Palestine Economic Policy Research Institute

Tanning and Natural Leather-Based Industries in the West Bank and Gaza Strip: Current Status and Prospects

Basim Makhool

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Abstract

In this study the current situation, performance, problems and prospects for the tanning, footwear and leather wear industries were investigated. The tanning industry plays a relatively minor economic role in terms of output, and value added and employment. However, tanneries play a major role in providing input for the leading footwear industry as well as the leather wear industry.

There are currently fifteen tanneries in Palestine, all of them suffering from a set of constraints including old and mostly second hand machinery, defects in raw leather, a lack of skilled labor and finance, Israeli border closures, poor infrastructure, expensive chemicals, expensive and inconsistent supply of water and electricity, many serious environmental problems and unstable market outlets. All these problems threaten the future of the industry and its ability to survive and compete, even in the domestic market. The prospect for the tanning industry are not promising but could be greatly enhanced by the implementation of appropriate polices and measures to deal with these problems.

Processed leather in Palestine is used entirely by local producers, mainly in the footwear and leather wear industries which constitute key players in the manufacturing sector. The problems faced by the Palestinian footwear industry are those common to all other industrial activities. Although the footwear industry has performed relatively well in both domestic and Israeli markets, the overall competitiveness of Palestinian footwear is relatively weak compared to East Asian, European and Israeli products. Greater competitive pressures are expected in both the Israeli and Palestinian markets in coming years. The future of the Palestinian footwear industry hinges on steps taken to improve quality and achieve greater productivity, thereby improving competitiveness The main emphasis should be on increasing manpower skills, especially in the area of styling and finishing.

As for the leather wear industry, it is dominated by a single producer. The main problem facing the industry is unfair competition from Israel producers in Jerusalem whose try to monopolize tourist demand for leather wear. Also, the heavy dependence on subcontracting to Israeli stores is a further potential weakness in the industry.

Overall, the future of the Palestinian tanning and natural leather- based industries is not promising unless serious measures are taken to improve the quality of their products, assuming that quality based competitiveness is the most appropriate strategy.

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Foreword

This is a further study in the research program into industrial policies published by the Palestine Economic Policy Research Institute (MAS). Previous studies in 1997 have compared the competitiveness of Palestinian industry with that of Jordan, the opportunities and potential for Palestinian industrialization, the impact of the peace process on the textile and garment industry, and subcontracting relations in the garment industry. In addition, MAS has reviewed the figures from the industrial survey of 1994 conducted by the Palestinian Central Bureau of Statistics.

The current study concentrates on tanneries and the natural leather-based industries of Palestine. In spite of their limited contribution to the general value added of the industrial sector as a whole, these industries retain a historical importance and also have potential for future expansion. An analysis of this sector was, therefore, believed to be worthwhile. There are more than 600 firms in the West Bank and Gaza Strip whose work is connected to the leather industry in one way or another.

The conclusions reached by the study are promising for the leather industry in general but less optimistic for footwear manufacturers. The study recommends that the quality of the leather produced should be improved in addition to a number of policy measures which would allow the leather industry to become more competitive.

Nabeel Kassis
Director

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1. Introduction

Peace negotiations and political changes in the region have given Palestinians the opportunity, to a certain degree, to take control of their future and pursue their own economic interests. Such developments present opportunities as well as challenges to the economic future of Palestine. Among the expected positive effects is the creation of a stable and sympathetic economic environment which will attract Palestinian capital to return home, in addition to the inflow of international financial aid and new investment opportunities. New export markets should open up for Palestinian products and an expansion of aggregate demand due to the formation of new public agencies and institutions is anticipated. All of these changes will improve local and foreign confidence in the viability of the Palestinian economy.

However, the new political situation is also expected to have some negative effects. Agreements between Israel and Jordan, (and in the future with Lebanon and Syria), will give Israel the ability to import relatively cheaper labor, thus replacing Palestinian workers directly or indirectly by switching subcontracting activities from Palestine to neighboring countries. Many countries in the region, including Palestine, are also moving toward trade liberalization with other neighboring countries and the world. Such policies are expected to create great competitive pressures on the Palestinian economy, especially industry. Many countries in the region, mainly Jordan and Egypt as well as East Asian countries, enjoy a cost-based competitive advantage. In the march towards independence it is important to consider both strengths and weaknesses, as well as to explore strategic options in order to make informed choices. The choices made today will have a fundamental effect on the future of the Palestinian economy and its long-term viability.

In light of these circumstances, this paper discusses key issues related to tanneries and natural leather-based industries in Palestine. This industry was selected for analysis for two reasons: first, many experts and public officials believe that it is a leading sector with great potential. This opinion is based on the relatively successful performance of the footwear and leather industries in terms of their ability to export a large proportion of their output, particularly to the Israeli market. The second reason is that the Ministry of Industry requested background studies on key industries to assist in the formulation of appropriate industrial policies. The purpose of this study is to survey the industry in terms of the number and size of distribution of producers, production, costs, marketing, technology, maintenance, labor, and invested capital. The study also analyzes the performance of the industry in regards to its productivity and competitiveness. Current problems and changes after the peace process will be investigated and a set of possible policy measures to improve the performance of the industry and increase its potential are assessed.

Three industries will be studied: tanneries and the leather dressing industry, the natural leather-based footwear industry and natural leather-based leather wear. Other types of leather-based products such as handbags and luggage will not be covered since natural leather is not currently used in these products. Although some of the tables include figures about the handbag and luggage industry, these figures were only included to give the reader a complete picture of the leather-based industries in Palestine. In this study the focus will be on natural leather-based products only.

1.1 Surveys and Data

To achieve the goals of this study, primary and secondary sources of data were used. Two different questionnaires were designed, one directed to the tanneries and a second questionnaire for the natural leather-based industries, mainly footwear and leather wear. All West Bank tanneries (15) were surveyed.

Following consultation with industry insiders, a non-random sample of 12 leading footwear firms was selected on the basis of the production size of the firm and possession of a recognizable trade mark. These firms represent a market share of about 65% of the natural leather footwear industry. Two major producers of leather wear located in East Jerusalem and the surrounding area and enjoying a market share of about 72%, were also surveyed. Additionally, there are approximately 25 small tailor shops, predominately located in East Jerusalem and Nablus, with market shares of about 28%. Two of these tailor shops were surveyed.

It was not possible to isolate the figures related to natural leather, especially those of productivity and cost, because most footwear producers produce different kinds of goods using natural leather as well as artificial leather, plastic and other materials. Therefore, the survey figures and aggregate figures published by the Palestinian Central Bureau of Statistics (PCBS) were used selectively. PCBS figures are highly aggregated which hinders the analysis of key issues such as geographical concentration, productivity and wage differences between the major production centers. At government level, PCBS published data which combined together all leather industries, (tanning, footwear, leather wear and luggage), thus making it impossible to reach conclusions about individual components of the industry. Similarly, PCBS data did not separate leather wear figures from the textile and garment industry. Therefore, the analysis of the leather wear industry will be solely based on the survey made by this study. In addition, PCBS data was collected in 1994 while the survey was conducted in 1997 (May-July). This time lag could produce a disparity between this study's estimates and those of PCBS, as was obvious in the case of tanneries where large discrepancies were found.

Major producers in the industry were interviewed personally to investigate their overall impressions about the industry, including current conditions, performance and prospects. These insiders included three footwear producers, two footwear retailers two wholesalers, three tannery owners, and two leather wear producers.

Secondary sources of PCBS data were used, primarily the *Industrial Survey-1994* and the *Establishment Census-1994* as well as other related PCBS publications. (Other sources used are listed on the reference page).

2. Tanning and Leather Dressing Industry

Tanning and leather dressing play a relatively minor economic role when compared with the other components of the leather-based industry. Their share of gross output and value added of the manufacturing sector is about 0.2% and 0.03% respectively. Their share of total employment is about 0.15% (see Table 1). However, the economic role of tanneries can be underestimated if taken in isolation from the leather based industry as a whole. Tanneries play a major role in both the footwear and the leather wear industry and provide about 17% and 15% of the natural leather used in the footwear and leather wear industries respectively. Therefore, the economic importance of the tanneries is intensified by the forward linkages they have created.

Palestinian tanneries rely solely on domestic skins, (sheep and goat leather), and hides (cow leather). Since skins and hides are by-products of the meat industry, their supply is derived from the demand for meat; high demand for meat results in more animals being slaughtered. However, the decision of owners or merchants to slaughter animals is not driven by the market value of skins and hides. On average, the market value of a skin or a hide is around 2% of the total value of the animal. This does not diminish the economic importance of skins and hides when taken as a whole. Their monetary value is estimated at around US $1million. Also, the availability of this leather has resulted in a forward linkage effect. Tanning and leather manufacturing are ancient crafts in Palestine with the techniques and skills handed down from one generation to another. Large-scale production started in the early thirties when three tanneries were established in Hebron (field survey). By the early 1970's, the industry had undergone major expansion but, as is the case with many industries in Palestine, the development of the leather tanning industry was closely related to the development of the Israeli tanning industry. Leather production in Israel has undergone a dramatic decline; in 1977 there were 70 tanneries in Israel while in 1997 there were only 5, two of which are expected to close soon. The reasons for the decline of the Israeli tanning industry include the inability to compete against European goods due to higher production costs, minimal government support, and strict environmental regulations. Many tanneries went out of business and sold most of their machines to Palestinian firms.[1]

Fifteen tanneries were established in the West Bank and presently employ 69 workers. They produce an equivalent of US $2.043 million and pay US $177 thousand in the form of employee compensation (see Tables 1,2, and 3).

2.1 Production Process and Capacity

Raw leather undergoes four processing stages before it can be used to produce usable items. These processes are:

1- *Pre-tanning:* this prepares raw leather for tanning. Pre-tanning consists of soaking, cleaning, liming, removing hair, fleshing, splitting, deliming and washing the white pelts. If skins and hides are not immediately processed, the

[1] The size of Israel production of tanned leather is estimated to be around 12,000 skins and 8,000 hides per month (An interview with Mr. Nabil Yakoub, a subcontractor with Israeli tanneries).

leather should be protected to prevent it from decomposition. Two protection techniques are salting and drying. Salting is done by covering skins and hides with common salt, up to 30% of the skin's weight. Drying, on the other hand, is done by spreading skins and hides in an open space. Extra caution should be taken when this method is used since improper drying could cause sunburn and cracks in the interior sides.

2- *Tanning*: an essential process to make the leather stronger, more flexible and pliable. Two methods of tanning used are vegetable tanning and chronic tanning. Vegetable tanning involves hanging the skins in a tank and thoroughly saturating them with oak bark solution or another type of tanning solution. The second method, chrome tanning, requires the skins and hides to be completely soaked in a tank containing chromium and common salt for a few hours. This method revolutionized the industry because it is faster and less expensive than the vegetable tanning method. However, leather processed by chrome tanning is stiffer and harder than leather produced by the vegetable method. To overcome this problem, the leather needs to be treated with oil and soaps. This is done at the finishing stages of production.

   After tanning, the pelts are thoroughly washed and rinsed to remove any remaining tanning materials which might dry and harden. (Cleaning is crucial for the next process which is known as dyeing. Dyeing materials can not penetrate dry tanning materials.) The pelts are then smoothed and pressed by a machine. Usually hides are split into two layers each with a different thickness called "sides". The inside layer is called 'the flesh' and the outside is called 'the grain'. The grain layer is stronger and more expensive than the flesh layer. Both layers have different uses. The grain layer is used as an upper cover of shoes and high quality handbags, while the flesh is used for shoe linings, for industrial shoes and lower quality handbags.

3- *Dyeing:* after the pelts have been smoothed, pressed, split (in the case of hides), and completely dried, the pelts are placed in rotating drums containing the dye to produce permanent color changes. The dyeing solution could be water-soluble or an oil dye. Different colors can be used as required.

4- *Finishing:* to protect and soften the leather, thus ensuring longer life. Many types of finishes can be used in order to reduce the chances of color fading, to increase resistance to scuffing, to make the leather waterproof or for glazing. In the final finishing stage the leather is subjected to a smoothing process, then stretched and dried thoroughly. If finished leather is not immediately used, careful storage in a clean, dry place is necessary to avoid mildew.

   All West Bank tanneries are owned by Palestinians; 38% are sole proprietorships and 62% are limited partnerships (field survey). The partnerships consist mostly of family members. The majority of tanneries are small in terms of employment; 57% of the tanneries employ less than 5 workers and 26% employ 5 to 9 workers (Table 4). Thirteen tanneries produce finished leather while the other two perform only the early stages of production, mainly pre-tanning. Eleven of the tanneries are located in Hebron. Two reasons explain this concentration: 1.) these tanneries are family-oriented businesses, (indeed all of them are owned by one family known as " Al-

Za'tary"), and 2.) the prosperous footwear industry in Hebron encouraged the tanning industry in the area where most of the tanned leather is sold to domestic footwear producers. Hebron tanneries specialize in the production of hides, although some do produce small amounts of goat skins. Four of these tanneries were established in the early 1930's while the remaining were established in the 1970's and mid 1980's. About 51% of leather (hides) production is controlled by three major tanneries. The manufacture of sheep and goat leather is limited to two tanneries located in Nablus and Salfit. Three reasons are given by insiders to explain why production is limited to just two tanneries:

1- Skin production is relatively more expensive in terms of time, effort and money. It requires greater processing, such as hair and fat removal, and a cleaner working area when compared to hide production. In addition, the dyeing of skins is repeated 6 to 7 times while it is only required twice for hides.

2- Hide production is more profitable as hides can be split into two layers called "sides", each with a different thickness Thus, producers obtain more units of hide compared to the skins which cannot be split.

3- Market outlets for hides are generally more numerous than those for skin leather .All these factors make hide production relatively more profitable.

Of the two tanneries which perform only the early production steps, one handles both skins and hides while the other handles only skins (sheep and goat). The early stages of production, known as "leather dressing", include salting, soaking, hair removal, cleaning, and pickling and make up about 40% of the total production procedure. Two additional tanneries are presently under construction, one in Nablus and the other in Salfit.

Total production of different kinds of leather is about 2.276 million square feet (SF) of finished leather (see Table 5). Leather made from hides is the largest portion of total production, 69%, while the share of sheep and goat skins is 25% and 6% respectively. About 39,000 hides are processed in the West Bank, producing 1.56 million SF of leather. The number of square feet produced by each hide depends on the size of the slaughtered animal but merchants estimate it to be around 40 SF per hide. Around 72,000 sheep skins are manufactured with an average size of 8 SF, thus producing 0.576 million SF. Similarly, production of goat skins amounts to 0.14 million SF based on 20,000 skins processed with an average size of 7 SF each. The reason for the low production of goat leather is its limited use in footwear production.

2.2 Inputs and Production Costs

The production costs of manufactured leather arise mainly from the raw leather, chemicals and labor costs. The following discussion of production costs is divided into two parts, the first focusing on the raw leather in terms of its source, quantity and cost. The second part focuses on other raw materials, mainly chemicals, water and electricity in addition to labor costs.

2.2.1 Raw Leather

Palestinian tanneries get skins and hides from either the slaughterhouses, which deliver skins and hides on a daily basis directly to the tanneries, or from individual merchants who collect skins and hides from butchers in villages and refugee camps or from households during special occasions like marriages or the Eid holidays. The percentage of skins and hides provided by each source varies from one tannery to another. The ratio of hides provided by the slaughterhouses ranges from 60% to 80% but on average, slaughterhouses provide about 73% of hides and 50% of skins, whereas merchants provide 27% of hides and 50% of skins (field survey). One tannery located in Nablus gets about 1,200 skins monthly, (20% of its monthly production), from the "Green Line" area, mainly from Shafa-Amr and Nazareth. In general, tanneries do not have serious problems in meeting their quotas of skins and hides, except in winter when the number of slaughtered animals drops by 40% over summer figures.

The price and quality of skins and hides varies sharply depending on their source. On average, the price of a skin provided by a merchant is about 50% of that provided by slaughterhouses. The reason for this significant price differential is the relatively low quality of skins provided by merchants. Since the merchants usually cover a wide geographical area, a long time can elapse between the time the animals are slaughtered and when the skins are collected. During this time, skins are left in butchers' premises without proper care.[2] Also, many merchants are limited in the number of skins they can collect daily therefore it is not feasible to deliver to the tanneries on a daily basis. This forces merchants to protect the skins from decomposition by salting and storing them for a few days but many tanneries complained that the merchants perform a poor job. Raw leather can also be damaged by cuts and holes made by knives during skin removal. Skins from slaughterhouses are delivered daily and also tend to be less damaged, although this does not mean that skins from animals slaughtered in slaughterhouses never have any defects.

There are 17 slaughterhouses located in major cities and towns of the West Bank and there are 5 located in the Gaza Strip. These slaughterhouses are controlled by the municipal authorities in each area. In most of the cities the slaughter of animals in places other than slaughterhouses is not generally allowed but these regulations tend to be relaxed during Ramadan and the pilgrimage season. Animals are slaughtered without any direct control in villages and refugee camps located outside municipal borders and the total number of animals slaughtered is not known. However, it is estimated that in the West Bank and Gaza Strip the percentage of animals slaughtered

[2] Industrial insiders confirmed that if skin is not processed within three hours after slaughter, it starts to decompose.

in places other than slaughterhouses is 40% and 25% respectively (Ministry of Agriculture-Nablus). The figure in the West Bank is higher than that of the Gaza Strip due to the greater availability of natural grazing land in the West Bank. In addition, the number of sheep and goats raised in the West Bank is estimated to be around one million compared to 40,000 in the Gaza Strip (Ministry of Agriculture-Nablus).

Major sources of leather in the West Bank and Gaza Strip are sheep and goat skins, and cow hides.[3] The West Bank is the major source of skins, contributing about 89% of sheep skins, while 11% come from the Gaza Strip. In 1996 a total of 106,000 sheep were slaughtered in the West Bank, 76,000 of them in slaughterhouses and 30,000 elsewhere (Table 6). In the Gaza Strip, 10,000 sheep were slaughtered in slaughterhouses and 2,500 in other locations. Similarly, about 91% of goat skins come from the West Bank and 9% come from the Gaza Strip. Two factors may explain the gap between the number of sheep and goats in the West Bank and Gaza Strip. First, the relatively lower standards of living in the Gaza Strip decrease the demand for lamb and goat meat and create a market for cheaper alternatives like beef, chicken and fish. The average monthly family expenditure on meat in the Gaza Strip is only 60% of that in the West Bank (PCBS, 1997). Also, limited grazing land in the Gaza Strip forces the population to rely on imported meat, especially from Israel.

The production of hides is almost equally divided between the West Bank (51%) and the Gaza Strip (49%). In the West Bank and Gaza Strip about 37,350 cows were slaughtered in slaughterhouses while 13,675 were slaughtered elsewhere. Presently, no raw skins or hides are exported to Israel, although prior to the mid seventies Israel was the main market for exported skins and hides.

The production of skins and hides is not stable throughout the year. Production increases in the summer due to the arrival of many Palestinians from abroad, especially from Jordan and the Gulf countries, and as a result of the large number of marriages. Production also increases during the month of Ramadan, and at the Eid al-Adha (pilgrimage season). In other months production generally slows down. The number of animals slaughtered in slaughterhouses in the West Bank over the first five months of 1997 is shown in Table 7.

The market price of skins and hides depends on many factors, including the quality and source. Skins are sold on a per unit basis while hides are sold per square foot. On average, the price of a sheep skin from a slaughterhouse is US $2.85 and US $1.7 for sheep slaughtered elsewhere. Goat skin is half the price of sheep skin, and the average price of hide is about US $0.46 per square foot (field survey).

2.2.2 Other Raw Materials and Labor Costs

Leather tanning relies heavily on chemicals and water. Chemicals are needed at all stages of production while water is needed only at the pre-tanning and tanning stages. Around fifty types of chemicals are used in leather manufacturing, mainly chrome, acid, lime, salt, oil, fat, dye and finishing materials. Of the intermediate consumption, (cost of input of goods and services), 96% goes to material input (of raw materials,

[3] -Other sources of leather include camels and pigs, but their numbers are relatively low compared to the size of the other sources.

chemicals, fuel, oil, electricity, and water), while the remaining 4% goes to industrial and non-industrial services (Table 8). In addition, 92% of the cost of material input goes to raw materials with 3% for fuel and oil, 2% for electricity, 2% for water and 1% for others (PCBS 1996b). PCBS figures did not breakdown the cost of raw materials between chemicals and raw leather. However, the field survey shows the share of skins and hides out of the total material input is about 45%, while chemicals is 55%.

The figures above indicate that the relative cost of chemicals is greater than the cost of raw leather. This is a major problem facing tanneries and has a negative effect on their competitiveness. All respondents complained about the excessive cost of chemicals levied by Israeli suppliers. All chemicals are imported from Israel or via Israel but the direct import of raw materials from Europe is not an economic option since, given their scale of production, tanneries order relatively small quantities. Some owners have suggested forming an association of tanneries which would be responsible for the purchase of chemicals directly from Europe and it is estimated that a saving in costs of up to 25% could be achieved [4]

Water is another major ingredient in leather manufacturing even though its share of input costs is just 2%. The use of water during the production process is crucial since it affects the quality of the final product. If leather is not thoroughly soaked and washed with water during pre-tanning and tanning, chemical ingredients might remain on the surface or in interior segments of the leather. Such residue will harden, thus altering the final quality of the leather, in particular its texture, flexibility and durability. Water availability is a major problem, especially for tanneries located in Hebron.

Similarly, electricity accounts for only 2% of material input but its availability is a major factor affecting the quality of the final product. The consistent supply of electricity is another problem facing tanneries in Palestine.

PCBS figures show that the tanneries employ 69 people, of whom 40 are paid workers while the others are owners and family members. Out of the paid workers, 88% are operatives, while the rest are administrators and "others" (PCBS 1996a). The field survey found the number of workers in tanneries to be 109 in total, of whom 64 are paid workers. This discrepancy with PCBS figures could be due to differences in the time frame between the two estimates. Only two tanneries employ university and college graduates, while the others employ workers with a high school degree or less. All workers acquired their skills internally through on-the-job training. Five tanneries offered financial incentives to their workers in the form of rewards per job or an end of the month bonus. All tanneries offer work-related health insurance as required by law. The average annual wage is US $4,145, giving an average monthly wage of US $345 (Table 1).

The share of labor costs in overall production is relatively low compared to the cost of chemicals and raw leather. Intermediate consumption is US $1,899 thousand and

[4] There is a newly formed association of leather industries established in 1996. It has yet to meet the expectations of its members.

employee compensation is US $1.77 thousand (Table 1).[5] However, as stated earlier, 29 of the 69 workers employed in the tanning industry are owners or unpaid family workers so when the cost of unpaid workers is taken into consideration, actual labor costs would be more than US $1.77 thousand. This lowers the negative net value added of the tanning sector.

The three issues of water, electricity, and labor costs will all be discussed in more detail later in this study.

2.3 Markets, Machinery and Finance

Market outlets for manufactured leather in Palestine witnessed drastic changes after the start of the *intifada* in 1987. Prior to the uprising, most manufactured leather in Palestine was exported to Israel, then re-exported to other countries, in particular Europe. However, after 1987, market outlets gradually began to shrink. In 1994 tanneries were not exporting any goods (see Table 9). Currently, outlets for goods are almost exclusively limited to the domestic markets of the West Bank and Gaza Strip. Only two tanneries presently export products to Israel: one in Hebron exports about 40% of its products to Israel while a tannery in Nablus exports about 50% of its semi-manufactured leather.[6] Since 1996, semi-manufactured skins have been exported to Italy via a Palestinian leather wear producer. These skins are tanned, dyed and finished in Italy. The first grade skins are sold in Italy while the rest is re-exported to the West Bank to be used in leather wear production.

Demand for domestic leather is concentrated in four areas: East Jerusalem, Hebron, Nablus and the Gaza Strip. East Jerusalem consumes about 95% of manufactured skins and the remaining West Bank utilizes the other 5%. As for manufactured hides, 85% is distributed in the West Bank and 15% in the Gaza Strip. The majority of the West Bank's manufactured hides (95%) are distributed to the footwear industry in Hebron (field survey). The other consumption center of manufactured hides is in Nablus, where the largest footwear factory is located.

As for distribution channels, 62% of tanneries rely solely on direct distribution where orders are sent straight to factories and workshops. The remaining tanneries depend both on direct sales (68%) and wholesalers (32%).

The majority of machines used in tanneries were bought second hand from dissolved Israeli tanneries. This is common for manufacturers producing sheep and goat leather. Some cow hide tanneries, however, did purchase new machines from Europe via Israeli agents. Currently, two tanneries classify their machines as modern (10 years old), another two consider their technology as average (15 years old) and four consider their machines as very old (20 years or more). Almost all the machines used in tanneries are of European origin, especially from Italy, Germany and the Netherlands (field survey).

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[5] Intermediate consumption does not include employee compensation.

[6] Semi-manufactured leather is pretanned or what is known as pickled leather.

The field survey revealed that owners do recognize the limitations of their machines and are aware of the new technology available on the market. However, many of them complained about the lack of finance and, as a result, five tanneries do not have any plans to replace their machines in the near future. Six tanneries would like to change their machines but could only do so if financed from a source other than their own resources.

All tanneries rely on domestic skills to maintain their machines and currently none use Israeli firms for this service. Eight tanneries rely solely on the skills of the owners and workers to maintain their machines, while another three supplement this with outside experts. All tanneries have developed the basic skills for in-house maintenance. The spare parts used are either of Palestinian, Israeli or European origin. Expenditure on spare parts was broken down as follows: 10% for Palestinian, 40% for Israeli and 50% for European-made parts (field survey).

All tanneries were exclusively financed from private funds, mainly the savings of the owners or their relatives (in case of partnerships). Initial investment costs ranged from JD 60,000 (Jordanian dinars) to JD 10,000. The average investment cost was JD 25,000 (field survey). The estimated book value of fixed assets for all tanneries at the end of 1994 was US $198 thousand (Table 1). This means that the average book value of each tannery is about US $15,000. Therefore, tanneries are classified as small in size compared to the average size of firms in the manufacturing sector of US $28,000. Tanneries are also less capital-intensive when compared with the average in the manufacturing sector. Capital-labor ratio in tanneries is US $2,870 and US $5,818 for the manufacturing sector. The difference may explain the huge gap in labor productivity between the two. This issue will be discussed in detail later in this report.

2.4 Public Policies and Environmental Aspects of Tanneries

Public policies regarding tanneries in Palestine have been almost non-existent both before and after the formation of the Palestinian National Authority (PNA). Prior to the presence of the PNA, all industries, including tanneries, were subject to a set of severe constraints by the Israeli authorities that inhibited development. Such constraints are still in place, mainly in the form of border closures and control of ports. The PNA has tried to alleviate these problems but the process is still in its early stages.

Tanneries are not targeted with incentives such as marketing and research assistance or direct subsidies. Indeed, 90% of the respondents think that taxes charged are very high. Although the Palestine investment code gives tax incentives to firms that export up to 25% of their gross product, tanneries cannot take advantage of this since they do not export their goods, (Israel was only recently considered as an export market). There is also confusion due to the lack of clear environmental regulations governing tanneries.

In addition, all respondents did not receive any form of advice or assistance from public institutions apart from the assistance of chambers of commerce and industry by way of travel permits to Israel. Many respondents complained that the current labor code, which calls for the implementation of workers' rights such as sick leave,

employee insurance, overtime and pensions, acts as a disincentive since it increases production costs and further weakens the poor performance of the industry.

The environmental aspects of leather manufacturing have attracted considerable attention from the authorities, mainly municipalities, the Ministry of Health and the Ministry of Local Affairs, as well as the public. Tanneries are widely perceived to be a major source of environmental problems as they produce three forms of pollution: smell, solid and liquid waste. The significance of such environmental problems is further intensified by the fact that all tanneries are located in or close to residential areas. In Hebron, all tanneries are located in an industrial zone but since the municipality also gave permission for residential building licenses in the same area, many of these tanneries are now just a few meters away from residential homes or main transportation routes. To cite an example, one tannery owner lives on the second floor of a building in which his tannery is located on the first floor. This proximity to residential areas causes an environmental hazard to residents as a result of the foul odor expelled from these tanneries. The smell can be reduced by spraying certain chemicals but most tanneries choose not to do so on the grounds that it is too expensive and has a limited effect.

In addition to the foul odor, leather manufacturing produces both solid and liquid waste. Solid waste consists of hair, fat, and other solid remains. All tanneries producing hides dump and burn this waste in public landfills. One tannery producing skin tried to sell the hair but it proved not economically viable since the cost of collecting and cleaning the hair was more than its market value. Insiders says that fat which comes out of the skins and hides during the manufacturing process can be collected and used to produce glue. This process has yet to be tried in Palestine, although it is practiced successfully in Egypt, but, as one tannery owner pointed out, the amount of fat involved is not large enough to warrant concern.

Liquid waste represents the most serious threat to the environment, especially to water resources. Since leather manufacturing uses large amounts of water and chemicals, the liquid waste contains highly concentrated and dangerous non-organic chemicals, mainly chrome and acid chemicals. Small amounts of chrome salts are absorbed during manufacturing, and about 80% of the chrome remains in the water (Bayer). This water is drained into the public sewage network without any form of treatment. One tannery conducted a study on the construction of a water treatment station but found that the cost of building and running the station exceeded the total investment in the tannery. Those involved in the industry believe it is not feasible to build a treatment station for each tannery. The optimum solution would be to relocate all the tanneries to one or two areas and build a central treatment station for them all. This would enable tannery owners to collect the fat waste and use it to manufacture glue.

2.5 Performance

Industry performance is a multidimensional measure of the outcome of a firm's or industry's behavior. Performance includes profitability, production and allocative efficiency, equity, progress and employment (Scherer and Ross, 1990). In evaluating the performance of Palestinian tanneries a clear disparity between the figures of PCBS and those of the current survey is noticeable. As previously mentioned, this may be due to the different time frame of the two surveys. Another possible reason may be due to an outlier. Some tanneries could have had a bad season while others had a good one. PCBS aggregated the results of all the firms, which may have adjusted the results towards the poor performing firms. There might also have been inaccurate reporting by respondents to PCBS in 1994. Two reasons support the argument that PCBS estimates did not reflect the actual situation of tanneries. The first is that the number of employees grew from 69 workers in 1994 to 109 in 1997, which is the equivalent of a 57% growth in employment. This poses the question of why tanneries would increase their number of employees if they were making a financial loss. The second reason is that six tanneries hope to update their machines while two have already started the process of expansion and another three are to merge to build a state-of-the-art tannery in Hebron. Therefore, any policy implication drawn from PCBS estimates might be misleading since they imply that the Palestinian tanning industry is not profitable. For the purpose of this study, the analysis of performance will rely on both PCBS and the survey estimates but the survey results will predominate whenever possible.

Overall performance, as measured by value added, has been very poor in the tanning industry. According to PCBS estimates, the share of value added out of gross output was just 7% compared to 38% in the manufacturing sector. This figure reveals a serious problem threatening the future of the industry, primarily its competitiveness. On one hand, the high content of raw materials (leather and chemicals) relative to the market value of output is an indication of either low quality of manufacture by producers or that only a few production operations are performed, that is if vertical integration is relatively low. In either case, the market value of producers' activities is relatively low. In the case of Palestinian tanneries, the low value added is a result of the poor quality of domestic leather. Indeed, all users of Palestinian leather included in the survey complained about the low quality. On the other hand, the sector did not generate enough value to cover the cost of labor used in production which implies negative profits. However, the field survey showed that in 1996 tanneries made a profit of 14% from their sales before taxes.[7] The next two sections will discuss the performance of tanneries in terms of their productivity, profitability and competitiveness.

[7] Some respondents did not provide specific ratios about their profits, but others, especially those who were personally interveiwed, estimated that the profit rate ranges from 10% to 18% of sales before taxes.

2.5.1 Productivity and Profitability

Productivity is determined by a set of interrelated human and non-human factors. It is measured by the value added by workers or value added by employee compensation (i.e., productivity of each dollar spent on workers or how much each US$ paid to employees generates value added.) The first measure takes into consideration paid and unpaid workers while the second takes into account paid workers only.

Table 1 illustrates that the value added per worker in the tanning industry is US $2,087, while the value added per worker in the manufacturing sector is US $6,815, i.e., the productivity of each worker in the tanning industry is just 30% of that in the manufacturing sector. It is paradoxical to note that while the average wage per employee was US $4,145 in tanneries, it was only US $3,342 in the overall manufacturing sector.

The same conclusion can be reached using another measure of productivity. The value added by each dollar spent on wages is US $0.81 (value added divided by employee compensation) in the tanning industry while this ratio is US $2.96 in the manufacturing sector as a whole (see Table 1). Each dollar spent on workers in the tanning industry generates only a fraction of itself (81%). This is only 27% of the amount generated by a dollar spent on workers in the manufacturing sector (Table 1). The net value added of tanneries was US $64.3 thousand in 1994 (Table 10). The situation would be worse if the opportunity cost of unpaid workers in tanneries were taken into consideration. One implication of this is that tanneries made losses in 1994. A possible explanation for such a huge gap in productivity between tanneries and the manufacturing sector, although the poor quality of data cannot be excluded, is the relatively low level of capitalization in tanneries, which is measured by capital-labor ratio. This ratio was US $2,874 in tanneries while it was US $5,818 in the manufacturing sector (see Table 1). Capital-labor ratio in tanneries is almost half that of the manufacturing sector. This does not necessarily imply that labor- intensive techniques are less productive when compared to capital-intensive techniques. However, workers are expected to be more productive if enough modern machinery is available to them. This issue of the level of technology is crucial for the future prospects of Palestinian tanneries. Currently, most of the machines used in the tanneries are second hand and outdated (20 years old) and this contributed heavily to the poor quality of their products.

Other reasons for the low productivity include limited and shrinking market outlets for manufactured leather and the Israeli policy of border closure, both of which have resulted in under-utilization of capacity. No tannery operates at full capacity. The range of utilization spans from 20% to 80%. Five tanneries operate at less than 50% of their capacity and another five between 51% to 65%. One tannery operates at a rate of 80% of its capacity. The existence of unused capacity indicates that production of leather can be increased, given some improvements in market outlets and skin and hide collection, without the major expansion of production facilities. The continuous disruption of water and power supplies, mainly in Hebron, is another problem. Also, 30% of respondents suffer from interruptions of skin and hide availability and delivery.

Insiders in the leather industry indicated that the best raw leather is from the United Kingdom, followed by Africa then the Middle East. Insiders also believe that raw skins and hides produced in Palestine are among the best in the world based on the consumption habits of Palestinians who prefer the meat of young animals. Animals are, therefore, slaughtered at a young age, making the skins and hides of a superior quality compared to those of older animals. However, the competitiveness of processed leather largely depends on the manufacturing process and the quality of the finishing materials.

Leather producers in Palestine have cited five criteria that determine their competitiveness in domestic markets. These factors include prices, quality (in terms of flexibility, rub fastness, texture, thickness and the consistency of the finished product), availability, product distinction, and the supply of financial credit. Palestinian leather faces stiff competition from imported natural and industrial leather, which offers a substitute to natural leather. The main source of this competition is the imported natural leather from Italy, Turkey and Israel.

The field survey showed that Palestinian leather performs poorly in quality and product distinction. As quality standards are not currently in place to regulate leather manufacturing in Palestine, producers rely on their own experience.

The following are the findings from the field survey for the five criteria mentioned above:

1- Prices

Leather prices vary widely depending on the classification of leather (leather grades) and the finished type and quality. Therefore, throughout this report prices will refer to average prices. The average price of Palestinian leather is lower than Israeli and foreign leather (Table 11). On average, domestic cow leather is cheaper than Israeli and foreign leather by 35% and 22% respectively. In addition, sheep leather in Palestine is 47% cheaper compared to Israel, and 39% cheaper compared to foreign leather. Similarly, goat leather is 45% cheaper compared to Israel. Many consumers of Palestinian leather complained about the standards used to classify leather into three grades and by which first grade Palestinian leather is compared with second or even third grade imported leather. This adds greater pressure on the price of domestic leather. The survey showed that about 30% of Palestinian leather is classified as first grade, 60% as second grade, and 10% as third grade. Table 12 lists leather prices according to grades. Semi-manufactured leather, on the other hand, faces no direct competition. Table 13 shows the average price of semi-manufactured leather.

2- Quality

The survey showed that Israeli and imported leather is of superior quality to Palestinian leather. Reasons for the low standard of Palestinian leather include the poor overall manufacturing environment; the absence of standards to control leather production in Palestine; the relatively old machinery still in use, especially the dye process which requires modern technology and highly skilled labor to produce high quality leather; and problems related to the quality of dyeing

materials. Also, defects in skins and hides such as marks, scratches, spots and other flaws are common in leather. Some of these defects occur prior to animal slaughtering, such as branding marks, wounds, wall or tree scratches and skin diseases, but defects also occur during slaughter and skin removal.

Some consumers of Palestinian leather complained about the lack of consistency in terms of the finish, especially colors, thickness, flexibility and texture. In general, the quality of all kinds of leather produced in Palestine is lacking, especially with regard to sheep leather. Five cow hide producers believed their products to be comparable to Israeli and overseas goods in terms of quality but the other producers gave the advantage to Israeli and imported leather.

The poor quality of Palestinian leather has been reflected in the form of lower prices and the willingness of relatively large consumers to prefer imported (Italian) leather.

3 Availability

The geographic proximity of Palestinian leather producers offers great convenience for leather consumers who can order relatively small quantities as needed at low transportation cost, eradicating the need to store large amounts of leather. The importance of such proximity is further intensified in times of border closures.

4 Financing

Domestic producers perform well in terms of financing. Financial credit, of up to 8 months in some cases, can be supplied. This credit is not available to Israeli and imported leather. The financial terms and availability of Palestinian leather are the major competitive advantages enjoyed by leather producers in Palestine.

5 Product Distinction and Diversification

Israeli and imported leather are available in more types of finishes, texture and thickness than Palestinian leather. However, producers believe that diversification is not a major problem since they are able to supply most leather orders and provide the required specifications.

In addition to their strong competition with Israeli and imported leather, producers have to compete against each other on the basis of prices, quality and financial credit. Competition is intensifying given the fact that market outlets are shrinking.

As regards the potential ability to compete against Jordanian and Egyptian leather, Palestinian leather producers believe they can easily compete against Jordanian leather both in terms of quality and prices. However, their biggest concern is Egyptian leather, which is considered to be superior both in terms of price and quality. This might cause major problems in the future if Egyptian leather were allowed to move freely to Palestine.

2.6 Changes After the Peace Process and Current Obstacles

A steady decline in production in the tanning industry was witnessed after 1992 (the start of the Madrid conference). Although all survey respondents experienced a decrease in their production, only seven provided figures. In 1996 the decline ranged from 10% to 40% (see Table 14). Owners cited four reasons for this trend:

1- The overall decline in economic conditions in the West Bank and Gaza Strip after 1992 had a direct impact on the tanning industry. Since March 1993 when the Israeli authorities closed the borders, the Palestinian economy has been in a state of depression. As a result, average per capita gross national product (GNP) declined by 39.4% and 37% between 1992 and 1996 in the West Bank and Gaza Strip respectively (UN 1996). The overall poor macroeconomic performance has caused a sharp decline in demand for leather products. Accurate data about this decline in demand are not available, but footwear retailers indicate that their sales are very sensitive to economic fluctuations.

2- The prolonged and repeated Israeli border closures have contributed largely to the overall decline in the aggregate demand for leather products. Although the closure is usually in one direction only, it still disrupts the supply of raw materials used in leather manufacturing. In addition, the internal closure disrupts the collection and delivery of skins and hides to the tanneries.

3- Logistical difficulties exist in commercial transactions with merchants from the Gaza Strip. Owners of tanneries cannot deliver their products on time and have problems collecting payments due to their inability to travel to the Gaza Strip.

4- Competitive pressures are caused by imported leather from Europe (mainly Italy) which competes strongly on the basis of both price and quality. Price differentials were given in the previous section.

Some tanneries have tried to store manufactured leather but it proved to be unprofitable. Storage costs are relatively expensive and proper storage conditions are essential. One tannery lost about 25% of its stored leather due to deficiencies in storage conditions. Other tanneries, especially in the Nablus area, were forced to dump and burn thousands of skins due to lack of demand.

Leather manufacturing suffers from a set of problems, some of which are common to all industrial activities while others are particular to tanneries. These difficulties have resulted in a poor performance by the industry in terms of productivity and competitiveness. Following is a discussion of these problems.

1- Infrastructure-related problems include water, electricity, sewerage and solid waste collection services. Hebron tanneries experience disruptions in the water supply, especially in summer, and therefore have to rely on other expensive and unreliable sources of water. Similarly, Hebron also experiences frequent power outages and inconsistency in the supply of electricity. Disruptions in water and electricity supplies negatively affect the quality of the final product. The collection of solid waste and provision of trash containers are additional problems. Many respondents complained about the lack of containers in their

areas and long delays in trash collection. Similarly, sewage networks are not available in some areas or are not large enough in others. The inadequacy of these basic services has exacerbated the environmental problems caused by the tanneries.

2- The Israeli policy of border closures affects leather manufacturing in several ways. Closures disrupt the traffic of raw leather to tanneries between the Gaza Strip and the West Bank and from within the West Bank itself during internal closures. Respondents complained about serious shortages of chemical materials during prolonged closures and the abuses of Israeli merchants, either by overcharging or providing expired materials. Similarly, serious maintenance problems were reported during border closures due to spare parts being unavailable. Market outlets shrink since leather cannot be delivered to the Gaza Strip or to footwear and leather manufacturing factories and workshops in the West Bank. Border closures also lower the overall demand for leather products, which indirectly lowers demand for manufactured leather. [8]

3- All respondents believe that defects in the raw leather caused by the manual removal of skins and hides is the major cause of the relatively poor quality of finished leather produced in Palestine. Often, workers fail to see knife cuts in the early stages of production, thus incurring extra processing costs for a defective skin. Tanneries find they can only sell skins with cuts as second and third grade quality, which are priced 25% lower than first grade skins. About 90% of skins slaughtered outside a slaughterhouse have cuts or marks and 10% to 15% of these skins have severe defects. Skins and hides removed in slaughterhouses have a lower ratio of damaged skins.

4- All respondents complained about shrinking market outlets due to the overall decline in economic activity. Palestinian tanneries also face stiff competition from European leather, mainly Italian, on the basis of both price and quality.

5- All tanneries complained about the availability and cost of spare parts. Israeli control over the supply of parts as well as border closures are the main reasons for the problem. In general, tannery owners did not complain about serious maintenance- related problems, (with the exception of two tanneries), but there was universal agreement that maintenance staff would benefit from professional training.

6- Four tanneries experienced some difficulties in obtaining skilled labor, while others complained about the high cost of workers. All respondents recognized the need to train workers, especially in the areas of dyeing and finishing skills which have developed dramatically in the last few years.

7- Many respondents were dissatisfied with their relationship with public institutions, primarily the municipalities and the Ministry of Health. Municipalities were blamed for muddled town planning policies which give rise

[8] In 1996 there were 141 days of closure in the West Bank, 104 of them complete closures and 37 partial. In the Gaza Strip there were 149 days of closure, 109 complete and 45 partial. In 1997, until the end of April, there were 31 and 11 days full closures in the West Bank and Gaza Strip respectively (PCBS, 1997).

to continuous tension between residents and tannery owners. In addition, the lack of coordination between the municipalities and the relevant ministries, especially on environmental issues, has caused some confusion to tanneries. Many tanneries owners complained about the failure to reach agreements with the Ministry of Health about environmental issues, in particular the foul odors and liquid waste.

8- The absence of quality standards contributes to the poor performance of the industry, in particular its competitiveness. The method of classification of leather has caused many marketing problems since the prices charged do not match the grades.

9- The lack of financial resources other than private funds (mainly savings of the owners), inhibits plans to improve tanneries and purchase new machines.

2.7 Prospects

The sections above show that tanneries face a series of problems, including old machinery, limited amounts of raw leather with many defects, primitive methods of leather collection and delivery, expensive supply of chemicals, an unreliable supply of water and electricity, the lack of skilled labor, small and family-oriented tanneries and poor infrastructure. Given all these constraints, is it possible to maintain a successful tanning industry that can survive and compete in the future bearing in mind the potential free trade among the countries of the region? If so, what would be the most appropriate strategy for competition? Theoretically, competitive strategy could be based on superior quality or low cost production for a wide or a narrow market target.

The current performance of tanneries indicates that their future is not promising, even for those in Hebron which rely on domestic footwear producers to sell their products. It might be cheaper for the footwear industry to rely on imported leather, indeed most of the respondents preferred imported leather. Thus, Palestinian tanneries face a bleak future. Nevertheless, prospects for the Palestinian tanning industry hinge on a possible set of policy measures which could improve quality and achieve greater productivity and competitiveness. These measures would eventually assist tanneries to expand their markets, both domestically and externally. The prospects for tanneries in Palestine also rely to a large extent on the success of leather-based industries, mainly the footwear and leather wear industries. The following are a set of measures which would help attain these objectives:

1- A change in the technique of skin and hide removal from a manual to a mechanical method would solve a major quality problem resulting from knife cuts and holes. Mechanical techniques to remove skin are relatively cheap. One such machine is already installed in a Nablus slaughterhouse, but it has yet to be used since the machine turns the external layer of meat from a white to a red color. The red color of the meat is viewed by consumers as a sign of low quality so merchants refuse to retail it.

2- The expansion of the services of slaughterhouses beyond municipal borders would reduce the number of animals slaughtered outside. This would improve the quality of leather since the skins and hides of animals slaughtered other than in slaughterhouses are prone to defects and late delivery.

3- Funding is needed to buy new machines. Leather tanning technology has undergone rapid developments, primarily in the area of dyeing and finishing, and these changes have brought about considerable improvements in quality. Many tanneries in Palestine would like to upgrade or change their machines but are unable to do so due to lack of finance. As a result, the Palestine Industrial Investment Company Ltd. (PIIC) plans to build a state-of-the-art tannery in Hebron. The project will be a joint venture between an Italian investor and three existing tanneries in Hebron. A feasibility study was prepared and the project has been approved by PIIC. Under the proposed arrangement, PIIC will provide the finance and the Italian investor will provide the technology, know-how, and marketing in Italy. Owners of Hebron tanneries are to participate in the financing and are to manage the proposed project. The plan calls for three tanneries to merge into one modern tannery, with a water treatment station included in the project to reduce the environmental impacts.

4- Municipal services and basic infrastructure need to be enhanced, mainly water, electricity, town planning and sewerage services. The prevention of water supply disruptions and electrical power outages are of crucial importance to the quality of manufactured leather. In addition, provisions need to be made for appropriate waste disposable facilities such as sewage networks and trash collection services.

5- Workers must have access to professional training in all stages of manufacturing, including tanning, dyeing and finishing. Chemical engineers are desperately needed in each tannery to determine the optimal usage of chemicals as most tannery owners lack formal education or training in this regard. Training is vital given the fact that many domestic consumers of manufactured leather complained about the inconsistency of the leather supplied (color, thickness, etc.), the low quality of dyeing and finishing materials and mistakes in the classification of leather into grades. Tanneries will lose large numbers of customers if improvements are not introduced, especially if cheaper, better quality imported leather becomes available. One major leather wear producer expressed willingness to buy domestic leather, even at higher prices, given that the quality be improved.

6- All respondents complained about the availability and cost of chemical materials used in the tanning industry. One method to alleviate this problem would be the formation of an industrial association which would import chemicals directly, a system which would result in a saving of 25% on the cost of chemical materials. Although owners could import from Europe on an individual basis, orders would be too small to justify the transaction cost.

With the implementation of some of these measures, the best competitive strategy based on high quality would be in place. Many factors support the choice of this strategy: the small quantities of raw leather produced in Palestine and seasonal fluctuations might hinder large-scale production. Also, chemicals are imported in

small quantities at relatively higher prices. In addition to high labor costs, water and electricity are costly in Palestine compared to other countries. Palestinian exports of natural leather made items (mainly leather wear) are currently of high quality therefore any attempt to increase demand must also be driven by high quality.

3. Natural Leather-Based Industries

Leather is not an indispensable item today as it once was in earlier times. However, it is still used to produce many goods, including shoes, coats, hats, home furnishings, handbags, belts, wallets, luggage, gloves, animal saddles etc. Natural leather is preferred over substitutes, which include synthetic leather, and plastic materials, due to the durability of natural leather, its texture and ability to be reshaped and crafted. It is widely preferred in footwear products because of its ability to both absorb (up to 30% of its weight) and release moisture, its flexibility and its property of adjusting to feet size (di Valentin, 1972). Demand for manufactured leather is derived from the demand for leather made products. Therefore, any study of the current situation of tanneries and their future prospects must be linked to a study of the leather-based industries.

In Palestine, manufactured leather is utilized mainly by the footwear and leather wear industry. It is also used on a limited scale to produce animal saddles and wallets. The analysis will focus only on the footwear and leather wear industries to the extent that they affect the leather industry in Palestine.

The total amount of natural leather used in Palestine is about 13 million SF (field survey). Domestic production is only 17.5% of the total, while the rest is imported from Israel and other countries, mainly Italy and Turkey. About 9 million SF were absorbed by the footwear industry and 3.9 million SF by the leather wear industry. Domestic production of cow leather is 17% of the total amount used while sheep leather accounts for only 15%. The domestic production of goat skins, however, supplied almost the entire demand for this type. The footwear industry consumes about 70% of the total amount of natural leather used in Palestine, while the leather wear industry takes 29% and the rest is used in making animal saddles, wallets and handbags. Imported leather accounted for 82.5% of that used in the natural leather based industries. Cow leather and sheep leather imported from Israel in 1996 was about 4 million SF and one million SF, respectively. On the other hand, 3.44 million SF of cow leather and 2.22 million SF of sheep leather were imported from other sources (Field survey and interviews with industry insiders).

3.1 Footwear Industry

The footwear industry in Palestine is one of the leading industrial sectors in terms of its participation in output, value added and employment [9] Its importance goes back thirty years to 1966 when footwear firms made up 13% of the manufacturing sector (Iftaimeh, 1993). In 1969, their share of manufacturing employment was 5.5% (UN,

[9] Of course, footwear products may include natural as well as industrial leather; plastics and cloth. This study will be limited to footwear made from natural leather. However, many footwear factories and workshops produce industrial as well as natural leather and plastic footwear. Published data by PCBS did not break down the footwear industry according to its usage of leather. Accordingly, part of the analysis will cover the entire footwear industry while another part will focus only on the segment that uses natural leather. Similarly, PCBS did not publish separate figures for the leather wear industry as it is considered part of the textile and garment industry.

1981)[10]. Currently, the footwear industry continues to remain very important to the Palestinian economy. According to PCBS, there are 532 establishments in the footwear industry, of which 518 are in the West Bank (including East Jerusalem) and 14 are in the Gaza Strip. The footwear industry makes up 5% of the total number of manufacturing firms (PCBS, 1995a). Most of the footwear firms are located in Hebron, followed by Nablus (Table 15). According to the industrial guide issued by the Hebron Chamber of Commerce, there were 436 firms and workshops in 1996. This geographic concentration may be explained in part on the basis of the availability of natural leather in Hebron. As previously stated, more than 95% of the products manufactured in Hebron tanneries are contracted to local footwear firms.

Total employment in this sector has reached 2,776, of whom 64% are employees and 36% are owners and family workers (PCBS, 1995a). Since 1969, its share of employment in the manufacturing sector has remained constant at 5.5% (excluding East Jerusalem). The contribution of the footwear industry to the total value added of the manufacturing sector was 4.2% and 3.6% of the total output (see Table 1).

3.1.1 Industry Structure

The footwear industry consists of 518 firms in the West Bank and 14 firms in the Gaza Strip, all owned by Palestinians. Most of these firms are small scale enterprises and workshops with five employees being the average number of workers per firm. About 65% of these firms employ less than 5 workers in the West Bank, 25% employ between 5 and 9 workers, 7% employ between 20 to 49 workers and only 1% employs more than 100 workers (Table 4). Similarly in the Gaza Strip, 13 firms employ less than 5 workers and only one firm employs 5 to 9 workers (PCBS, 1995a). The legal records show that 60% of the firms in the West Bank are sole proprietorships and 37% are partnerships; in the Gaza Strip, 11 firms are sole proprietorships and one firm is a partnership (PCBS, 1995b).

Although no accurate data are available about the number of units produced nor about the types of different footwear produced, the Chairman of the Leather Industries Association provided a rough estimate. According to their classification by labor size, about 500 footwear firms are workshops and the average daily production of a footwear workshop is about 80 pairs of shoes. Thus, the annual production (assuming the number of work days per year is 300) is about 12 million pairs of all types of footwear. There are about 30 large production firms with an average daily production of about 1200 pairs. Their production would be 10.8 million pairs per year (again assuming the number of work days per year is 300). Thus, the total production by all firms is about 22.8 million pairs.

Industrial insiders estimate the proportion of footwear made of natural leather to be around 30% of total footwear production. This is equivalent to about 6.84 million pairs of shoes. On average, each pair needs about 1.3 SF of natural leather; thus, the total amount of natural leather used in the footwear industry is around 9 million SF. Of this amount, cow leather is most used (95%) while the rest is sheep and goat leather (field survey). The distribution of natural leather footwear products is: men's

[10] There were 486 firms in the footwear industry and a total of 3,792 manufacturers.Of the footwear firms, 90% employed less than 5 workers.

shoes (50%), women's shoes (30%), boys' shoes (10%) and girls' shoes (10%) (field survey).

Average investment per establishment is about US $17,933 whereas average investment per establishment is US $28,000 in the manufacturing sector. This relatively small level of capital may indicate a low level of barriers to entry into the footwear industry. Indeed, about 300 footwear workshops are owned and operated by two to three persons. Similarly, the technology (usually of European origin, mainly Germany and Italy) used in these workshops is not complicated and can be easily obtained and repaired. The age of this machinery ranges from 15 to 20 years. About 73% of respondents rely both on their own staff and domestic insiders to maintain these machines. Only three respondents use Israeli personnel to maintain certain machines. The majority of spare parts used for maintenance are of European and Israeli origin.

As for capital intensity, the average capital-labor ratio is US $3,402. The footwear industry, therefore, is a labor-intensive industry compared to the manufacturing sector as a whole where the capital labor ratio is about US $5,818. These figures reveal the strong dependence of the footwear industry on labor. In other words, Palestinian footwear producers cannot compete on a cost basis due to the relatively higher labor costs compared with other countries..[11] Adding intermediate consumption to labor costs and depreciation to get a rough estimate of total cost, it can be seen that labor costs form 21.3% of total costs. Also, labor costs consume about 38% of the gross value added and 16.4% of gross output (see Table 1). High labor costs is the major factor that limits the competitiveness of Palestinian-made footwear. This issue will be addressed later in this study.

All respondents complained about sharp fluctuations in market outlets following the signing of the Declaration of Principles between Israel and the Palestinian Liberation Organization in 1993. Some 55% witnessed a decline in production ranging from 15% to 25%. These fluctuations resulted from the overall economic instability, poor macroeconomic performance of the West Bank and Gaza Strip, and the Israeli policy of border closure. All respondents also witnessed an increase in production costs due to higher material costs. All firms surveyed reported unused capacity with average capacity utilization at 45%. The level of capacity utilization ranged from 70 % to 10%; the blame placed on the lack of markets while 50% of respondents also cited border closures as another cause.

Currently, subcontracting relations with Israeli firms are not as widespread as they were prior to 1992. Insiders estimate that about 8% of footwear production in the West Bank is done on a subcontracting basis with Israeli firms, and only about 5% of the natural leather footwear is subcontracted. In a few cases, Israeli firms provide the design and leather to be used, while in the majority of the cases, the Israeli firms just provide the design and quality specifications and the Palestinian producers choose the ingredients to be used (field survey). However, Palestinian footwear producers protested the instability in the volume and frequency of orders over recent years due

[11] This may contradict those who believe that labor intensive industries are more appropriate in order for Palestine to absorb more labor. However, improving the competitivenss of Palestinian footwear products might require capital intensive techniques so as to reduce the labor content (labor cost). This is necessary to face the cost- based competiton created by imports from East Asian countries.

to the overall economic and political instability and border closures. Some producers commented on the stiff competition from East Asia, which has found a market among Israeli companies and distributors because of superior price and quality, especially in the field of sport shoes.

3.1.2 Performance

The information available has allowed for a performance evaluation of the footwear industry in terms of productivity and competitiveness. However, productivity will be calculated using PCBS published figures for all kinds of footwear including natural made footwear. As for competitiveness, the focus will be limited to natural leather made footwear using the survey results and the opinions of industrial insiders.

3.1.2.1 Productivity and Profitability

Average productivity (measured by value added) of each worker is about US $5,164, which is less than the average productivity per worker in the manufacturing sector (US $6,814). This difference in productivity could be partially explained on the basis of capital-labor ratio. Average capital-labor ratio in the footwear industry is 58% of that in the overall manufacturing sector. Again, this does not necessarily imply that labor-intensive techniques are less productive when compared to capital-intensive techniques. However, workers tend to be more productive with modern machines.[12]

The ratio of value added to gross output was 43% , which is higher than the 38% of the overall manufacturing sector [13]. Some 37% of the value added is absorbed by labor compensation and 11% is absorbed by depreciation (Table 10). If one also subtracts property payments and various transfers (US $4.11 million) then the approximate net income of owners is about US $5 million, which is about 21% of the value added.

The geographical distribution of output and value added is concentrated in Hebron and Nablus, followed by the Gaza Strip and East Jerusalem (Table 16). These figures refer to all tanneries and leather based industries, including footwear, luggage and handbags. It excludes leather wear since leather wear is considered part of the textile and garment industry. About 67% of the value added in the West Bank (excluding East Jerusalem) and Gaza Strip was created in Hebron and 27% in Nablus. A noticeable difference exists in average productivity per worker among the different locations. The highest levels are recorded in East Jerusalem, followed by Ramallah, Nablus, the Gaza Strip and Hebron (see Table 17). As was stated previously, these figures are aggregated among all leather industries. Therefore, the disparity in

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[12] Available data do not allow the testing of the relationship between capital intensity and labor productivity. Also, one should stress again that the quality of available data is questionable. However, PCBS published data about labor productivity in all leather industries (tanneries, footware, handbags and luggage). Four data points are available including Gaza, Hebron, Nablus, and Ramallah. The simple correlation coefficient does not imply any causal relationship between labor productivity and capital intensity. Regression analysis was not possible due to data limitations.

[13] It is surprising that the ratio of value added in the footware industry is higher than the manufacturing sector, labor productivity.in footware is lower than that of the manufactoring sector. Two facts might explain such results: the first being the high labor content of the footware industry, measured as the share of employee compensations out of the value added. This share was 37% in the footware industry and 33% in the manufacturing sector. The second factor is the low capital intensity in the footware industry compared to the manufacturing sector as mentioned earlier

productivity cannot be explained without disaggregated data according to product type (tanneries, footwear, etc.), and the firm size in terms of capital and labor, its location and each component of the leather based industries.

3.1.2.2 Competitiveness

The overall competitiveness of the Palestinian footwear industry is relatively weak when compared with that of East Asia, Europe and Israel. Of Palestinian footwear production, 71% was used to supply local markets while 29% was exported, mainly to Israel which re-exported about 5% under Israeli trade marks (Table 8). The products compete in the Israeli markets on the basis of price and quality; their target markets are the middle and low income consumers. Palestinian footwear is successful to a certain extent in the Israeli market due to the protection provided by Israeli taxes levied on footwear imports from East Asian countries. The effective rate of protection is about 14%, but it is expected to vanish by the end of 1998 due to the liberalization of Israeli trade relations with these countries (World Bank, 1993). Thus, greater competitive pressures are expected in both the Israeli and Palestinian markets in coming years.

About 82% of all respondents face strong competition in the domestic market. Three sources of competition were identified: domestic producers, Israeli footwear manufacturers and footwear from East Asia. About 73% of respondents face strong competition from other domestic products on the basis of price, quality and financial credit allowed to distributors. In addition, 45% experience strong competition from Israeli made shoes on the basis of quality. The major source of competition is imported footwear from East Asian countries, particularly China..

About US $5million worth of footwear was exported to the United States during 1994-1996 by a single Palestinian producer but it proved impossible to match the prices offered by other competitors from China and the cost-based competitive advantage was lost. Currently, some firms are trying to export to the Arab Gulf countries with the aid of the American agency Development Alternatives Inc. (known as DAI).

As regards price competitiveness, the average price of natural leather made shoes imported from Europe (mainly Italy and Spain) is almost twice the price of domestic shoes. However, the consumers targeted are different so no direct competition exists between domestic products and imports from Europe**.** All respondents recognize the quality gap between imported and domestic footwear and the greater variety of imported footwear. Domestic producers, however, perform well in terms of the financial credit they offer to retailers and distributors.

In terms of potential competition from neighboring Arab countries, Palestinian producers expressed serious concerns about their ability to compete with Egyptian footwear. It is believed that Egyptian footwear is superior in terms of quality and prices, although there are no fears about Palestinian ability to successfully compete with the Jordanians in the elegant footwear segment of the market.

3.1.3 Current Problems and Prospects

The footwear industry suffers from a set of problems including the supply of leather and other materials, infrastructure and related services, Israeli policies, marketing outlets and competition, production skills and maintenance.

All respondents complained about the excessive cost of utilities (mainly electricity), power outages and power inconsistency. Israeli border closures severely affect the footwear industry in several ways, including the supply of leather and other inputs, spare parts and marketing problems. Border closures disrupt the movement of raw leather to the tanneries, both from the Gaza Strip to the West Bank and from within the West Bank itself during internal closures. This in turn disrupts the flow of leather to footwear producers**.** Similarly, serious maintenance problems were reported during border closures due to the unavailability of spare parts. Market outlets shrink during closure since footwear products cannot be delivered to Israel, the Gaza Strip, or even to distribution outlets in the West Bank. Border closures also lower the overall demand for leather products.

All respondents complained about limited and shrinking markets due to the overall decline in economic activities and the stiff competition from imported footwear. Many respondents complained about the availability and cost of spare parts and maintenance. Israeli control over such parts as well as border closures are the main reasons for this problem. All of these constraints have resulted in a poor performance by the industry in terms of productivity and competitiveness.

Many major footwear producers were not very optimistic about the future for their industry. The primary reason is the overall instability and uncertainty of future peace talks in the region. Others perceived the competition from imports and the lack of public support for the industry as the greatest problems. The prospects for the Palestinian footwear industry require a set of policy measures to improve quality and attain superior productivity, thereby making the industry more competitive both in the domestic market and abroad. The main emphasis should be on improving personnel skills, especially in the area of styling, design and finishing. Palestinian footwear needs to compete on the basis of craftsmanship and product distinction otherwise the prospects for the industry are not promising

3.2 Leather Wear Industry

The leather wear industry is a leading manufacturing sector and plays a major economic role, particularly in East Jerusalem and the surrounding areas. There are about 25 producers of leather wear in Palestine with total output estimated at around 86,000 jackets with a market value of about US $10 million. Total employment in the industry reaches 350 workers in winter and about 250 in other seasons. The industry is dominated by a single producer in terms of output value, whose share is 64%. The share of the second largest producer is only 8%.

The industry uses about 3.9 million SF of leather, of which 23% is Palestinian made leather, both pickled and finished leather (field survey).[14] Finished leather makes up 15%, while the rest is pickled leather. One producer collects pickled leather and exports it to Italy where its dyed and finished. The first grade leather is sold in Italy and the other grades are re-exported to the West Bank and used by the same merchant to produce leather wear. About 70% of leather used in the leather wear industry is imported from Italy and the rest is imported from Israel (field survey).

Palestinian leather wear performs well in terms of both quality and price. Many manufacturers produce for major leather distributors and brand name stores in Israel. The leading producer exports about 90% of its products to Israeli firms. About 73% of the products are exported to Israel on a subcontracting basis, and 21% of the products are marketed in East Jerusalem. However, the Jerusalem market has about 50% of the market outlets of the small producers. Demand in Jerusalem is derived mainly from tourists and Palestinians living in Israel.

Tourist demand fluctuates widely depending on the season, the number of tourists and their country of origin. Insiders indicate that from January to March demand for leather wear by tourists is very low due to the small number of visitors during these months. From April to July demand increases sharply because of the high number of tourists from Egypt, Cyprus and Turkey, many of them pilgrims. Demand peaks during August to December when European and American tourists predominate. Tourism is the main reason for the concentration of leather wear producers in Jerusalem. All producers have their own distribution outlets (field survey).

Leather wear producers face two sources of competition. The first is domestic competition from other producers and is based on price and quality brand names. Secondly, there is stiff competition from Israeli leather distributors in Jerusalem. Tourists are the main target of this competition. Palestinian leather wear producers complain that Israeli tourist agencies and guides usually give advice and directions for tourists to avoid areas in Jerusalem populated by Palestinians, resulting in Palestinians losing a large share of sales.

Direct exports account for only 4% of market outlets. The main export destinations are Sweden and some Latin American countries. Exported products perform well in these markets but lack of connections and marketing skills hinder expansion. The West Bank and Gaza Strip consume only 2% of products, a low share which can be attributed to the relatively high price of leather wear. The average price of a medium quality jacket is about US $150 (field survey).

The main problem facing the industry is unfair competition from Israeli producers and distributors in Jerusalem who attempt to monopolize tourist demand. Furthermore, the heavy dependence on subcontracting with Israeli firms is another major potential weakness in the industry. Subcontracting relations are not stable and may not continue in the future. Regardless, Palestinian producers are reluctant to accept the possibility that Israeli firms may switch their subcontracting relations to other countries, mainly

[14] The amount of leather used in the leather wear industry is estimated on the basis that each jacket needs on average 45 SF of leather, and the number of jackets produced in 1996 was 86,000 units, thus 3.87 SF of natural leather were used.

Jordan and Egypt which both enjoy low labor costs compared to Palestine, although the threat is very real. The leather wear industry has good prospects and has the potential to become a leading manufacturing sector given that market outlets are expanded. Their emphasis should be on product distinction and high quality.

4. Summary and Conclusions

In this study, the current situation in the tanning, footwear and leather wear industries in terms of the number and distribution of producers, production, costs, marketing, technology, maintenance, labor, and invested capital were investigated. In addition, the study analyzed the performance of the industry in terms of its productivity and competitiveness. Current problems and changes after the peace process were also investigated as were policy measures that could improve the performance of the industry and its future prospects.

These industries were selected for analysis on the basis that they have the potential to play a major role in the manufacturing sector and are already relatively successful in terms of their ability to export a large portion of their output. Also, the Ministry of Industry requested a set of background studies on key industries, including tanneries and the leather industry, in order to assist them in the formulation of appropriate industrial polices.

Two different questionnaires were designed, one directed to the tanneries and a second to the natural leather-based industries, mainly footwear and leather wear. All fifteen tanneries in the West Bank were surveyed. A non-random sample of 12 leading footwear firms was chosen. The two major leather wear producers, whose market share is about 72%, were surveyed as were two tailor shops.

4.1 Tanning Industry

The tanning industry plays a relatively minor economic role. Its share of gross output and value added of the manufacturing sector is about 0.2% and 0.03% respectively. Also, the share of total employment is about 0.15%. However, tanneries play a major role in providing input for the footwear and leather wear industries. Tanneries provide about 17% and 15% of the natural leather used in the footwear and leather wear industries respectively.

There are currently fifteen tanneries in Palestine. Large scale production began in the early thirties when three tanneries in Hebron were established. As is the case with many industries in Palestine, the development of the leather tanning industry has been linked to shifts in the Israeli tanning industry, where leather production has fallen drastically. Domestic production of different kinds of leather is about 2.276 million SF of which 69% is cow leather, 25% sheep leather and 6% goat leather. Production costs are dominated by the cost of chemicals and raw leather.

All tanneries suffer from limitations due to old machinery, defects in the raw leather the lack of skilled labor and finance, Israeli border closures, the poor physical infrastructure, expensive chemicals, expensive and inconsistent supply of water and electricity, many serious environmental problems and unstable market outlets. All these problems have resulted in a poor performance in terms of profitability, productivity and competitiveness and threaten the future of the industry even in the domestic market.

The prospects for the tanning industry are not promising but could be greatly enhanced by the implementation of measures such as:

1- Removal of skins and hides by machine rather than by hand would reduce the number of defects in skins and improve overall quality .
2- The expansion of slaughterhouse services beyond municipal borders would reduce the number of animals slaughtered elsewhere and would again improve overall quality and speed up delivery.
3- Improvements in municipal services and basic infrastructure, especially water, electricity, town planning and sewerage services.
4- Provision for professional training for all workers in the manufacturing process and particularly dyeing and finishing.
5- The supply of chemicals directly via the Association of Leather Industry. Tannery Owners could cut the costs of chemical materials by 25%.

The most appropriate competitive strategy in the future is to concentrate on superior quality rather than cost leadership. Many factors support the case for this strategy, including the small quantity of raw leather produced in Palestine and the seasonal fluctuations which may hinder large-scale production. Also, chemicals are imported in small quantities at a relatively high price. Water, electricity and labor costs in Palestine are relatively high compared to other countries. As Palestinian exports of natural leather made items (mainly leather wear) are currently of high quality, any attempt to increase this demand should also be driven by the high quality factor.

4.2 Leather-based Industry

Processed leather in Palestine is used entirely by local producers, mainly in the footwear and leather wear industry. There are 532 establishments in the footwear industry of which 518 are in the West Bank (including East Jerusalem) and 14 in the Gaza Strip. Total employment in this sector stands at 2,776 workers and its contribution to the total value added of the manufacturing sector was 4.2%. The Chairman of the Leather Industries Association estimated production to be around 22.8 million pairs of shoes.

The problems facing the Palestinian footwear industry are those common to all other industrial activities; limited and fluctuating market outlets, border closures, the lack of skilled labor, the absence of supportive public polices and poor infrastructure.

Currently, the footwear industry has proved itself capable of performing relatively well in both the domestic and Israeli markets. However, the overall competitiveness of Palestinian footwear is weak when compared with East Asian , European or Israeli products. Palestinian footwear has had some success in Israeli markets thanks to the protective taxes levied by the Israeli customs authorities on imports from East Asian countries. The effective rate of protection is about 14% but is expected to vanish by the end of 1998 due to the liberalization of Israeli trade relations with these countries. Thus, greater competitive pressures are expected in both the Israeli and Palestinian markets in coming years.

About 82% of all respondents reported strong competition in domestic markets from other domestic producers, Israel and East Asia. About 73% of respondents described strong competition with other domestic producers on the basis of price, quality and the financial credit given to distributors. Also, 45% described strong competition from Israeli footwear on the basis of quality. The major source of competition is imported footwear from East Asian countries, particularly China.

The Palestinian footwear industry requires a set of policy measures to enable it to improve quality and achieve higher productivity, thereby improving competitiveness both internally and externally. The main emphasis should be on improving manpower skills, especially in styling, design and finishing. Palestinian footwear needs to compete on the basis of craftsmanship and product distinction for the industry to have a promising future.

In the leather wear industry, there are about 25 producers in Palestine with a total output of around 86,000 jackets with a market value of about US $10 million. Total employment in the industry peaks at 350 workers in winter and about 250 during other seasons. The industry is dominated by a single producer in terms of output with a share of 64%. The share of the second largest producer is 8%. The main problem facing the industry is unfair competition from Israel producers and distributors in Jerusalem who capture a large share of the tourist market. Also, heavy dependence on subcontracting to Israeli stores is a major potential weakness since subcontracting relations are not stable and may not continue in the future.

Overall, the future of the Palestinian tanning industry is not promising unless serious measures are taken to upgrade the quality of its products. As for the footwear industry, its current performance is much better than the tanning industry. However, competitive pressure is increasing, making a restructure of the industry crucial for its ability to compete and survive. The leather wear industry has the best prospects of the two industries in the study but its success will hinge on the ability to create a distinctive high quality product, assuming that quality based competitiveness is the most appropriate strategy.

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