

Financial Analysis of Palestinian Industry Including Small Scale Firms

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ABSTRACT. The study aims to explore the financial aspects of the Palestinian industry, and to investigate productivity and efficiency of small scale industry compared with large scale firms. In order to help policy makers in industrial planning in the new emerged Palestinian state. A special instrument has been used to collect the financial and quantitative data for the related manufacturing firms from a random sample of 215 Palestinian firms. The one way analysis of variance test was used to examine whether the mean scores differ significantly among scale sizes of the Palestinian industry concerning the selected performance measures. In addition, the *Scheffe* test was used as a post hoc comparison way to identify which scale size firms' performance differs than the other two scale sizes.

The research revealed that small scale firms in Palestinian industry have higher labor productivity values than large scale firms, while large scale firms accomplished higher net profit margin compared to small scale industry. Creating an additional job in large scale Palestinian industry needs less cost than creating a job in small scale industry, and large scale firms have better opportunity in getting external financing than small firms.

1. Introduction

Many of policy makers and studies prefer promoting of small enterprises in developing countries. This is due to various reasons, such as improving the job opportunities of unskilled labor (Little, 1987). In addition, the small scale enterprise is widely dispersed in towns and cities (Anderson, 1982), and it needs less investments, and may play a critical role in period of transition (Benacek and Zemplerova, 1995). However, some supported the concept of increasing the scale of output and using advanced technology to reduce the cost of production in the developing countries (Prendergast, 1990). Therefore, this study is aimed

to examine this issue, and to point out the major advantages of each of the three different scales of the Palestinian industry.

In other words, the purpose of the study may be stated as follow:

- To investigate the financial aspects of the Palestinian industry in general and the small scale industry in particular in the West Bank.
- To help policy makers in planning for the industrial sector in the new emerged Palestinian state by pointing out the major advantages adopting small scale industry compared to medium and large scale industries.
- To analyze ratios of profitability, and activity of the Palestinian industry in the West Bank.
- To investigate productivity and efficiency of small scale industry compared with large scale firms in the West Bank industry.

The Manufacturing sector in the Palestinian Authority contributed only 10% of the gross domestic product in 1994 (ICBS, 1969–1994, and UNCTAD, 1991). It includes 7328 manufacturing firms, of that total 90% are classified as small scale manufacturing firms, each with 10 employees or less. 7% of these firms employ between 11 to 20 employees. And only 3% employ above 20 employees. There are only 14 firms that employ more than 100 employees. They produce various types of products including food and beverages, tobacco products: 1317 firms, machinery and equipment: 263 firms, furniture and recycling products: 984 firms, textiles: 361 firms, clothes and leather: 1571 firms, wood products: 507 firms, publications: 164 firms, chemicals: 13 firms, rubber, plastic, and non metallic products: 1121 firms, metals: 1706 firms as presented in Table I (PCBS The Establishments Census, 1995).

Final version accepted on November 20, 1997

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TABLE I
Population of the selected groups of Palestinian manufacturing firms

Type of industry	Small scale	Medium scale	Large scale	Total
Food and beverages and tobacco	1186	99	32	1317
Manufacturing of textiles	341	11	9	361
Clothes and leather	1275	214	82	1571
Rubber, plastic and non metallic	891	169	61	1121
Manufacturing of metals	1685	12	9	1706
Total of selected groups	5378	505	193	6076

Source: Adapted from: Palestinian Central Bureau of Statistics *The Establishments Census, Final Results 1994* (PCBS, Ramallah, West Bank, August, 1995), pp. 59–63.

2. Review of the literature

Various studies have been conducted to describe the Palestinian industrial sector as well as to point out the major obstacles facing this sector. Most of these studies report that difficulties of marketing final products, and the low ratio of using the available capacities were the main obstacles besides the military occupation measures. For example, about 65% of the total manufacturing firms in the Palestinian Authority work at only 50% or less of their capacities (Sadler and Abu Kishk, 1983, and Abu Kishk, 1981), and only about 10% work at 90% of their capacities. A similar finding was reported by the UNIDO survey which indicated that the majority of the industrial firms in the OPT worked around of their 50% capacity basis, due to legal and financial constraints imposed by the occupying authority (Sadler, Kazi and Jabr 1984, p. 22).

Other studies reported different problems such as the difficulties of exporting goods outside the West Bank as the most important barriers (Bahiri, 1987). Another study reported that the industrial sector in the West Bank showed decreases in returns to scale over time between 1968 and 1989 (Efttami, 1993). Another problem that was mentioned is that the majority of the raw materials and are imported from outside. This is applied even to agricultural industries, which import about 64% of the needed raw materials from outside sources (ARC, 1993).

Most of the above mentioned studies results were from survey studies and of a descriptive nature, and they rarely used financial and quantitative data as the basis for their studies.

Accordingly, there is a need to investigate the financial aspects of the manufacturing sector in West Bank in general and the small scale industry in particular. In order to suggest recommendations to improve the present situation and to state whether to concentrate on large scale or small scale industry, or which group of industry is more profitable compared to other industries.

3. Methodology

In order to accomplish the above stated purposes, various groups of financial analysis ratios are used including the following:

1. Activity ratios: To measure the efficiency of using the available sources. e.g. to maximize the output for stated input.
2. Profitability ratios: To measure the general performance of the sector as expressed by return on investment and other profit measures.
3. Leverage ratios: To measure the ability of borrowing and using the external financial sources by the Palestinian manufacturing firms.
4. Productivity ratios: To measure the productivity of labor in both small and large scale industry.

Table II shows the list of ratios used in this study.

3.1. The instrument

A special instrument has been formulated to collect the data needed to achieve the stated purposes. The document was designed to collect financial and quantitative data of the related man-

TABLE II
The selected financial and efficiency ratios used in the study

Ratios	Ratios
Activity	1. Inventory turnover 2. Assets turnover
Profitability	3. Return on investments 4. Net profit to sales
Operational efficiency	5. Idle capacity ratio
The leverage	6. Debt to total assets
Productivity	7. Labor productivity expresses in value 8. (Job Creation Ratio) Labor to total Capital

ufacturing firms. Accordingly, the instrument includes:

- First part is related to the general information such as name of the firms, legal entity, type of products, date of establishment, number of employees, and location of the firm.
- Second part is related to the financial data and capacity ratios. Various ratio analysis techniques used in this study to investigate the different aspects of the study.

The total manufacturing firms is the population of the study which includes 6076 manufacturing firms. As presented in Table I. the study selected the most important groups of the Palestinian manufacturing sector. Which means that the target population of the study reduced from 8127 firms representing ten groups to 6076 manufacturing firms representing five groups (Food and Beverages and Tobacco, Manufacturing of Textiles, Clothes and leather, Rubber, Plastic and Non

metallic, Manufacturing of metals). Thus this study excluded the other five groups of industry.

3.2. The sample of the study

Different samples were selected randomly using the lists of factories as recorded in the Chamber of Commerce and industry in the various districts of the West Bank. A sample of 43 firms from each of the following groups were selected:

- Food, Beverages and Tobacco industry
- Manufacturing of metals
- Manufacturing of Textiles
- Clothes and leather industry
- Rubber, Plastic and Non metallic industry

The distribution of the sample was based on the above five groups of industry as well as it was based on the scale size including small scale (less than 10 employees), medium scale (10–19 employees), and large scale (20 employees and above). Accordingly, there were fifteen groups of samples as listed in Table III. The total sample size is 215 factory firms.

3.3. Statistical analysis

In order to point out whether selecting a small scale industry has advantages compared to the other scales in the Palestinian industry, the following null Hypothesis has been stated: *There is no significant difference among the average mean scores of the three scales of the Palestinian industry concerning each of the eight selected financial performance measures.* The **One Way Analysis of Variance test** was used to examine whether the mean scores differ significantly among the various scales of the Palestinian

TABLE III
Number of firms from the selected samples groups of the study

Type of industries	Small scale	Medium scale	Large scale	Total
Food and beverages and tobacco	25	10	8	43
Manufacturing of textiles	25	10	8	43
Clothes and leather	25	10	8	43
Rubber, plastic and non metallic	25	10	8	43
Manufacturing of metals	25	10	8	43
Total	125	50	40	215

industry at 0.01 significant level, concerning each of the selected performance measures. In addition, to identify which scale size firms' performance is different than the other two scale sizes of the Palestinian industry, the **scheffe test** was used as a post hoc comparison method.

4. Findings of the study

The findings of the study are presented in two parts: First part is aimed to examine the performance measures of the Palestinian industry, while the second part is aimed to present which of the selected measures differ significantly among the various scales of the Palestinian industry.

4.1. First part

The following are the financial analysis and the productivity ratios for the major five groups and there are based on the various manufacturing scales including small, medium, and large scale as concluded by the study.

4.1.1. The idle capacity ratio. The average Palestinian manufacturing firm is working at 42% of its normal capacity: This means that about 58% of the available capacity is not utilized and considered as idle capacity as shown in Table IV. The normal capacity has been defined in this study as working 14 hours a day (two shifts) six days a week. In other words the total Palestinian Manufacturing firms work on an average of six hours a day. While the normal conditions when there is a demand for their products they may increase their production 2.5 times to reach the normal capacity.

Working at full normal capacity will reduce the average cost per unit in the manufacturing sector substantially. In addition, the manufacturing sector may increase the production volume behind the normal capacity if this sector works around 24 hours. A few factories from the sample of the study mentioned that they work 24 hours a day in seasonal periods. Such as soft drink industry in the summer season, clothes manufacturers when they receive rush orders, and the textile sector in the fall season to produce the girls uniforms of public schools.

Considering the type of industries and the scale

TABLE IV
Percentages of actual capacity in the Palestinian industries during 1995

Type of industry	Actual capacity	Idle capacity
Food and beverages and tobacco	45%	55%
Manufacturing of textiles	32%	68%
Clothes and leather products	40%	60%
Rubber, plastic and non metallic	38%	62%
Manufacturing of metals	55%	45%
Average (five groups)	42%	58%
Small scale industry	39%	61%
Medium scale industry	42%	58%
Large scale industry	41%	59%

Based on normal capacity of 14 hours per day, six days a week.

size of firms, the study found that there is no significant difference among scale sizes of manufacturing firms, which means that high idle capacity in the Palestinian manufacturing sector exist regardless of the scale of the firm. However, the idle capacity ratios have significant difference among groups of manufacturing firms as presented in Table IV. It shows that manufacturing of textiles has the highest ratio of idle time while the manufacturing of metals has the lowest ratio of idle capacity.

4.1.2. Rate of return on investments. The rate of return on investments for the Palestinian manufacturing firms ranged between 22% to 48% for the various groups based on 1995 financial data, as presented in Table V. The clothes industry has the highest rate of return among all groups of industry, this is due to the fact that clothes industry need low investments in fixed assets, and its operational cost is confined mainly to paying the labor cost. The food industry comes in the second rank accomplishing 37%. This is due to the fact that the book value of fixed assets is low as a substantial part of the Palestinian industry use old or rebuilt machines.

While industries need high investments such as textiles, plastic and metals achieved between 26% to 32%. However, it should be noted that this good rate of return is expected when we know that two thirds of the manufacturing firms used old machines when established. In addition, the rate

TABLE V
Rate of return on investments (net profit to total assets) for the Palestinian industries during 1995

Type of industry	Small scale	Medium scale	Large scale	Average industry
Food, beverages and tobacco	28%	38%	42%	37%
Manufacturing of textiles	27%	22%	23%	24%
Clothes and leather products	48%	40%	47%	45%
Rubber, plastic and non metallic	34%	30%	30%	32%
Manufacturing of metals	32%	33%	24%	26%
Total	34%	33%	33%	33%

of return is calculated based on the book value of the total assets. Considering the three sizes of scales industry, the findings of the study indicated that there is no significant difference among the rate of return on investments. It ranged between 33% to 34%, which means that in spite of low capital invested in small scale industry no advantages for these small firms were given.

4.1.3. *Net profit margin.* The average net profit margin for the Palestinian industries was 18% in 1995, it ranged between 15% to 25% for the various groups of the industry as shown in Table VI. However, the large scale industries showed a 7% net profit higher than small scale industry. Although both large and small scale industries accomplished similar rates of return on investment due to the higher capital invested in large scale industry.

4.1.4. *Labor productivity.* The average annual labor productivity of the Palestinian worker was US\$24,100 per worker in 1995. It ranged from

US\$8000 per worker in clothes and leather industries to US\$40,000 per worker in the metals industry. However, the low productivity in clothes industry is related to the fact that the labor cost forms about 85% of the total production cost, while in the metals industry it is about 34% of the total cost. However, small scale industry showed higher productivity value as expressed by sales values compared to medium and large scale values as presented in Table VII.

4.1.5 *The Activity Ratio.* The average assets turnover ratio as presented in Table VIII, is about 2 times a year which is similar to the standard ratio in other countries. The food industry has the highest assets turnover which is above 3.1 times a year. This is due to the fact that food industry products are perishable goods compared to other industries. While the textiles and metals industries have the lowest assets turnover ratio, which eventually reduced the rate of return on investments in spite of both industries have high net profit margin. Accordingly, it is recommended that both

TABLE VI
Summary of the net profit margin for the Palestinian industries during 1995

Type of industry	Average
Food, beverages and tobacco	17%
Manufacturing of textiles	25%
Clothes and leather products	15%
Rubber, plastic and non metallic	16%
Manufacturing of metals	17%
Average industry	18%
Small scale	15%
Medium scale	17%
Large scale	22%

TABLE VII
The annual labor productivity for the Palestinian industries per worker

Type of industry	Average
Food, beverages and tobacco	US\$28000
Manufacturing of textiles	20000
Clothes and leather products	8000
Rubber, plastic and non metallic	25000
Manufacturing of metals	40000
Average labor productivity per sales value	24100
Small scale	26000
Medium scale	23100
Large scale	23200

TABLE VIII
Summary of the activity ratio (assets turnover) for the
Palestinian industries

Type of industry	Average
Food, beverages and tobacco	3.1
Manufacturing of textiles	1.4
Clothes and leather products	1.8
Rubber, plastic and non metallic	2.1
Manufacturing of metals	1.6
Average of industry (number of times)	2
Small scale	2.3
Medium scale	2.1
Large scale	1.6

industries consider increasing their sales volume by decreasing product prices.

4.1.6. *The inventory turnover ratio.* The average inventory turnover for the Palestinian manufacturing firms was about 8 times a year in 1995. It ranged from 24 times for clothes industry as a maximum to 3 times for the textiles industry as a minimum as indicated in Table IX.

It is clear that in firms that have subcontracted arrangements the inventory turnover ratio will be very high, because production will be scheduled based on the contractors job orders. The small scale industry has higher ratio of inventory turnover than large scale industry of about 3 times a year. Small scale industry is expected to have high inventory turnover, because they have limited inventory facilities and usually they produce according to the actual sales orders.

4.1.7. *The leverage "debt to total assets" ratio.* The debt to total assets ratio for the Palestinian

manufacturing firms is about 16% as presented in Table X. It ranged from 10% for clothes industry to 22% for textile industry. This means that 84% of the total investments in the industry sectors is financed by the owners. This situation lead to increase the cost of capital as long as the external financing at the most minimum level. The external financing in Palestinian industry may be divided into three sections:

1. Overdrafts to cover the operation of the working capital. It forms about 45% of the total credit. The overdraft arrangements represents the largest methods of financing part of the working capital activities in the Palestinian industries. However, this available method of financing is costly and the average interest rate for 1995 was 12% for Jordanian Dinnar, and 9% for US\$. This is almost close to the net profit margin.
2. The accounts payable which forms about 40% of total credit, the maturity of theses payable ranged from two to four months to cover the purchasing of raw materials.
3. The short and long term special loans offered to the manufacturing firms was only 20% of the total credit, which forms only about 3% of the total investments in the Palestinian industry.

In addition, the external financing for small scale industry is only about 10% of total assets. The large scale industry have the advantage of using external sources compared to the small industry of about 2 times. This is expected because the opportunity and conditions of borrowing in large scale industry are much better than in the small scale industry. Thus, there is a need to establish special funds directed to give loans for small

TABLE IX
Summary of the inventory turnover ratio for the Palestinian industries

Type of industry	Small scale	Medium scale	Large scale	Average industry
Food, beverages and tobacco	9 times	8 times	7 times	8 times
Manufacturing of textiles	3	3	3	3
Clothes and leather products	27	25	20	24
Rubber, plastic and non metallic	11	8	8	9
Manufacturing of metals	8	5	5	6
Average inventory turnover (times)	11.6	9.8	8.6	10

TABLE X
Summary of the leverage debt (loans to total assets) ratio in the Palestinian industries during 1995

Type of industry	Average
Food, beverages and tobacco	15%
Manufacturing of textiles	22%
Clothes and leather products	10%
Rubber, and plastic and non metallic	18%
Manufacturing of metals	15%
Average industry	16%
Small scale	10%
Medium scale	18%
Large scale	20%

industry as that funds exist in other Arab countries (Arab Labor Conference, Management Report, 1994).

4.1.8. *The job creation ratio.* Creating a new job in the Palestinian industry needs additional investments of US\$13,000. However, the additional needed investment is different from one group of industry to another. It ranged from US\$4000 per

job in clothes industry to US\$20,000 for textile industry. Creating an additional job in a large scale industry costs less than creating a job in a small scale industry by about US\$2000 as shown in Table XI.

4.2. The second part

In order to compare between the performance measures of the three sizes of scales in the Palestinian industry, Table XII summarized the mean scores of the eight selected performance measures, as concluded by this study.

It shows that there are common features concerning the financial and operational aspects. There are some advantages in favor of small scale industry, while other advantages may be pointed out for large scale industries as the following:

- Creating an additional job in large scale industry needs less cost than creating a job in small scale industry of about US\$2000 a job.
- The large scale firms that started with new machines are more than small scale firms.

TABLE XI
Job creation ratio by US\$ capital value in the Palestinian industries during 1995

Type of industry	Small scale US\$	Medium scale US\$	Large scale US\$	Average industry US\$
Food, beverages and tobacco	10000	9000	4000	7000
Manufacturing of textiles	22000	19000	19000	20000
Clothes and leather products	2500	5000	4500	4000
Rubber, plastic and non metallic	23000	16000	18000	19000
Manufacturing of metals	13000	16000	16000	15000
Total	14300	13000	12300	13000

TABLE XII
Financial measures in Palestinian manufacturing firms based on size of scales

Financial, and operational measures	Small scale firm	Medium scale firm	Large scale firm
1. Idle capacity ratio	61%	58%	59%
2. Rate of return on investments (1995)	34%	33%	33%
3. Net profit margin (1995)	15%	17%	27%
4. Assets turnover ratio (times a year)	2.3	2.1	1.6
5. Inventory turnover ratio (times a year)	11.6	9.8	8.6
6. Labor productivity per US\$ sales value	26000	23100	23200
7. Leverage ratio (debt to assets)	10%	18%	20%
8. A job creation by US\$ value of capital	14300	13000	12300

TABLE XIII
The computed F ratios for the performance measures means of the Palestinian industry firms based on size of scales

Financial, and operational measures	Computed F ratio	F. Prob.	Significant at 0.01
1. Idle capacity ratio %	0.89	0.41	No
2. Rate of return on investments %	0.43	0.65	No
3. Net profit margin %	75.27	0.00	Yes
4. Assets turnover ration (times a year)	13.42	0.00	Yes
5. Inventory turnover ratio (times a year)	28.01	0.00	Yes
6. Labor productivity per US\$ sales value	3.27	0.037	No
7. Leverage ratio (debt to assets %)	54.58	0.00	Yes
8. A job creation of US\$ value of capital	4.62	0.10	Yes

- Large scale firms accomplished higher net profit margin compared to small scale industry.
- Small scale firms have higher labor productivity value than large scale firms.
- Large scale firms have better opportunity in getting external financing than small firms.

To examine whether there is a significant difference among the performance of the three size scales of Palestinian industry, the F ratio has been computed for each performance measure among the three scales of industry as presented in Table XIII.

It indicates that the stated null hypothesis of the study has been retained concerning the following performance measures:

- Labor productivity
- Idle capacity ratio
- Rate of return on investments

Which means that there is no significant difference among the above three performance measure which may be referred to the size of scale of the Palestinian industry. On the other side it shows that there is a significant difference among the three types of scales concerning the other five performance measures including Leverage ratio, a job creation cost, inventory turnover, assets turnover, and net profit ratio, accordingly, the stated null hypotheses has been rejected.

Table XIV presents the findings of the Scheffe test among small, medium and large scale of industry. It shows which two groups of the three size of scales are significantly different among the three groups for the five performance measures. As presented Table XIV it indicates that the differences are existing mainly between small and

TABLE XIV
Scheffe test findings among small, medium and large firms

Financial measures	Two groups are significantly different among
Net profit margin (1995)	Small and large Medium and large
Assets turnover ratio (times a year)	Small and large Firms Medium and large firms
Inventory turnover ratio (times a year)	Small and large Firms Small and medium firms
Leverage ratio (debt to assets)	Small and large firms Small and medium firms
A job creation by US\$ value of capital	Small and large Firms

large scales which are reported in all the five performance measures.

Summary, Conclusions and Recommendations

This paper aims at investigating the performance of the Palestinian industry in general and the small scale industries in particular. This includes testing of eight stated performance measures. The study collected financial and quantitative data using a special instrument from a sample of fifteen groups of small, medium and large manufacturing firms, including Food, Beverages and Tobacco, Manufacturing of Textiles, Clothes and leather firms, Rubber, Plastic and Non metallic firms, and Manufacturing of metals.

Based on the findings of this research, it is revealed that the Palestinian manufacturing sector works on about 40% of its normal capacity. The

rate of return on investments for the Palestinian manufacturing firms ranged from 22% to 48% for various groups, while the average net profit margin ranged from 15% to 25%. The average assets turnover ratio is about 2 times a year, and the average inventory turnover ranged from 24 times for clothes industry as a maximum to 3 times for the textiles industry.

The average labor productivity of the Palestinian worker was US\$21,400 per worker, while to create a new job in the Palestinian industry it needs additional investment of about US\$13,000. The average debt ratio for the Palestinian manufacturing firms is about 16% of the total assets, while long and short term loans formed only 3% of the total assets.

Finally, the study concluded that there are significant differences among the scales of industries concerning five of the stated financial and operational performance measures. Including leverage ratio, a job creation cost, inventory turnover, assets turnover, and net profit ratio. Especially between small and large scales industry. However, this study concluded that small scale industry has the advantages in some of the performance measures while the large and medium scales have the advantages of other performance measures.

Acknowledgment

The author would like to thank International Development Research Center (IDRC); CANADA for financing this study.

References

- Abu Kishk, Baker, 1981, *The Industrial and Economic Trends in the West Bank and the Gaza Strip* (ECWA and UNIDO, Beirut).
- Anderson, Dennis, 1982, 'Small Industry in Developing Countries: A Discussion of Issues', *World Development* **10**, 913-948.
- Arab Labor Conference, 1994, *Small Scale and Manual Craft Industry in Arab Home: A Tool for Development* (The General Management Report).
- ARC 1993, *Final Report on Agricultural Factory Survey in the West Bank and Gaza Strip*, Agricultural Relief Committees 2.
- Bahiri, Simcha, 1987, *Industrialization in the West Bank and Gaza* (The West Bank Data Base Project, Jerusalem).
- Benacek, Vladimir and Alena Zemplerova, 1995, 'Problems and Environment of Small Business in the Czech Republic', *Small Business Economics: An International Journal* **7**(6) (December), 437-450.
- Efttami, Sami Morwah, 1993, *The Industrial Sector in the Occupied West Bank and Gaza Strip* (Dar-Al-karmal Publishing Company, Amman).
- Little, I. M. D., 1987, 'Small Manufacturing Enterprises in Developing Countries', *The World Bank Economic Review* (January), 203-237.
- PCBS, *The Establishments Census, 1994 Final Report*, 1995, Palestinian Central Bureau of Statistics.
- Prendergast, Renee, 1990, 'Scale of Production and Choice of Technique in the Engineering Industries in Developing Countries', *The Journal of Development Studies* (October), 72-88.
- Sadler, P. G. and Baker Abu Kishk, 1983, *Palestine: Options for Development* (UNCTAD).
- Sadler, P., U. Kazi and M. H. Jabr, 1984, *Survey of the Manufacturing Industry in the West Bank and Gaza Strip* (United Nations Industrial Development Organization, Vienna).
- UNCTAD, 1991, *Selected National Accounts on the Occupied Palestinian Territories* (UNCTAD, Geneva).

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