agreements with European distributors of sport shoes.[9] Finally, several of India's shoe companies have plans to develop their own brands and designs in order to increase the value of exports. Prerequisites include training for the technicians, designers and marketers needed to develop, manufacture and distribute the products. The country has a few institutions capable of supporting this effort, although external assistance will also be necessary.[10]

Producers of leather products will have to boost their exports in order to compensate for the eventual phasing out of exports of finished leather. That step will not be easy; exports of footwear, for example, have not expanded as planners hoped. Increased imports of leather, components and machinery will be a corollary of this policy decision. These inputs are available domestically, but foreign technologies will be required in order to match the standards for quality demanded in world markets.

Joint ventures with foreign multinational firms will be another logical step as the composition of exports changes. Several of the country's larger leather firms have already concluded such agreements - despite opposition from the Indian tanners' association. Some of the larger Indian trading houses and industrial conglomerates are also involving themselves in tanning operations through acquisitions, leasing, subcontracting, and direct investment. These companies have only limited experience in the industry, but their large size and financial capabilities should mean they are effective in bringing in foreign orders.

Small and medium-sized firms have not fared well in the current policy environment and their prospects are not bright. Having been

pushed aside in the race for export markets, they have limited access to foreign exchange and government incentives (for example, forms of compensatory cash support, duty drawbacks, import replenishment schemes and income tax exemptions). These firms continue to focus on domestic consumers, where market size and product prices are constrained by low levels of per capita income. They are squeezed as expansion in the modern, export-oriented sector pushes up the prices of local hides and skins. If the modern sector continues to grow as it has in recent years, this is likely to be at the expense of the small-scale sector.

Endnotes

1 The policies followed in the Republic of Korea and Taiwan Province were similar. They included: corporate and income tax rebates on export earnings, exemption from sales tax on exports, duty drawbacks on imports to be processed for exports, rapid depreciation of fixed capital investments for exporting, tax exemptions on reserve funds created for cultivating new foreign markets and tariff exemptions for equipment and raw materials used to manufacture exports. In both economies, exporters were assured of automatic access to subsidized working capital in the form of preferential interest rates. These funds were used to finance exports and/or imports of materials and equipment to be used in exporting. In addition, the authorities provided all kinds of institutional support. Well-staffed ministries and embassies were mobilized to support export promotion, joint committees of exporters and government officials were set up to determine export targets, supervise progress and resolve any problems. In the Republic of Korea, the government sponsored the Korea Footwear Exporters' Association and authorized the Korea's Traders' Association to collect 1 per cent of the value of total c.i.f. imports as an export promotion fund.

2 These are mainly big wholesalers, retail cooperatives, large department store chains or erstwhile manufacturers that have quit production but continued to distribute their own brands which are now made by sub-contractors.

3 The Republic of Korea also exports other leather products, including luggage, handbags, gloves, sporting articles, harnesses and saddlery. Production of upholstery leather began in 1986. The initial success was limited owing to unacceptable variations in quality, but these problems are gradually being resolved.

4 Taiwan Province is also a small but efficient producer of tanning machinery, exporting this equipment to other Asian countries. China is one of the larger buyers, mainly because many Taiwan Province factories have relocated there.

5 In the Republic of Korea the links between footwear manufacturers and trading companies are very close, though in Taiwan Province the government has imposed a strict separation between the two groups.
6 There are intermittent imports, mostly from Argentina, when natural or economic problems disrupt domestic supply.
7 Imports of raw leather, wet-blue, pickled, crust and bovine leather are duty-free for the exporter of the finished product. Machinery, accessories and components for shoe production can be imported at a preferential duty rate of 45 per cent under open general licences.
8 The breakdown of India's exports in 1990 was as follows: shoe uppers, $287 million; finished leather, $395 million; footwear, $95 million; leather garments, $184 million; and other leather goods, $162 million.
9 These sorts of arrangements are most common among shoe manufacturers. European firms supply the specifications and precut patterns to the Indian exporter. In the case of licensing agreements, the foreigners provide the export market, the design and the know-how.
10 Technical assistance from foreign sources, such as the UNIDO training course at the Central Leather Research Institute, will be essential.

CHAPTER TEN

A Look at the Future: Prospective developments and possible consequences

Previous chapters have discussed a variety of reasons for the changes occurring in the leather and leather products industry. Before concluding this book, it is appropriate to consider how these and other circumstances might reshape the industry in the future. We are interested in mainly two questions: what parts of the industry are likely to experience the most rapid growth during the remainder of this decade; and how will its geographical configuration change?

In answering these questions, attention focuses on tanning, finishing and the manufacture of leather products. Linkages between these two stages are strong, although the lines of causation are not equivalent; adjustments and changes in the manufacturing end of the industry generally have a greater impact on tanning and finishing than the reverse. Matters relating to the supply, price and quality of raw materials are less important but can not be ignored. The chapter begins with a brief discussion of future trends in raw material markets and then goes on to consider the industry's downstream operations.

Raw materials and their impact on downstream users

Automation and technological change in leather-making, and to a lesser extent manufacturing, are altering the cost structure. As the share of labour in total spending declines, that of other inputs such as hides and skins or leather will rise. Any changes occurring in the markets for raw materials will therefore have repercussions for downstream users. Table 10.1 speculates about some possible developments

and how they might affect leather makers and manufacturers.

The fact that hides and skins are a by-product of meat production means that demand for the latter affects the supply of raw materials. If a major change in the dietary habits of rich countries should occur, the resultant decline in meat consumption would lead to a corresponding fall in output of hides. Changes in the agricultural policies of industrial countries could reinforce this result. If agricultural subsidies and prices are not reduced in the current round of international negotiations on trade liberalization, individual countries will soon take this step. Such policies are now becoming too expensive and some scaling back is probably inevitable. Livestock herds in Europe and North America are at present much larger than market conditions require. When support policies or dietary habits change, production of hides and skins will fall and any indirect benefits to the leather and leather products industry would be lost.[1]

Other changes in the pattern of world production are also expected. First, production of hides and skins in Eastern Europe should increase during the next 10 to 15 years. Meat consumption in these countries is expected to grow once the standard of living begins to rise, and so, too, will the output of hides and skins. Privatization of agriculture in Eastern Europe should also result in higher levels of production as farming becomes more efficient.

Second, methods of animal husbandry, slaughtering and curing techniques used in developing countries are generally obsolete, and it is logical to expect considerable modernization in coming years. An increase in the total production of these countries should be accompanied by some improvements in quality and higher rates of recovery. Joint-venture partners in industrialized countries will probably provide much of the financing and technical assistance for modernization. Finally, freer trade in the world's markets for meat would lead to large increases in the production of hides in those countries (for example, Argentina) which have a competitive advantage.

The net effect of these developments will not necessarily be a fall in world production; in fact, a net increase in supplies could occur. However, they clearly point to a change in the geographical composition of production. The share of western industrialized countries is expected to fall, while that of developing countries - and, to a lesser extent, producers in Eastern Europe - will rise. One consequence of this rearrangement among suppliers is likely to be a gentle decline in the average quality of raw materials. Most of the hides produced in

Table 10.1 Possible factors affecting markets for hides and skins

Possible determinant	Likely outcome	Implications for downstream operations
Pronounced change in dietary habits in major meat-producing countries	Reduction in world supplies; increase in the relative contribution of developing countries, some decline in the share of high-quality hides in world production	Pressure on tanners and finishers to develop new techniques and methods of curing that will improve the quality of leather obtained from hides of rather poor quality
Cutbacks of agricultural support programmes in major producing countries; more liberalized trade in agricultural products	Fall in production in rich countries where levels of protection have been greatest	Same as above
Increased production in Eastern Europe as the farming sector is privatized	Modest increase in world supply although these materials will be tanned in the region	Little impact on world markets
Developing countries (with assistance from manufacturers and distributors in industrialized countries) invest in new feed-lot technologies and improved methods of curing and livestock management	Increased yields (greater area of leather per hide) and improvements in quality	Partially offsets effects of supply contractions with biggest benefits for developing countries

Sources: UNIDO

western industrialized countries are of superior quality, and it will be some time before the same standards can be met by producers in developing countries.

How might these developments affect downstream operations? Tanners and finishers in rich countries will come under pressure to upgrade their own techniques and technologies - for example, by finding new ways to maintain (or even improve) the quality of their leather despite a decline in the quality of the inputs. Meanwhile, manufacturers in these countries will become more specialized, thus increasing their demand for high quality leather (see below).

A greater portion of the world's trade in raw materials will be processed (at least wet-blue if not crust). Tanners will have an incentive to locate where slaughtering occurs and where cattle, sheep, goats and pigs are farmed while finishers will be more likely to be found near to manufacturing areas. However, as tanning gains ground in any country there will be efforts to take the process of leather-making to the most advanced stage which is practical in that particular market. As the United States is both a major hide producer and an important final market, the country's leather and product manufacturing operations could regain some of their former strength.

Leather tanning and finishing

Variations in price, quality and buyers' requirements mean that a more diverse set of forces are at work among the world's tanners and finishers than is true for raw materials. Table 10.2 shows some likely developments and their possible consequences.

In principle, decisions with regard to the location of tanning and finishing facilities may be guided by one of several motives. Leather-making facilities can be sited close to suppliers of raw materials, in proximity to manufacturers and markets for the final products, or in countries where the necessary skills are abundant and labour is relatively cheap. In reality, these alternatives cannot be so clearly distinguished. All are relevant, although one or another takes precedence in each specific case.

The costs of raw materials could assume greater significance in the future, provided that technological change continues to emphasize labour-saving rather than material-saving innovations. The costs of complying with environmental regulations are also higher for tanning and finishing than most other industries and will affect locational

Table 10.2 Possible factors affecting markets for tanned or finished leather

Possible determinant	Likely outcome	Implications for downstream manufacturers
Increased stringency of environmental regulations	Forces some relocation of tanning and finishing facilities as well as restructuring of operations within some countries	Manufacturers requiring high quality leather build up much closer links with their suppliers
Rich countries slowly and gradually lift some barriers to trade in leather	A minor development but encourages greater trade	
Steady rise in real wages in some important leather-producing countries	Competitive position of some countries in Western Europe and East Asia is weakened	Distributors and manufacturers of leather products extend and diversify their international networks of suppliers and subcontractors
Continued automation (primarily labour-saving rather than material-saving)	Cost structure changes with a reduction in labour's share and an increase in the shares of other cost components	Downstream manufacturers become more susceptible to price movements in markets for leather and hides and skins
Modernization of tanning sector in Eastern Europe, use of pigskin is phased out	Increased output and improvements in quality	Opportunities for downstream manufacturers become brighter

Sources : UNIDO

patterns. Finally, commercial policies - for example import restraints and export bans - will influence costs and therefore affect patterns of growth and locational trends.

A sharper division of labour could also emerge among tanners and finishers. These firms are likely to be increasingly divided between those specializing in production of high-grade leathers and those supplying mainly low-grade materials. The former will have to work very closely with downstream buyers. Such a dependency already exists, but it will be accentuated as specialization becomes more pronounced. Short delivery times and flexible responses to buyers' needs become even more important. Growth prospects in this industry segment will depend largely on the success of the manufacturers and distributors. This trend could also lead to further fragmentation of operations among leather makers; tanning and finishing should become more distinct as the former become more closely aligned with major suppliers of hides and skins while the latter are linked with manufacturers.

Firms supplying leathers of low-to-medium quality will generally have a slightly different agenda. They, too, will locate near the markets for the ultimate consumer but the time frame in which they operate will be less critical than for producers of higher quality leathers. Suppliers of low-grade leather will also be more likely to rely on local materials. Finally, there may be several reasons why these firms may be particularly concerned about economies of scale. One is that price rather than quality plays the dominant role in this part of the market. Another is that large-scale operations offer them the best opportunity to reduce the unit costs associated with tighter environmental controls.

Prospective trends among manufacturers of leather products

As manufacturing is the largest part of the industry, prospective changes in this area are of interest not only in themselves but also because of their repercussions for tanners and finishers. Some of the more important determinants of change such as shifts in consumer preferences or changes in fashion are virtually impossible to predict. Others can be anticipated to some extent, and several are noted in table 10.3.

The most fundamental changes in this part of the industry will be driven by events in the market place. A process of market fragmentation is already under way and will continue as the decade wears on. At least four distinct markets for leather products should exist by the end

of the decade. They include: the bulk market for athletic shoes, a market for fashionable high-quality shoes, garments and other leather articles, a market for standardized products of low-to-medium quality; and a newly emerging market in selected developing countries which will be served mainly through imports from Western Europe and the United States.

The market for athletic shoes is already huge and has been described at some length in previous chapters. These products have a certain fashion element, though the quality of the leather used is generally poor (often splits). A number of very large firms dominate this market segment and their influence will increase in coming years. They have amassed a far-flung network of suppliers, tanners, finishers and manufacturers. By spending huge amounts on advertising, they exert substantial influence over distributors. All these attributes represent significant barriers to new entrants. Competition amongst the leaders will probably intensify, however. Many analysts now believe that markets for all sorts of athletic shoes have reached saturation and the period of phenomenal growth has ended. The leading firms will spend more of their resources fighting to increase (or maintain) their share of existing markets.[3]

While makers of athletic shoes deal with the threat of market saturation, an increasingly sharp division will emerge between suppliers of fashionable, high-quality shoes, garments and leather articles on the one hand and manufacturers of standardized articles, on the other hand. Those operating in the upper end of the market will spend more and more of their revenues on product design and product differentiation while relying heavily on exclusive methods of distribution and (sometimes) exclusive technologies. In contrast, manufacturers of lower-quality products will be competing on the basis of price and product availability. They rely on long production runs using similar technologies and distribute their products through generic marketing channels. Priorities for research and development will reflect these characteristics. Emphasis will be placed on labour and material-saving innovations, improvements in logistics, inventory control and other forms of cost reduction.

The nature of competition and competitive threats will also differ. Firms specializing in high-quality, niche markets would benefit disproportionately during periods when economic growth is strong, earning most of their money in the industrialized countries. They may try

Table 10.3 Possible factors affecting markets for leather products

Possible determinant	Likely outcome	Implications for upstream suppliers
An increasingly sharp division into two market segments - one for high-quality leather products and the other for mass-produced products	Higher profitability is sustained among producers of high-quality and fashion items; continued internationalization in operations of mass manufacturers	Increased demand for high quality leather and growing emphasis on design and advertising
Growth in demand for leather articles once the economic recovery in rich countries begins	Short-term pressures on supply, forcing up the prices of hides and skins and leather	Increased threat from materials which can substitute for leather
Growth of markets for mass-produced manufactures (particularly footwear) in developing countries	Major distributors channel more resources into developing countries, but most consumers in these markets prefer non-leather footware	
Designers in developing countries acquire more influence over fashion	Top end of the fashion market in developing countries is extended, acquisition of firms in industrialized countries	Greater competition for control over distribution channels; closer links between manufacturers and tanners in developing countries
Increased threat of substitution from manufacturers using non-leather materials	Producers of fashionable, high-quality leather products face greater competition	Greater demand for specific types of high-quality leather but a possible reduction in aggregate demand

Sources: UNIDO

to discourage competition by spending lavishly on advertising, exerting control over some distribution channels and brand loyalties. These methods represent barriers to aspiring rivals but they will not deter some new entrants. The biggest competition threat could come from manufacturers using materials other than leather. Outsiders will be drawn to markets for fashionable, high-quality products since profitability is relatively high. For producers of standardized products the best market prospects may well be in the developing countries. There, they would compete not with suppliers of high quality products, but against manufacturers producing cheap substitutes - for example, non-leather footwear. Competition between firms in these two market segments will also occur. The boundaries dividing the markets will be constantly changing as producers in one group try to extend their operations upstream or downstream.

Systematic differences in locational patterns should also become more pronounced over time. Firms producing upmarket products will need to be in close touch with both customers and suppliers. The distributors of these products will have to be located in the industrialized countries. Manufacturers and finishers will be located in close proximity to each other, whether in industrialized or developing countries. The need to stay abreast of consumers' tastes and preferences will not be so important for suppliers of standardized products, although the larger firms will want some control over distribution channels. It is likely that several of the more successful firms in the future will be based in developing countries and make a concerted effort to move into the upper end of the market.

The mix of economic factors which influence locational decisions is also likely to change. As automation in key areas such as shoemaking and leather manufacturing continues, it will be less important that companies locate plants in countries where labour is cheap and wage rates are low. Other factors - for example, the cost of capital and the ability to introduce techniques such as total quality control - may assume greater importance than relative wages.

Finally, we expect new markets for medium to high grade products to emerge in some developing countries by the end of this decade. Several Asian countries are now experiencing rates of growth that surpass even the best economic performances of the 1980s. These achievements will soon be translated into greater purchasing power and a significant change in consumption patterns. The higher-income groups in some of the more advanced developing countries and areas (for example, Hong

Kong, Malaysia, Republic of Korea, Singapore, Taiwan Province and Thailand) represent part of the new market. An even larger portion will be found in China. Several of that country's southern coastal provinces were experiencing average annual growth rates of 13 per cent or better by the end of the 1980s. Guangdong Province already has a per capita income of around $1,300 per head. That Province alone has a larger population and is richer than most developing countries.

It is difficult to predict how these newly rich households will spend their income but their potential absorptive capacity will be enormous. New consumers could quickly claim a substantial portion of the world's medium and high-grade products and eventually take up the bulk of production at the lower end of the market as well. Suppliers of these new Asian markets need not be located in the region - at least in the first stage of development. Most goods could be imported from Western Europe and the United States, although the configuration of the industry would ultimately change, with the dominance of European, North American and Japanese markets being diminished. This rearrangement of world markets should reenforce the types of changes in tanning and manufacturing outlined above. It will also open up new markets for leather at all grade levels and provide opportunities for both tanners and manufacturers in the traditional leather-producing areas.

Ironically, none of the firms operating in any of these markets will have any particular reason to promote the use of leather or to spend significant amounts of money on the search for new applications for leather. Makers of athletic shoes have managed to develop an element of fashion without using high-quality leather and have no reason to increase leather content. Producers of fashionable, high-quality shoes and leather products would be willing to switch to other materials, provided that their reputation for fashion and quality remains intact. Meanwhile, manufacturers of standardized items are concerned about cost-reducing innovations, not leather usage. Tanners and finishers are probably the only group with strong reasons to search for new applications for leather. The amount of resources these particular firms can allocate to such research is limited, meaning that progress will be slow.

In conclusion, the leather and leather products industry has enjoyed rather healthy rates of growth over an extended period of time. The benefits, of course, have been unequally dispersed among the various markets, between stages of production and across countries. The

scenario outlined here suggests that the industry is now in the midst of a major transformation: markets for leather and leather products are becoming more international, competition between manufacturers of leather products is intensifying, and rivals relying on substitute materials are encroaching on the industry's major markets. These developments will make for a much more complicated world than the one inhabited by leather makers and manufacturers during the past three decades. The firms that succeed during this period of turbulence will be those that have carefully thought-out strategies which address all aspects of the competitive environment which have been raised here.

Endnotes

1 There could be an offsetting factor here. If markets for beef are allowed to establish true (lower) market prices, its competitive position relative to other meats would improve. The result would be a boost in beef production and some increase in the supply of hides.

2 A small fringe group of highly specialized suppliers could also emerge, although their impact on world markets will not be significant.

Appendix table A.1 Production of leather footwear, 1970-1990, selected countries or areas and regions

Region, country or area	Production 1970 (million pairs)	Production 1990 (million pairs)	Annual growth rate 1970-90 (percentage)
World	2,788.6	4,172.6	2.0
Industrialized countries	2,074.1	2,131.6	0.1
High-wage countries[a]	638.8	343.2	-3.1
Austria	13.8	11.7	-0.8
Belgium	10.3	1.9	-8.1
Canada	27.7	15.1	-3.0
Denmark	5.7	4.4	-1.3
France	86.0	76.9	-0.6
Germany, Federal Republic of	116.5	53.6	-3.8
Netherlands	16.7	5.4	-5.5
Switzerland	10.4	4.0	-4.7
United Kingdom	99.6	56.2	-2.8
United States	243.0	110.0	-3.9
Low-wage countries[b]	518.7	711.5	1.6
Finland	6.7	4.5	-2.0
Greece	15.0	11.8	-1.2
Ireland	7.0	2.6	-4.9
Israel	4.8	6.6	1.6
Italy	264.7	320.0	1.0
Japan	54.1	54.0	0.0
New Zealand	5.2	4.0	-1.3
Portugal	17.6	96.4	8.9
South Africa	29.9	35.0	0.8
Spain	71.6	158.5	3.8
Eastern Europe	916.6	1,076.7	0.9
Czechoslovakia	56.5	55.7	-0.1
Hungary	36.6	31.1	-0.8
Poland	62.2	59.8	-0.2
Romania	40.4	50.0	1.1
USSR	676.0	819.0	1.0
Developing countries or areas	714.5	2,041.0	5.4
Latin America	161.6	482.6	5.6
Argentina	34.5	39.5	0.7
Brazil	27.1	257.6	11.9
Mexico	16.0	50.6	5.9

Appendix table A.1 Production of leather footwear, 1970-1990, selected countries or areas and regions (continued)

Region, country or area	Production 1970 (million pairs)	1990	Annual growth rate 1970-1990 (percentage)
Africa	61.7	129.8	3.8
Algeria	5.4	8.2	2.1
Egypt	16.8	57.3	6.3
Morocco	10.0	19.0	3.3
Nigeria	5.4	8.5	2.3
Sudan	7.0	4.0	-2.8
Western Asia	38.8	76.1	3.4
Cyprus	1.9	7.4	7.0
Iraq	8.0	4.4	-2.9
Turkey	26.0	61.6	4.4
South and East Asia	419.3	1,260.8	5.7
Afghanistan	9.7	11.0	0.6
China	101.6	406.0	7.2
Hong Kong	1.2	14.0	13.1
India	205.5	325.0	2.3
Indonesia	7.0	23.5	6.2
Iran (Islamic Republic of)	16.0	36.3	4.2
Pakistan	35.0	47.7	1.6
Philippines	1.7	10.0	9.3
Republic of Korea	10.7	214.0	16.1
Taiwan Province	12.8	103.4	11.0
Thailand	5.4	45.0	11.2

Sources: Food and Agriculture Organization of the United Nations, 1992 World Statistical Compendium for Raw Hides and Skins, Leather and Leather Footwear, 1972-1990; SATRA, World Footwear Market 1991; information supplied by the European Confederation of the Footwear Industry; and UNIDO estimates.

Notes: [a] Definition of high- and low-wage economies are based on condition in 1970. Some countries defined as low-wage economies in 1970 no longer meet that condition. [b] Figures could be slight overestimates owing to the possible inclusion of some production of shoe uppers.

Appendix table A.2 Consumption of leather footwear in selected regions, 1975-1990[a]

Region or country[b]	Consumption 1975 (million pairs)	Consumption 1990 (million pairs)	Annual growth rate 1975-1990 (percentage)	Per capita consumption[c] 1975 (in pairs)	Per capita consumption[c] 1990 (in pairs)	Annual growth rate 1975-1990 (percentage)
World	2,906.5	4,200.8	2.5	0.7	0.8	0.8
Industrialized countries	2,011.3	2,783.3	2.2	1.8	2.3	1.5
Switzerland	13.3	22.5	3.6	2.1	3.4	3.3
Germany, Federal Republic of	143.5	200.8	2.3	2.3	3.3	2.3
Denmark	9.2	13.3	2.5	1.8	2.6	2.4
France	86.8	137.6	3.1	1.6	2.4	2.7
United States	339.2	631.3	4.2	1.6	2.5	3.2
Finland	5.0	9.9	4.6	1.1	2.0	4.2
Belgium	18.8	26.1	2.2	1.9	2.7	2.2
Canada	29.2	47.4	3.3	1.3	1.8	2.2
Netherlands	24.6	31.9	1.8	1.8	2.1	1.2
Japan	41.2	70.1	3.6	0.4	0.6	2.9
United Kingdom	83.5	143.2	3.7	1.5	2.5	3.5
Austria	9.6	21.8	5.6	1.3	2.9	5.6
Italy	59.6	94.1	3.1	1.1	1.6	2.9
New Zealand	5.6	5.5	-0.1	1.8	1.6	-0.7
Spain	72.3	86.2	1.2	2.0	2.2	0.5
Israel	6.9	7.4	0.5	2.0	1.6	-1.5
Ireland	4.4	11.1	6.3	1.4	3.0	5.2
Greece	10.4	12.8	1.4	1.1	1.3	0.7
Portugal	12.3	28.8	5.8	1.4	2.8	5.0
South Africa	38.4	36.6	-0.3	1.5	1.0	-2.5
Eastern Europe	960.4	1,088.7	0.8	2.7	2.7	0.1
USSR	765.6	892.6	1.0	3.0	3.1	0.2
Czechoslovakia	32.4	32.7	0.1	2.2	2.1	-0.3
Hungary	25.4	20.1	-1.5	2.4	1.9	-1.5
Romania	35.4	36.3	0.2	1.7	1.6	-0.4
Poland	50.9	42.8	-1.2	1.5	1.1	-2.0

Appendix table A.2 Consumption of leather footwear in selected regions, 1975-1990[a] (continued)

Region or country[b]	Consumption 1975 (million pairs)	Consumption 1990 (million pairs)	Annual growth rate 1975-1990 (percentage)	Per capita consumption[c] 1975 (in pairs)	Per capita consumption[c] 1990 (in pairs)	Annual growth rate 1975-1990 (percentage)
Developing countries	895.2	1,417.5	3.1	0.3	0.4	1.0
Latin America	255.2	305.8	1.2	0.8	0.7	-1.0
Argentina	44.8	36.5	-1.4	1.7	1.1	-2.8
Mexico	34.6	49.1	2.4	0.6	0.5	-0.1
Brazil	69.8	87.7	1.5	0.6	0.6	-0.7
Africa	106.8	130.1	1.3	0.3	0.2	-1.7
Algeria	6.1	8.3	2.0	0.4	0.3	-0.9
Morocco	12.9	13.3	0.2	0.7	0.5	-2.2
Egypt[d]	41.1	57.0	2.2	1.1	1.1	-0.3
Nigeria	8.7	8.6	-0.0	0.1	0.1	-3.3
Sudan	8.4	4.0	-4.8	0.5	0.2	-7.7
Western Asia	39.0	73.4	4.3	0.6	0.7	1.4
Cyprus[d]	1.4	4.7	8.6	2.2	6.7	7.6
Turkey[d]	32.0	61.6	4.5	0.8	1.1	2.2
Iraq	2.7	4.4	3.3	0.2	0.2	-0.4
South and East Asia	463.1	842.4	4.1	0.2	0.3	2.1
Singapore	1.4	5.2	9.0	0.6	2.0	7.7
Iran (Islamic Republic of)	25.0	36.3	2.5	0.8	0.7	-0.8
Republic of Korea	9.7	8.6	-0.8	0.3	0.2	-2.1
Thailand	9.0	7.5	-1.2	0.2	0.1	-3.2
Indonesia	9.1	7.3	-1.5	0.1	0.0	-3.5
Philippines	3.9	8.7	5.6	0.1	0.1	2.9
China	101.5	364.2	8.9	0.1	0.3	7.4
Pakistan	37.9	46.8	1.4	0.5	0.4	-1.9
India	239.3	313.0	1.8	0.4	0.4	-0.3
Afghanistan	10.2	11.0	0.5	0.7	0.7	0.1

Sources: Food and Agriculture Organization of the United Nations, 1992 World Statistical Compendium for Raw Hides and Skins, Leather and Leather Footwear, 1972-1990; SATRA, World Footwear Market 1991; information supplied by the European Confederation of the Footwear Industry; and UNIDO estimates.

Notes: [a] Consumption is derived from production plus imports less imports. [b] Countries are listed by level of per capita income in 1990. [c] Data on per capita consumption are rounded to one decimal, corresponding rates of growth are calculated from detailed figures. [d] Estimates are probably overstated owing to large tourist sales.

Appendix table A.3 Indicators of labour costs in the leather industry, 1975-1989

Country or area	Share of wages in value added[a]				Ratio of relative wages[b]			
	Leather		Footwear		Leather		Footwear	
	1975	1989	1975	1989	1975	1989	1975	1989
Industrialized countries	55.1	48.9	60.0	55.0	114	118	122	132
Australia	61.1	44.9	64.8	57.7	109	100	116	128
Austria	56.6	57.5	61.8	68.5	101	106	110	127
Belgium[c]	44.8	40.9	47.0	45.8	90	88	95	99
Canada	61.4	52.7	65.3	60.0	124	124	132	141
Czechoslovakia	62.5	61.3	58.6	55.9	147	146	138	133
Denmark	68.6	57.5	73.3	47.2	116	113	124	93
Finland	58.2	57.0	65.7	58.6	118	134	129	137
France	72.8[d]	74.6	78.0[d]	98.4	109[d]	119	117[d]	157
Germany, Federal Republic of	43.7	47.2	54.4	53.7	88	116	110	132
Hungary	27.2	51.5	38.5	65.0	117	145	166	183
Ireland[e]	61.4	47.0	59.8	61.5	133	165	130	215
Israel	45.5	40.2	39.5	40.7	128	105	111	107
Italy	37.1	37.1	42.6	53.8	93	91	107	132
Japan	41.9	44.9	50.5	47.7	104	135	125	144
Netherlands	42.7	56.5	80.7	60.1	145	122	141	130
New Zealand	72.1	54.7	80.6	73.9	108	96	121	130
Norway	62.5	71.1	75.6	70.0	108	131	131	129
Poland	43.5	21.3	32.2	23.0	181	115	134	124
Portugal	59.6	32.1	58.7	45.9	98	90	96	129
South Africa	61.5	48.5	54.5	46.3	114	104	101	99
Spain	45.2	44.8	78.0	38.5	76	119	131	102
Sweden	51.0	42.7	59.5	45.9	109	127	127	136
United Kingdom	50.6	49.5	60.4	53.5	99	123	118	133
United States	51.2	37.4	52.1	42.5	119	106	121	120
Developing countries and areas	39.6	37.7	46.9	45.5	127	130	157	162
Argentina	25.2	18.8	46.7	23.4	86	119	159	148
Bolivia	57.5	54.3	57.0	42.9	138	204	136	161
Brazil	24.7	27.7	30.5	25.6	131	135	162	125
Chile	14.7	21.4	21.9	28.8	120	129	178	173
Colombia	31.2	23.3	38.3	25.1	151	160	186	172
Cyprus	32.6	57.4	50.1	57.7	90	124	138	125
Ecuador	35.0	41.1	44.4	47.7	120	114	153	133
Egypt	57.5	47.7	42.9	53.9	109	138	81	156
Ethiopia	34.2	16.7	35.9	38.9	157	86	166	200
Guatemala	30.5	24.7	40.6	33.5	127	123	169	167
Honduras	38.3	51.2	52.1	62.1	102	133	139	162
Hong Kong	58.5	54.1	61.3	81.8	112	97	117	147
India	44.1	46.1	72.2	53.7	94	97	153	113

Appendix table A.3 Indicators of labour costs in the leather industry, 1975-1989 (continued)

Country or area	Share of wages in value added[a]				Ratio of relative wages[b]			
	Leather		Footwear		Leather		Footwear	
	1975	1989	1975	1989	1975	1989	1975	1989
Iran[c] (Islamic Republic of)	19.2	31.3	25.4	55.0	70	67	93	117
Jordan[c]	20.0	26.5	45.4	51.5	78	116	177	225
Kenya	64.7	46.3	56.5	56.1	147	106	128	128
Malaysia	36.0	45.6	33.5	54.3	131	165	122	196
Mauritius	74.1	45.6	36.1	38.8	216	101	105	86
Mexico	65.7	31.0	57.5	46.8	168	156	147	235
Panama	44.8	66.4	48.1	51.8	160	176	171	137
Philippines	33.3	61.1	52.6	65.9	225	241	355	260
Republic of Korea	18.7	32.0	45.4	38.5	79	115	193	138
Singapore	57.3	39.4	58.4	50.3	165	130	169	166
Taiwan Province	43.0	39.8	[f]	[f]	136	96	[f]	[f]
Turkey	35.0	22.3	62.5	44.9	109	149	195	300
Venezuela	33.1	32.0	54.8	45.7	121	155	201	222
Yugoslavia	39.3	24.4	47.6	26.3	110	93	134	100
Zimbabwe	44.6	30.5	47.5	28.3	106	82	112	76

Sources: UNIDO database.

Notes: [a] Includes salaries. [b] Defined as the branch's share of wages and salaries in the branch's MVA relative to the corresponding share of wages and salaries in total MVA. [c] 1975 and 1988. [d] 1977 [e] 1975 and 1987. [f] Footwear is included in leather.

Appendix table A.4 Cost structure of the tannery, leather finishing industry, in selected countries, selected years (ISIC 3231)
(Percentage)

Country	Year	Labour costs	Raw materials	Other inputs	Overheads	Total operating costs
Argentina	1984	15.8	70.6[a]	2.0	11.6[b]	100.0
Belgium	1983	20.7	68.6	5.5	5.2[c]	100.0
	1988	19.8	71.3	3.8	5.1[c]	100.0
Cyprus	1984	12.7	78.2	5.7	3.4	100.0
Germany, Federal Republic of	1984	15.2	65.6	8.6	10.6[d]	100.0
	1989	15.8	64.0	8.7	11.5[d]	100.0
Hong Kong	1983	11.2	79.8[e]	[f]	9.0[f]	100.0
	1989	15.7	73.4[e]	[f]	10.9[f]	100.0
India	1982	5.9	72.7[g]	2.1	19.3[h]	100.0
	1987	4.9	79.7[g]	2.0	13.4[h]	100.0
Indonesia	1985	8.4	80.4	7.9	3.3	100.0
	1986	7.8	79.9	8.3	4.0	100.0
Philippines	1983	19.5	61.6[g]	6.6	12.3	100.0
	1985	19.0	47.4[g]	12.7	20.9	100.0

Sources: National publications.

Notes: [a] Includes fuels and electricity costs. [b] Includes repair and maintenance, rent for premises and machinery. [c] Depreciation not included. [d] Operating surplus, estimated from gross output. [e] Includes other inputs, and purchases of materials for business operation. [f] Includes rent for premises, machinery and equipment. [g] Includes other materials (packing materials, chemicals, etc.). [h] Includes repair and maintenance, payments for work given out.

Appendix table A.5 Cost structure of the leather products industry in selected countries, selected years (ISIC 3233)
(Percentage)

Country	Year	Labour costs	Raw materials	Other inputs	Overheads	Total operating costs
Argentina	1984	24.8	68.2[a]	0.8	6.2[b]	100.0
Belgium	1983	42.7	39.7	6.0	11.6[c]	100.0
	1988	41.2	42.5	5.9	10.4[c]	100.0
Cyprus	1984	31.2	52.8	8.6	7.4	100.0
Germany, Federal Republic of	1984	29.8	34.5	19.6	16.1[d]	100.0
	1989	28.6	31.7	19.7	20.0[d]	100.0
Hong Kong	1983	19.8	73.2[e]	[e]	7.0[f]	100.0
	1989	13.0	77.3[e]	[e]	9.7[f]	100.0
India	1982	8.3	43.5[g]	2.3	45.9[h]	100.0
	1987	6.8	71.4[g]	2.6	19.2[h]	100.0
Indonesia	1985	30.9	63.1	4.2	1.8	100.0
	1986	28.5	66.2	3.7	1.6	100.0
Philippines	1983	15.8	62.8[g]	6.3	15.1	100.0
	1985	17.2	56.7[g]	7.2	18.9	100.0
Venezuela	1990	17.7	61.0	10.6	10.7	100.0

Sources: National publications.

Notes: [a] Includes fuels and electricity costs. [b] Includes repair and maintenance, rent for premises and machinery. [c] Depreciation not included. [d] Operating surplus, estimated from gross output. [e] Includes other inputs, and purchases of materials for business operation. [f] Includes rent for premises, machinery and equipment. [g] Includes other materials (packing materials, chemicals, etc.). [h] Includes repair and maintenance, payments for work given out.

Appendix table A.6 Cost structure in the leather and footwear industry: Argentina

Cost component (in Australes)	ISIC 3231 Tannery, leather finishing		ISIC 3233 Leather products		ISIC 323 Leather and leather products		ISIC 324 Footwear	
	1984	percentage	1984	percentage	1984	percentage	1984	percentage
Industrial costs	24,969,057	72.6	2,706,719	69.0	27,787,362	71.8	20,917,085	68.9
Raw materials[b,d]	(24,310,261)	(70.6)	(2,673,897)	(68.2)	(27,093,467)	(70.0)	(20,286,380)	(66.8)
Labour costs	5,437,063	15.8	972,251	24.8	6,594,646	17.0	7,956,522	26.2
Overheads and other charges[c]	4,007,450	11.6	241,866	6.2	4,303,678	11.2	1,494,008	4.9
TOTAL	34,413,570	100.0	3,920,836	100.0	38,685,686	100.0	30,367,615	100.0

Source: Industria manufacturera. Instituto nacional de Estadistica y Censos 1989.

Notes: [a] Industrial costs and overhead include indirect taxes. [b] Includes fuels and electricity costs. [c] Includes repair, maintenance, rent for premises, and machinery. [d] Raw materials cost as part of industrial costs; percentage in total costs.

Appendix table A.7 Cost structure in the leather and footwear industry: Austria

Cost component (in 1,000 Schilling)	ISIC 323 - Leather and leather products			
	1983	percentage	1988	percentage
Industrial costs	1,597,344	65 5	2,008,107	69 6
Raw materials[a]	(1,413,169)	(57.9)	(1,746,691)	(60 5)
Labour costs	581,447	23.8	591,948	20 5
Overheads and other charges	262,214	10.7	286,759	9.9
TOTAL	2,441,005	100 0	2,886,814	100 0

Cost component (in 1,000 Schilling)	ISIC 324 - Footwear[a]			
	1983	percentage	1988	percentage
Industrial costs	5,160,475	61.5	4,346,452	57 7
Raw materials[b]	(3,735,396)	(44 5)	(3,113,074)	(41 3)
Labour costs	2,279,733	27 2	2,072,883	27 5
Overheads and other charges	947,755	11 3	1,113,050	14 8
TOTAL	8,387,963	100 0	7,532,385	100 0

Source: Industriestatistik und Gewerbestatistik 1983 and 1988, Beitrage zur Osterreichischen Statistik, herausgegeben vom Osterreichischen Statistischen Zentralamt, Wien.

Notes: [a] Includes manufacture and repair [b] Raw materials cost as part of industrial costs; percentage in total costs.

Appendix table A.8 Cost structure in the leather and footwear industry: Belgium

Cost component (in 1,000 Belgian francs)	ISIC 323 - Leather and leather products				ISIC 324 - Footwear			
	1983	percentage	1988	percentage	1983	percentage	1988	percentage
Industrial costs	3,201,266	64.3	2,955,399	64.4	1,323,704	50.3	1,223,621	50.1
Raw materials[b]	(2,902,869)	(58.3)	(2,732,912)	(59.6)	(1,203,995)	(45.8)	(1,088,346)	(44.6)
Labour costs	1,399,139	28.1	1,230,813	26.8	1,163,666	44.2	1,079,461	44.2
Overheads and other charges[a]	378,269	7.6	405,659	8.8	142,896	5.5	138,328	5.7
TOTAL	4,978,674	100.0	4,591,879	100.0	2,630,266	100.0	2,441,410	100.0

Cost component (in 1,000 Belgian francs)	ISIC 3231 - Tannery, leather finishing				ISIC 3233 - Leather products			
	1983	percentage	1988	percentage	1983	percentage	1988	percentage
Industrial costs	2,136,023	74.1	1,971,109	75.1	452,699	45.7	534,629	48.4
Raw materials[b]	(1,978,703)	(68.6)	(1,870,302)	(71.3)	(393,340)	(39.7)	(468,907)	(42.5)
Labour costs	596,432	20.7	518,885	19.8	422,909	42.7	454,990	41.2
Overheads and other charges[a]	150,181	5.2	134,739	5.1	114,593	11.6	113,894	10.4
TOTAL	2,882,636	100.0	2,624,733	100.0	990,201	100.0	1,103,513	100.0

Source: Statistiques industrielles. Institut national de statistique. various issues.

Notes: [a] Depreciation not included. [b] Raw materials cost as part of industrial costs; percentage in total costs.

Appendix table A.9 Cost structure in the leather and footwear industry: Chile

Cost component (in 1,000 pesos)	ISIC 323 - Leather and leather products		ISIC 324 - Footwear	
	1985	percentage	1985	percentage
Industrial costs	6,496,252	83.2	11,083,591	71.0
Raw materials[a]	(6,324,872)	(81.1)	(10,874,504)	(69.7)
Labour costs	894,391	11.5	3,020,846	19.4
Overheads and other charges	409,323	5.3	1,506,378	9.6
TOTAL	7,799,966	100.0	15,610,815	100.0

Source: Industrias Manufactureras 1985, Instituto nacional de Estadisticas.
Notes: [a] Includes other materials. [b]Raw materials cost as part of industrial costs; percentage in total costs.

Appendix table A.10 Cost structure in the leather and footwear industry: Colombia

Cost component (in 1,000 pesos)	ISIC 323 - Leather and leather products				ISIC 324 - Footwear			
	1982	percentage	1987	percentage	1982	percentage	1987	percentage
Industrial costs	5,190,868	60.2	28,660,267	74.0	5,039,138	56.0	20,167,720	60.7
Raw materials[a,b]	(4,830,436)	(56.0)	(27,537,519)	(71.1)	(4,775,794)	(53.1)	(18,413,937)	(55.5)
Labour costs	1,997,049	23.2	4,883,638	12.6	2,372,284	26.4	7,325,102	22.1
Overheads and other charges	1,435,049	16.6	5,183,092	13.4	1,583,836	17.6	5,713,908	17.2
TOTAL	8,622,966	100.0	38,726,997	100.0	8,995,258	100.0	33,206,730	100.0

Source: Industria manufacturera 1982 and 1987, Departamento administrativo nacional de Estadistica.
Notes: [a] Includes other materials. [b] Raw materials cost as part of industrial costs; percentage in total costs.

Appendix table A.11 Cost structure in the leather and footwear industry: Cyprus

Cost component (in Cyprus pounds)	ISIC 323 - Leather and leather products		ISIC 324 - Footwear	
	1984	percentage	1984	percentage
Industrial costs	5,772,024	67.1	17,402 935	62.1
Raw materials[a]	(5,092,133)	(59.2)	(15,230,046)	(54.3)
Labour costs	2,279,737	26.5	8,228,849	29.4
Overheads and other charges	545,058	6.4	2,403,867	8.5
TOTAL	8,596,819	100.0	28,035,651	100.0

Cost component (in Cyprus pounds)	ISIC 3231 - Tannery and leather finishing		ICIS 3233 - Leather products	
	1984	percentage	1984	percentage
Industrial costs	1,838,122	83.9	3,933,902	61.4
Raw materials[a]	(1,712,435)	(78.2)	(3,379,698)	(52.8)
Labour costs	279,111	12.7	2,000,626	31.2
Overheads and other charges	73,892	3.4	471,166	7.4
TOTAL	2,191,125	100.0	6,405,694	100.0

Source: Republic of Cyprus, Industrial Statistics 1984, published by the Department of Statistics and Research, Ministry of Finance.

Notes: [a] Raw materials cost as part of industrial costs; percentage in total costs.

Appendix table A.12 Cost structure in the leather and footwear industry: Germany, Federal Republic of

Cost component (in 1,000 DM)	ISIC 323 - Leather and leather products				ISIC 324 - Footwear			
	1984	percentage	1989	percentage	1984	percentage	1989	percentage
Industrial costs	2,458,015	63.1	2,140,725	60.9	2,712,746	57.2	2,945,182	61.5
Raw materials[a]	(1,856,044)	(47.7)	(1,597,879)	(45.4)	(1,778,044)	(37.5)	(1,951,651)	(40.8)
Labour costs	909,732	23 4	826,122	23.5	1,409,253	29.7	1,271,687	26.6
Overheads and other charges[b]	526,280	13.5	550,003	15.6	622,646	13.1	568,780	11.9
TOTAL	3,894,027	100 0	3,516,850	100.0	4,744,645	100.0	4,785,649	100 0

Cost component (in 1,000 DM)	ISIC 3231 - Tannery and leather finishing				ISIC 3233 - Leather products			
	1984	percentage	1989	percentage	1984	percentage	1989	percentage
Industrial costs	1,180,151	74.2	1,089,162	72.7	978,684	54.1	925,210	51.4
Raw materials[a]	(1,044,088)	(65.6)	(959,415)	(64.0)	(623,040)	(34.5)	(571,485)	(31 7)
Labour costs	240,996	15.2	236,378	15.8	538,548	29.8	515,259	28.6
Overheads and other charges[b]	169,341	10.6	172,450	11.5	291,082	16.1	359,865	20.0
TOTAL	1,590,488	100.0	1,497,990	100.0	1,808,314	100.0	1,800,334	100.0

Source: Statisches Bundesamt, Produzierendes Gewerbe, Fachserie 4, Reihe 4 3.3, 1984 and 1989, Kostenstruktur der Unternehmen.

Notes: [a] Raw materials cost as part of industrial costs; percentage in total costs. [b]Operating surplus estimated from gross output.

Appendix table A.13 Cost structure of the leather and footwear industry: Hong Kong

Cost component (in 1,000 HK dollars)	ISIC 323 - Leather and leather products				ISIC 324 - Footwear			
	1983	percentage	1989	percentage	1983	percentage	1989	percentage
Industrial costs[a]	654,608	75.6	967,173	75.8	546,288	62.5	1,235,197	69.7
Raw materials[c]								
Labour costs	144,138	16.6	178,401	14.0	254,179	29.1	380,175	21.5
Overheads and other charges[b]	66,971	7.8	130,146	10.2	73,162	8.4	156,156	8.8
TOTAL	865,717	100.0	1,275,720	100.0	873,629	100.0	1,771,528	100.0

Cost component (in 1,000 HK dollars)	ISIC 3231 - Tannery, leather finishing				ISIC 3233 - Leather products			
	1983	percentage	1989	percentage	1983	percentage	1989	percentage
Industrial costs[a]	253,360	79.8	352,297	73.4	401,248	73.2	614,876	77.3
Raw materials[c]								
Labour costs	35,666	11.2	75,394	15.7	108,472	19.8	103,007	13.0
Overheads and other charges[b]	28,434	9.0	52,565	10.9	38,537	7.0	77,581	9.7
TOTAL	317,460	100.0	480,256	100.0	548,257	100.0	795,464	100.0

Sources: Survey of Industrial Production, 1983 and 1989, Census and Statistics Department, Hong Kong.

Notes: [a] Includes all purchases of materials/supplies for business operations. [b] Includes rent for land, buildings and rentals for hiring machinery and equipment. [c] Raw materials not separately available.

Appendix table A.14 Cost structure of the leather and footwear industry: India

Cost component (in 100,000 Rupees)	ISIC 323 - Leather and leather products				ISIC 324 - Footwear			
	1982	%	1987	%	1982	%	1987	%
Industrial costs	31,698	74.3	78,282	81.3	12,965	68.8	27,740	67.0
Raw materials[a c]	(30,811)	(72.2)	(76,370)	(79.4)	(12,633)	(66.8)	(26,936)	(65.1)
Labour costs	2,528	5.9	4,760	5.0	2,962	15.7	6,059	14.6
Overheads and other charges[b]	8,437	19.8	13,130	13.7	2,973	15.7	7,609	18.4
TOTAL	42,663	100.0	96,172	100.0	18,900	100.0	41,408	100.0

Cost component (in 100,000 Rupees)	ISIC 3231 - Tannery, leather finishing				ISIC 3233 - Leather products				PART OF ISIC 322 - Leather clothing			
	1982	%	1987	%	1982	%	1987	%	1982	%	1987	%
Industrial costs	31,355	74.8	75,007	81.7	321	45.8	2,938	74.0	965	68.9	5,742	78.8
Raw materials[a c]	(30,486)	(72.7)	(73,196)	(79.7)	(305)	(43.5)	(2,838)	(71.4)	(923)	(65.9)	(5,616)	(77.1)
Labour costs	2,465	5.9	4,456	4.9	58	8.3	270	6.8	114	8.2	403	5.5
Overheads and other charges[b]	8,101	19.3	12,333	13.4	322	45.9	765	19.2	321	22.9	1,143	15.7
TOTAL	41,921	100.0	91,796	100.0	701	100.0	3,973	100.0	1,400	100.0	7,288	100.0

Sources: Annual Survey of Industries 1982, 1987 Central Statistical Organization, Department of Statistics.

Notes: [a] Includes chemicals, packing materials and stores. [b] Includes repair, maintenance and payments for work given out. [c] Raw materials cost as part of industrial costs; percentage in total costs.

Appendix table A.15 Cost structure of the leather and footwear industry: Indonesia

Cost component (in 1,000 Rupiahs)	ISIC 323 Leather and leather products		ISIC 324 - Footwear		ISIC 3231 Tannery, leather finishing		ISIC 3233 Leather products	
	1986	percentage	1986	percentage	1986	percentage	1986	percentage
Industrial costs	30,448,153	87.1	34,390,231	70.0	29,056,761	88.2	1,391,392	69.9
Raw materials*	(27,653,049)	(79.1)	(25,877,665)	(52.6)	(26,335,494)	(79.9)	(1,317,555)	(66.2)
Labour costs	3,137,587	9.0	10,653,661	21.7	2,569,204	7.8	568,383	28.5
Overheads and other charges	1,362,392	3.9	4,113,804	8.3	1,331,034	4.0	31,358	1.6
TOTAL	34,948,132	100.0	49,157,696	100.0	32,956,999	100.0	1,991,133	100.0

Sources: Indonesia Industrial Statistics 1986, Survey of Manufacturing Industries, Large and Medium, Volume I; Economic Census 1986, Large and Medium, Volume I.

Notes: * Raw materials cost as part of industrial costs; percentage in total costs.

Appendix table A.16 Cost structure of the leather and footwear industry: Pakistan

Cost component (in 1,000 Rupees)	ISIC 323 - Leather and leather products		ISIC 324 - Footwear	
	1980	%	1980	%
Industrial costs	888,639	85.1	330,374	72.0
Raw materials[a]	(868,956)	(83.2)	(313,208)	(68.3)
Labour costs	40,976	3.9	66,470	14.5
Overheads and other charges	114,149	11.0	61,880	13.5
TOTAL	1,043,764	100.0	458,724	100.0

Sources: Census of Manufacturing Industries 1980-81, Federal Bureau of Statistics, Statistics Division, Government of Pakistan, Karachi 1984.

Notes: [a] Raw materials cost as part of industrial costs; percentage in total costs.

Appendix table A.17 Cost structure of the leather and footwear industry: Philippines

Cost component (in 1,000 pesos)	ISIC 323 Leather and leather products		ISIC 324 Footwear		ISIC 3231 Tannery and leather finishing		ISIC 3233 Leather products	
	1985	%	1985	%	1985	%	1985	%
Industrial costs	110,330	62.2	343,004	63.4	45,538	60.1	64,793	63.9
Raw materials[a]	(93,455)	(52.7)	(313,935)	(58.0)	(35,915)	(47.4)	(57,540)	(56.7)
Labour costs	31,859	18.0	136,320	25.2	14,355	19.0	17,504	17.2
Overheads and other charges	35,088	19.8	61,640	11.4	15,910	20.9	19,178	18.9
TOTAL	177,277	100.0	540,964	100.0	75,803	100.0	101,475	100.0

Sources: 1985 Annual Survey of Establishments, Manufacturing, National Statistics Office.
Notes: [a] Raw materials and supplies purchased; raw materials cost as part of industrial costs; percentage of total costs.

Appendix table A.18 Cost structure of the leather and footwear industry: Singapore

Cost component (in 1,000 Singapore dollars)	ISIC 323 - Leather and leather products				ISIC 324 - Footwear			
	1985	%	1989	%	1985	%	1989	%
Industrial costs	26,605	74.7	41,570	73.1	23,983	71.0	36,696	77.3
Raw materials[a]	(22,907)	(64.3)	(38,067)	(66.9)	(18,915)	(56.0)	(30,754)	(64.8)
Labour costs	6,944	19.5	10,298	18.1	7,002	20.8	8,124	17.1
Overheads and other charges	2,081	5.8	4,995	8.8	2,773	8.2	2,670	5.6
TOTAL	35,630	100.0	56,863	100.0	33,758	100.0	47,490	100.0

Sources: Report on the Census of Industrial Production, 1985 and 1989.
Notes: [a] Raw materials cost as part of industrial costs; percentage of total costs.

Appendix table A.19 Cost structure of the leather and footwear industry: Turkey

Cost component (in 1,000 Turkish Lira)	ISIC 323[a] - Leather and leather products				ISIC 324[a] - Footwear			
	1983	percentage	1986	percentage	1983	percentage	1986	percentage
Industrial costs	20,392,280	78.8	95,997,955	77.1	13,193,024	68.9	49,847,020	72.0
Raw materials[b]	(20,190,334)	(78.1)	(95,188,597)	(76.4)	(12,843,793)	(67.1)	(47,626,498)	(68.7)
Labour costs[c]	2,056,499	8.0	5,675,415	4.6	3,409,357	17.8	7,834,873	11.3
Overheads and other charges[d]	3,416,050	13.2	22,841,596	18.3	2,543,886	13,3	11,598,948	16.7
TOTAL	25,864,829	100.0	124,514,966	100.0	19,146,267	100.0	69,280,841	100.0

Sources: Statistical Yearbook of Turkey 1989. State Institute of Statistics. Prime Minstery. Republic of Turkey.

Notes: [a] Public sector (all establishments), private sector (where 25 or more persons are engaged). [b]Raw materials, components, containers, fuels and electricity; raw materials cost as part of industrial costs; percentage of total costs. [c] Annual payments made to employees. [d] Operating surplus estimated from gross output.

Appendix table A.20 Cost structure of the leather and footwear industry: Venezuela

Cost component (in 1,000 Bolivares)	ISIC 3233 - Leather products		ISIC 323 Leather and leather products				ISIC 324 - Footwear			
	1990	%	1982	%	1990	%	1982	%	1990	%
Industrial costs	644,109	71.6	402,680	62.5	4,154,070	71.2	1,352,864	59.8	8,688,979	71.8
Raw materials[a]	(549,076)	(61.0)	(358,864)	(55.7)	(3,832,025)	(65.7)	(1,184,566)	(52.3)	(7,306,825)	(60.4)
Labour costs	159,608	17.7	120,543	18.7	579,273	9.9	566,609	25.0	1,950,666	16.1
Overheads and other charges	96,052	10.7	121,355	18.8	1,101,617	18.9	343,531	15.2	1,463,848	12.1
TOTAL	899,769	100.0	644,578	100.0	5,834,960	100.0	2,263,004	100.0	12,103,493	100.0

Sources: Encuesta Industrial 1982 and 1990, Oficina Central de Estadistica e Informatica.
Notes: [a] Raw materials cost as part of industrial costs; percentage of total costs.

Appendix table A.21 Cost structure of the leather and footwear industry: Zimbabwe

Cost component (in 1,000 Zimbabwe dollars)	ISIC 324 - Footwear			
	1981	%	1986	%
Industrial costs	30,508	63.8	53,334	60.3
Raw materials[a]	(26,901)	(56.2)	(45,395)	(51.3)
Labour costs[b]	14,039	29.3	25,288	28.6
Overheads and other charges	3,318	6.9	9,802	11.1
TOTAL	47,865	100.0	88,424	100.0

Sources: The Census of Production, Zimbabwe, Central Statistical Office.
Notes: [a] Raw materials cost as part of industrial costs; percentage of total costs. [b] Wages and salaries only.

Appendix table A.22 Distribution by employment size among tanners and manufacturers of the leather products industry (ISIC 323): Australia
(Percentage)

	Firms employing:				
	4 - 9 employees	10 - 19 employees	20 - 49 employees	50 - 99 employees	100 and more employees
Year	1985	1985	1985	1985	1985
No. of establishments	48.7	24.6	16.6	8.0	2.1
No. of employees	15.3	16.0	23.9	27.4	17.4
Wages and salaries	12.1	13.8	25.9	29.3	19.0
Gross output	7.8	12.9	31.6	31.3	16.4
Value added	11.0	13.8	25.7	32.1	17.4

Source: UNIDO.

Appendix table A.23 Distribution by employment size among tanners and manufacturers of the leather products industry (ISIC 323): Austria *
(Percentage)

	Firms employing:									
	5 - 9 employees		10 - 19 employees		20 - 49 employees		50 - 99 employees		100 - 499 employees	
Year	1984	1988	1984	1988	1984	1988	1984	1988	1984	1988
No of establishments	19.4	7.7	12.9	26.9	29.0	34.6	16.1	7.7	22.6	23.1
No of employees	2.1	0.8	2.7	5.1	16.9	14.9	15.2	8.3	63.1	70.9
Wages and salaries	2.4	0.7	2.3	5.5	16.1	14.9	13.5	7.7	65.7	71.2
Gross output	3.2	0.4	2.1	5.9	12.0	9.4	12.4	14.4	70.3	69.9
Value added	2.2	0.6	4.2	9.1	17.3	12.6	14.4	11.6	61.9	66.1

Source: UNIDO.
Notes: * Includes UNIDO estimates.

Appendix table A.24 Distribution by employment size among tanners and manufacturers of the leather products industry (ISIC 323): Belgium
(Percentage)

	Firms employing:					
	5 - 9 employees		10 - 19 employees		20 and more employees	
Year	1983	1988	1983	1988	1983	1988
No. of establishments	30.5	37.3	38.0	34.7	31.5	28.0
No. of employees	7.0	11.0	20.5	22.1	72.5	66.9

Source: UNIDO.

Appendix table A.25 Distribution by employment size among tanners and manufacturers of the leather products industry (ISIC 323): Brazil (Percentage)

	Firms employing:							
	1 - 4 employees	5 - 9 employees	10 - 19 employees	20 - 49 employees	50 - 99 employees	100 - 249 employees	250 - 499 employees	500 and more employees
Year	1985	1985	1985	1985	1985	1985	1985	1985
No. of establishments	51.3	12.7	9.6	10.3	6.5	6.6	2.4	0.6
No. of employees	3.8	2.5	3.9	9.8	13.2	30.7	23.2	12.9
Wages and salaries	2.2	1.8	2.9	8.4	13.7	33.2	24.3	13.5
Gross output	1.9	1.7	3.4	8.6	14.3	33.9	26.4	9.8
Value added	1.2	1.9	3.2	8.5	14.4	35.2	27.7	7.9

Source: UNIDO.

Appendix table A.26 Distribution by employment size among tanners and manufacturers of the leather products industry (ISIC 323): Colombia
(Percentage)

	Firms employing:							
	10 - 49 employees		50 - 99 employees		100 - 199 employees		200 and more employees	
Year	1982	1987	1982	1987	1982	1987	1982	1987
No. of establishments	65.6	65.9	8.9	9.8	15.5	14.5	10.0	9.8
No. of employees	17.5	19.2	9.3	9.4	25.3	24.3	47.9	47.1
Wages and salaries	11.4	13.9	6.2	7.4	23.5	22.8	58.9	55.9
Gross output	10.6	12.4	3.0	6.3	20.6	15.0	65.8	66.3
Value added	8.8	13.9	3.4	7.1	21.8	19.6	66.0	59.4

Source: UNIDO.

Appendix table A.27 Distribution by employment size among tanners and manufacturers of the leather products industry (ISIC 323): Hong Kong [a]
(Percentage)

	Firms employing:									
	1 - 9 employees		10 - 19 employees		20 - 49 employees		50 - 99 employees		100 - 199 employees	
Year	1984	1989	1984	1989	1984	1989	1984	1989	1984	1989
No. of establishments	35.9	65.1	32.7	14.7	21.9	15.9	8.2	3.9	1.3	0.4
No. of employees	10.2	19.4	23.3	15.8	34.2	38.0	24.0	22.2	8.3	4.6
Wages and salaries [b]	7.3	14.7	22.0	15.5	33.1	39.5	28.5	26.8	9.1	3.5
Gross output	6.3	17.1	20.3	11.0	35.7	47.2	27.3	20.6	10.4	4.1
Value added	7.7	13.1	20.1	14.1	33.7	40.7	29.5	29.0	9.0	3.1

Source: UNIDO.
Notes: [a] Includes estimates. [b] Compensation of employees.

Appendix table A.28 Distribution by employment size among tanners and manufacturers of the leather products industry (ISIC 323): Italy
(Percentage)

	Firms employing:			
	1 - 49 employees	50 - 99 employees	100 - 199 employees	200 and more employees
Year	1986	1986	1986	1986
No. of establishments	71.2	19.5	7.2	2.1
No. of employees	40.9	25.8	19.9	13.4
Wages and salaries	36.3	27.4	20.9	15.4
Gross output	41.8	25.2	22.3	10.7
Value added	40.0	26.3	21.2	12.5

Source: UNIDO.

Appendix table A.29 Distribution by employment size among tanners and manufacturers of the leather products industry (ISIC 323): Japan
(Percentage)

	Firms employing:											
	4 - 9 employees		10 - 19 employees		20 - 49 employees		50 - 99 employees		100 - 299 employees		300 - 999 employees	
Year	1984	1990	1984	1990	1984	1990	1984	1990	1984	1990	1984	1990
No. of establishments	73.8	71.7	17.0	16.7	4.8	9.4	3.6	1.5	0.7	0.6	0.1	0.1
No. of employees	39.6	37.4	21.3	20.4	10.9	23.9	17.4	9.5	9.6	7.8	1.2	1.0
Wages and salaries	32.5	29.6	22.3	21.4	11.7	25.5	19.9	11.2	11.4	10.0	2.2	2.3
Gross output	28.7	27.1	22.3	21.1	13.1	27.2	22.3	12.1	11.9	11.0	1.7	1.5
Value added	31.1	26.8	22.7	21.7	12.4	27.5	21.8	13.6	10.2	8.8	1.8	1.6

Source: UNIDO.

Appendix table A.30 Distribution by employment size among tanners and manufacturers of the leather products industry (ISIC 323): Kenya
(Percentage)

	Firms employing:									
	1 - 4 employees		5 - 9 employees		10 - 19 employees		20 - 49 employees		50 and more employees	
Year	1979	1988	1979	1988	1979	1988	1979	1988	1979	1988
No. of establishments	0.0	7.7	9.1	7.7	18.2	7.7	27.3	23.1	45.4	53.8
No. of employees	0.0	3.6	0.4	2.5	1.7	4.8	6.8	15.8	91.1	73.3

Source: UNIDO.

Appendix table A.31 Distribution by employment size among tanners and manufacturers of the leather products industry (ISIC 323): Malaysia (Percentage)

	Firms employing:							
	1 - 19 employees		20 - 49 employees		50 - 99 employees		100 and more employees	
Year	1970	1988	1970	1988	1970	1988	1970	1988
No. of establishments	50.0	23.8	21.4	61.9	28.6	9.5	0.0	4.8

Source: UNIDO.

Appendix table A.32 Distribution by employment size among tanners and manufacturers of the leather products industry (ISIC 323): Republic of Korea (Percentage)

	Firms employing:													
	5 - 9 employees		10 - 19 employees		20 - 49 employees		50 - 99 employees		100 - 199 employees		200 - 499 employees		500 and more	
Year	1984	1989	1984	1989	1984	1989	1984	1989	1984	1989	1984	1989	1984	1989
No. of establishments	25.0	25.9	28.7	30.8	26.8	26.4	12.7	9.5	4.4	5.3	1.8	1.7	0.6	0.4
No. of employees	4.5	5.1	10.4	11.8	22.4	22.8	22.7	18.8	16.3	21.1	14.5	13.7	9.2	6.7
Wages and salaries	3.2	3.4	8.6	9.2	19.8	20.0	24.3	20.1	18.4	24.1	15.3	15.5	10.4	7.7
Gross output	1.3	1.9	3.8	5.1	13.5	17.8	22.7	19.2	22.9	30.0	19.0	18.5	16.8	7.5
Value added	2.5	3.4	6.1	7.9	16.0	22.9	21.6	20.4	20.9	26.9	21.1	14.1	11.8	4.4

Source: UNIDO.

Appendix table A.33 Distribution by employment size among tanners and manufacturers of the leather products industry (ISIC 323): Singapore
(Percentage)

	Firms employing:							
	10 - 29 employees		30 - 49 employees		50 - 99 employees		100 and more employees	
Year	1985	1989	1985	1989	1985	1989	1985	1989
No. of establishments	85.7	63.2	10.7	10.5	0.0	15.8	3.6	10.5

Source: UNIDO.

Appendix table A.34 Distribution by employment size among tanners and manufacturers of the leather products industry (ISIC 323): Turkey
(Percentage)

	Firms employing:				
	10 - 24 employees	25 - 49 employees	50 - 99 employees	100 - 199 employees	200 - 499 employees
Year	1986	1986	1986	1986	1986
No. of establishments	57.9	26.2	9.5	5.3	1.1
No. of employees	25.1	25.5	18.6	23.4	7.4
Wages and salaries	20.7	24.6	21.7	28.1	4.9
Gross output	20.9	24.8	22.8	27.2	4.3
Value added	16.8	24.1	24.5	29.5	4.9

Source : UNIDO

Appendix table A.35 Distribution by employment size among tanners and manufacturers of the leather products industry (ISIC 323): United Kingdom
(Percentage)

	Firms employing:											
	1 - 9 employees		10 - 19 employees		20 - 49 employees		50 - 99 employees		100 - 199 employees		200 - 499 employees	
Year	1985	1991	1985	1991	1985	1991	1985	1991	1985	1991	1985	1991
No. of establishments	67.7	71.8	13.0	11.2	11.6	9.1	4.8	5.0	2.1	2.1	0.8	0.8
No. of employees	14.3	13.1	11.2	10.8	21.1	19.3	22.0	22.2	16.6	18.8	14.8	15.8

Source: UNIDO.

Appendix table A.36 Distribution by employment size among tanners and manufacturers of the leather products industry (ISIC 323): United Republic of Tanzania (Percentage)

	Firms employing:							
	10 - 19 employees		20 - 49 employees		50 - 99 employees		100 - 499 employees	
Year	1984	1988	1984	1988	1984	1988	1984	1988
No. of establishments	0.0	21.4	42.9	21.4	21.4	21.4	35.7	35.7
No. of employees	0.0	3.7	13.9	4.5	13.6	17.3	72.5	74.5
Wages and salaries	0.0	4.5	7.9	2.3	9.7	10.6	82.4	82.6
Gross output	0.0	4.1	10.1	1.7	5.6	5.8	84.3	88.4

Source: UNIDO.

Appendix table A.37 Distribution by employment size among tanners and manufacturers of the leather products industry (ISIC 323): Venezuela (Percentage)

	Firms employing:							
	5 - 20 employees		21 - 50 employees		51 - 100 employees		101 and more employees	
Year	1982	1990	1982	1990	1982	1990	1982	1990
No. of establishments	62.0	61.1	24.1	21.3	9.3	12.0	4.6	5.6
No. of employees	17.9	15.9	23.5	17.4	20.2	22.0	38.4	44.7
Wages and salaries	13.3	11.5	23.4	16.7	20.4	24.0	42.9	47.8
Gross output	11.1	7.2	16.9	10.5	18.5	24.0	53.5	58.3
Value added	11.0	7.2	15.1	9.7	15.7	22.5	58.2	60.6

Source: UNIDO.

Appendix table A.38 Distribution by employment size in the footwear industry (ISIC 324): Australia
(Percentage)

	Firms employing:							
	1 - 19 employees		20 - 49 employees		50 - 99 employees		100 and more employees	
Year	1983	1988	1983	1988	1983	1988	1983	1988
No. of establishments	47.2	62.5	23.6	15.2	16.0	12.0	13.2	10.3
No. of employees	7.5	9.0	13.4	11.5	20.9	20.4	58.2	59.1

Source: UNIDO.

Appendix table A.39 Distribution by employment size in the footwear industry (ISIC 324): Austria *
(Percentage)

	Firms employing:											
	10 - 19 employees		20 - 49 employees		50 - 99 employees		100 - 499 employees		500 - 999 employees		1,000 and more employees	
Year	1984	1988	1984	1988	1984	1988	1984	1988	1984	1988	1984	1988
No. of establishments	4.8	12.5	24.2	29.2	19.4	12.5	40.3	37.5	9.7	6.3	1.6	2.0
No. of employees	0.3	1.1	3.5	6.1	7.0	5.5	45.1	48.0	35.1	26.5	9.0	12.8
Wages and salaries	0.2	0.7	3.0	6.2	5.9	6.4	45.1	50.8	37.0	24.6	8.8	11.3
Gross output	0.2	0.5	2.1	5.1	6.1	4.4	44.2	51.3	35.7	24.5	11.7	14.2
Value added	0.3	0.7	2.7	6.1	7.7	6.0	42.1	46.8	37.2	26.3	10.0	14.1

Source: UNIDO.
Notes: * Includes estimates.

Appendix table A.40 Distribution by employment size in the footwear industry (ISIC 324): Canada (Percentage)

	Firms employing:									
	1 - 19 employees		20 - 49 employees		50 - 99 employees		100 - 199 employees		200 and more employees	
Year	1983	1987	1983	1987	1983	1987	1983	1987	1983	1987
No. of establishments	27.3	27.1	19.3	19.3	23.3	23.6	18.7	18.6	11.4	11.4

Source: UNIDO.

Appendix table A.41 Distribution by employment size in the footwear industry (ISIC 324): Colombia
(Percentage)

	Firms employing:									
	1 - 9 employees		10 - 49 employees		50 - 99 employees		100 - 199 employees		200 and more employees	
Year	1982	1987	1982	1987	1982	1987	1982	1987	1982	1987
No. of establishments	14.7	1.8	66.0	77.6	11.2	12.1	5.4	4.8	2.7	3.7
No. of employees	2.2	0.2	32.5	33.2	18.1	17.8	17.3	13.8	29.9	35.0
Wages and salaries	1.4	0.1	25.0	27.1	16.2	15.7	16.9	13.5	40.5	43.6
Gross output	1.4	0.7	20.2	23.1	13.7	13.7	21.0	10.5	43.7	52.0
Value added	1.3	0.4	19.5	22.2	12.7	12.6	17.9	10.3	48.6	54.5

Source: UNIDO.

Appendix table A.42 Distribution by employment size in the footwear industry (ISIC 324): Cyprus
(Percentage)

	Firms employing:									
	5 - 9 employees		10 - 19 employees		20 - 49 employees		50 - 99 employees		100 and more employees	
Year	1976	1984	1976	1984	1976	1984	1976	1984	1976	1984
No. of establishments	26.7	28.6	25.0	28.6	33.3	27.4	11.7	8.8	3.3	6.6
No. of employees	6.0	6.5	10.4	13.2	32.3	27.4	29.8	20.3	21.5	32.6
Wages and salaries	5.2	...	9.1	...	28.4	...	30.6	...	26.7	...
Gross output	...	5.5	...	11.8	...	27.4	...	24.3	...	31.0
Value added	...	5.6	...	11.9	...	24.8	...	24.2	...	33.5

Source: UNIDO.

Appendix table A.43 Distribution by employment size in the footwear industry (ISIC 324): Denmark (Percentage)

	Firms employing:			
	6 - 50 employees		51 - 500 employees	
Year	1982	1989	1982	1989
No. of establishments	65.1	75.0	34.9	25.0
No. of employees	22.0	24.7	78.0	75.3

Source: UNIDO.

Appendix table A.44 Distribution by employment size in the footwear industry (ISIC 324): Hong Kong [a]
(Percentage)

	Firms employing:											
	1 - 9 employees		10 - 19 employees		20 - 49 employees		50 - 99 employees		100 - 199 employees		200 and more employees	
Year	1984	1989	1984	1989	1984	1989	1984	1989	1984	1989	1984	1989
No. of establishments	72.7	64.9	12.0	15.3	7.0	8.4	6.4	8.9	1.6	2.3	0.3	0.2
No. of employees	17.9	15.0	10.4	12.0	15.1	14.8	30.5	38.6	16.1	15.6	10.0	4.0
Wages and salaries[b]	11.4	10.3	9.7	15.1	16.0	16.9	31.6	34.4	18.3	18.6	13.0	4.7
Gross output	12.3	6.4	9.6	13.8	15.4	18.1	31.9	40.1	16.7	17.2	14.1	4.4
Value added	12.1	9 4	9.2	14.4	15.3	15.1	31.5	41.3	16.8	15.8	15.1	4.0

Source: UNIDO.
Notes: [a] Includes estimates. [b] Compensation of employees.

Appendix table A.45 Distribution by employment size in the footwear industry (ISIC 324): Italy
(Percentage)

	Firms employing:							
	1 - 19 employees		20 - 49 employees		50 - 99 employees		100 and more employees	
Year	1984	1989	1984	1989	1984	1989	1984	1989
No. of establishments	80.9	83.9	13.1	11.7	3.7	3.0	2.3	1.4
No. of employees	33.1	36.8	25.4	25.4	16.8	16.6	24.7	21.2

Source: UNIDO.

Appendix table A.46 Distribution by employment size in the footwear industry (ISIC 324): Japan
(Percentage)

	Firms employing:											
	4 - 9 employees		10 - 19 employees		20 - 49 employees		50 - 99 employees		100 - 299 employees		300 -999 employees	
Year	1984	1990	1984	1990	1984	1990	1984	1990	1984	1990	1984	1990
No. of establishments	52.3	45.8	22.3	25.8	13.2	19.0	9.9	6.5	1 9	2 5	0.4	0.4
No. of employees	16.5	13.1	15.6	16.4	16.8	25.3	26.8	20.2	16.3	17.1	8.0	7.9
Wages and salaries	13.3	10.4	13.8	15.4	16.1	24.8	27.3	19.3	19.1	19.2	10.4	10.9
Gross output	12.4	9.6	14.9	14.2	15.7	26.7	26.8	20.0	22.2	19.2	8.0	10.3
Value added	14.6	11.0	15.9	15.6	15.8	23.4	27.9	17.5	16.9	21.4	8.9	11.1

Source: UNIDO.

Appendix table A.47 Distribution by employment size in the footwear industry (ISIC 324): Kenya (Percentage)

	Firms employing:							
	5 - 9 employees		10 - 19 employees		20 - 49 employees		50 and more employees	
Year	1979	1988	1979	1988	1979	1988	1979	1988
No. of establishments	20.0	0.0	20.0	0.0	0.0	50.0	60.0	50.0
No. of employees	0.4	0.0	0.6	0.0	0.0	2.4	99.0	97.6

Source: UNIDO.

Appendix table A.48 Distribution by employment size in the footwear industry (ISIC 324): Malaysia (Percentage)

	Firms employing:							
	1 - 19 employees		20 - 49 employees		50 - 99 employees		100 and more employees	
Year	1970	1988	1970	1988	1970	1988	1970	1988
No. of establishments	64.5	11.1	25.8	22.3	0.0	33.3	9.7	33.3

Source: UNIDO.

Appendix table A.49 Distribution by employment size in the footwear industry (ISIC 324): Malta (Percentage)

	Firms employing:					
	1 - 19 employees		20 - 99 employees		100 and more employees	
Year	1983	1988	1983	1988	1983	1988
No of establishments	57.1	52.4	23.8	33.3	19.1	14.3
No of employees	8.5	5.4	15.3	22.1	76.2	72.5

Source: UNIDO.

Appendix table A.50 Distribution by employment size in the footwear industry (ISIC 324): Netherlands (Percentage)

	Firms employing:					
	1 - 10 employees	11 - 20 employees	21 - 50 employees	51 - 100 employees	101 - 150 employees	151 and more employees
Year	1989	1989	1989	1989	1989	1989
No. of establishments	52.4	11.4	16.2	15.2	1.0	3.8
No. of employees	8.2	5.6	17.3	39.7	3.3	26.0

Source: UNIDO.

Appendix table A.51 Distribution by employment size in the footwear industry (ISIC 324): New Zealand
(Percentage)

	Firms employing:									
	2 - 9 employees		10 - 19 employees		20 - 49 employees		50 - 99 employees		100 and more employees	
Year	1982	1984	1982	1984	1982	1984	1982	1984	1982	1984
No. of establishments	32.6	47.6	14.0	10.3	20.9	15.9	12.7	10.3	19.8	15.9
No. of employees	2.5	3.6	3.7	3.0	11.2	11.8	15.9	14.9	66.7	66.4

Source: UNIDO.

Appendix table A.52 Distribution by employment size in the footwear industry (ISIC 324): Portugal
(Percentage)

	Firms employing:				
	1 - 49 employees	50 - 100 employees	101 - 200 employees	201 - 500 employees	501 and more employees
Year	1986	1986	1986	1986	1986
No of establishments	83.4	12.9	2.5	0.7	0.5

Source: UNIDO.

Appendix table A.53 Distribution by employment size in the footwear industry (ISIC 324): Republic of Korea
(Percentage)

	Firms employing:													
	5 - 9 employees		10 - 19 employees		20 - 49 employees		50 - 99 employees		100 - 199 employees		200 - 499 employees		500 and more	
Year	1984	1989	1984	1989	1984	1989	1984	1989	1984	1989	1984	1989	1984	1989
No. of establishments	33.9	28.3	25.5	27.7	20.2	28.4	10.3	8.5	3.7	3.1	3.2	2.6	3.2	1.4
No. of employees	3.2	4.3	4.9	8.2	9.4	19.3	10.3	13.0	7.1	9.8	14.3	16.4	50.8	29.0
Wages and salaries	2.4	3.2	4.1	6.7	8.8	16.4	9.4	11.7	7.9	8.0	15.4	19.4	52.0	34.6
Gross output	1.4	2.0	2.9	3.0	7.1	13.0	5.5	9.2	7.1	8.7	14.1	21.8	61.9	40.3
Value added	1.9	2.8	3.4	5.8	7.0	14.3	6.8	10.2	7.1	9.4	13.2	21.7	60.6	35.8

Source: UNIDO.

Appendix table A.54 Distribution by employment size in the footwear industry (ISIC 324): Singapore (Percentage)

	Firms employing:							
	10 - 29 employees		30 - 49 employees		50 - 99 employees		100 and more employees	
Year	1985	1989	1985	1989	1985	1989	1985	1989
No. of establishments	89.8	88.5	4.1	2.9	6.1	5.7	0.0	2.9

Source: UNIDO.

Appendix table A.55 Distribution by employment size in the footwear industry (ISIC 324): South Africa (Percentage)

	Firms employing:											
	1 - 49 employees		50 - 199 employees		200 - 299 employees		300 - 499 employees		500 - 749 employees		750 and more employees	
Year	1984	1988	1984	1988	1984	1988	1984	1988	1984	1988	1984	1988
No. of establishments	19.1	41.2	42.6	27.8	9.6	7.9	13.0	11.1	8.7	5.6	7.0	6.4
No. of employees	1.8	3.6	16.7	18.0	9.5	9.4	20.1	22.0	20.8	15.9	31.1	31.1

Source: UNIDO.

Appendix table A.56 Distribution by employment size in the footwear industry (ISIC 324): Spain
(Percentage)

	Firms employing:											
	1 - 25 employees		26 - 50 employees		51 - 100 employees		101 - 250 employees		251 - 500 employees		500 and more employees	
Year	1984	1989	1984	1989	1984	1989	1984	1989	1984	1989	1984	1989
No. of establishments	65.2	68.1	20.0	19.4	11.1	9.8	2.9	2.2	0.7	0.4	0.1	0.1

Source: UNIDO.

Appendix table A.57 Distribution by employment size in the footwear industry (ISIC 324): Sweden (Percentage)

	Firms employing:									
	1 - 9 employees		10 - 19 employees		20 - 49 employees		50 - 99 employees		100 - 199 employees	
Year	1982	1984	1982	1984	1982	1984	1982	1984	1982	1984
No. of establishments	33.8	28.9	13.2	28.9	32.4	23.1	13.2	19.1	7.4	0.0
No. of employees	7.9	7.3	6.9	14.2	29.0	23.9	28.9	54.6	27.3	0.0

Source: UNIDO.

Appendix table A.58 Distribution by employment size in the footwear industry (ISIC 324): Turkey
(Percentage)

	Firms employing:						
	10 - 24 employees	25-49 employees	50 - 99 employees	100 - 199 employees	200 - 499 employees	500 - 999 employees	1,000 and more employees
Year	1986	1986	1986	1986	1986	1986	1986
No. of establishments	62.0	16.7	12.0	3.7	3.7	0.9	1.0
No. of employees	14.2	9.1	12.8	8.8	18.3	8.2	28.6
Wages and salaries	6.7	5.7	9.8	6.9	19.7	4.9	46.3
Gross output	12.4	7.8	14.9	17.1	22.7	2.8	22.3
Value added	10.9	6.5	12.9	13.8	20.6	3.7	31.6

Source: UNIDO.

Appendix table A.59 Distribution by employment size in the footwear industry (ISIC 324): United Kingdom (Percentage)

	Firms employing:					
	1 - 99 employees		100 - 199 employees		200 and more employees	
Year	1983	1988	1983	1988	1983	1988
No. of establishments	81.2	87.2	7.9	6.0	10.9	6.8
No. of employees	18.0	18.1	12.8	13.4	69.2	68.5

Source: UNIDO.

Appendix table A.60 Distribution by employment size in the footwear industry (ISIC 324): United Republic of Tanzania
(Percentage)

	Firms employing:									
	10 - 19 employees		20 - 49 employees		50 - 99 employees		100 - 499 employees		500 and more employees	
Year	1984	1988	1984	1988	1984	1988	1984	1988	1984	1988
No. of establishments	40.0	35.7	26.7	35.7	13.3	7.1	6.7	14.3	13.3	7.2
No. of employees	1.8	1.8	3.1	4.0	3.0	2.1	3.9	13.7	88.2	78.4
Wages and salaries	1.6	0.9	1.9	1.9	2.5	2.1	2.8	12.5	91.2	82.6
Gross output	2.1	1.2	3.6	2.9	2.8	1.9	2.7	16.0	88.8	78.0

Source: UNIDO.

Appendix table A.61 Distribution by employment size in the footwear industry (ISIC 324): Venezuela (Percentage)

	Firms employing:							
	5 - 20 employees		21 - 50 employees		51 - 100 employees		101 and more employees	
Year	1982	1990	1982	1990	1982	1990	1982	1990
No. of establishments	66.5	63.3	25.5	24.4	5.9	6.8	2.1	5.5
No. of employees	30.7	24.9	35.0	26.1	17.1	15.5	17.2	33.5
Wages and salaries	22.3	20.3	38.8	25.4	18.4	17.9	20.5	36.4
Gross output	29.0	21.6	36.7	22.6	15.1	16.7	19.2	39.1
Value added	25.0	19.1	37.6	21.8	15.9	17.8	21.5	41.3

Source : UNIDO

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