

CHAPTER SEVEN

EMPLOYMENT POTENTIAL OF AGRICULTURE

7.1 Introduction

The main aim of this study, as outlined in Chapter 1, is to describe and explain the characteristics and composition of the labour force, its changes over time, and the availability of employment opportunities for the labour force in the sample villages. Chapters 5 and 6 fulfilled the first part of this aim and each chapter concluded with a discussion of changes over time. Chapters 7 and 8 are designed to achieve the last part of the aim by examining the employment opportunities provided by the two major sectors of the rural economy in the study area. This chapter will discuss the agricultural sector, and the study of employment opportunities provided by the non-agricultural sector will be the focus of the next chapter.

This chapter, on employment opportunities in the agricultural sector of the study area, begins with a brief review of the bio-physical conditions in which agricultural activities are taking place. This will be followed by discussion about agricultural land and its distribution among the households as the principal factor in the agricultural sector. Section 7.4 will address the major characteristics of the farming sector in the area which influence its labour absorption capacity, and the labour requirements of this sector will be the focus of section 7.5. Animal husbandry, as the other sub-sector of agriculture which plays a supplementary role in income and employment generation for farm households in the study area, will be addressed in section 7.6. Section 7.7 concludes the discussion.

7.2 Agricultural ecology

The study area experiences a mild semi-arid climate with hot and dry summers, which has been categorised according to the Koppen method as *BKas*¹ (Zahedi 1985, p. 25). Precipitation is low and irregular, with an annual average rainfall of 365 mm (Table 7.1). More than 50 per cent of the annual precipitation occurs during the three month period of March, April and May, and only 5.4 per cent of the annual precipitation occurs during the summer months of July, August and September. Thus, in addition to inadequate annual precipitation, its uneven distribution over the year is also a factor restricting agricultural practices.

Table 7.1
AVERAGE CLIMATIC DATA FOR THE STUDY AREA (STATION: MARAND, 1950-1983)

	Average precipitation (mm)	Average daily temperature (C°)	Average maximum daily temperature (C°)	Average minimum daily temperature (C°)	Number of days with frost
January	33.8	-2.7	1.5	-7.6	28
February	24.1	-0.4	4.3	-4.9	23
March	50.5	5.2	10.9	-0.2	16
April	67.5	8.7	16.9	5.1	2
May	66.1	15.6	22.3	8.9	-
June	30.1	19.5	27.8	12.5	-
July	5.3	24.8	33	17.1	-
August	4.6	24.1	32.3	15.8	-
September	9.7	19.9	28.5	11.1	-
October	27.9	11.6	17.8	5.07	2
November	23.6	5.4	10.7	0.3	13
December	22.2	1.2	5.3	-2.7	23
Annual	365.4	11.1	17.6	5	107

Source: Adapted from Sadr Mousavi, Hadili and Zahedi 1992, p. 11

¹ BSk = Semi-arid; cool or cold; a = Mean temperature of warmest month about 22°C (71.6°F); s = Dry season in summer (Critchfield 1960, pp. 169-170).

Precipitation is not the only climatic feature that affects agriculture in the study area. Winters are cold and lengthy, with risks of late frost that may occur for 7 months of the year. Due to the frequent frost, farm practices almost entirely cease in the five months from November till March each year.² In addition, sudden frosts in March and April may cause severe damage to crops such as fruit orchards.

The area's soil is an argillion brown, associated with silty loam to silty clay loam texture (Sadr Mousavi, Hadili and Zahedi 1992, p. 30), and has been categorised as favourable for agricultural productions with some limitations (Planning Council of Province of Eastern Azarbaijan 1982a, p. 135). The dominant features of the topography of the Northern and Eastern part are dissected hills and sloping lands. In contrast, the Western part of the study area, which forms a part of the Marand Plain, is very gentle sloping ground spreading towards the West (Map 7.1).

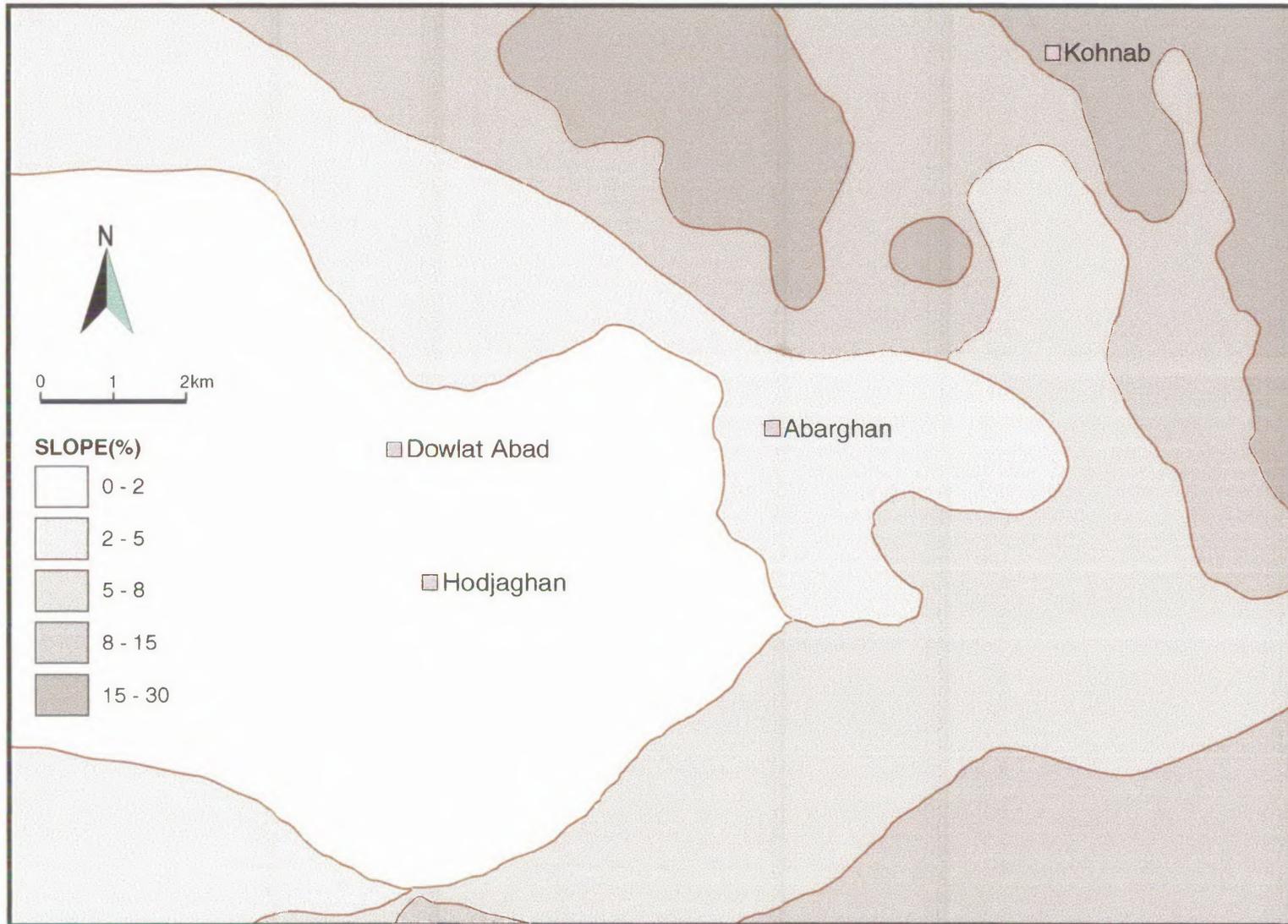
7.3 Agricultural land

About 5,402 hectares of land are available for cultivation in the four sample villages (Table 7.2).³ Some 3,411 hectares of this land are irrigated, *abi*, and about 1,885 hectares are left fallow each year. In the study area, rain-fed lands, *daymi*, as may be expected, are the least labour absorbent. These lands are only favourable for certain crops such as wheat, barley and chickpeas and yields are less than that for irrigated lands. In the case of inadequate rainfall, the yield is so low that farmers do not harvest the crop, for the harvest may not justify the labour cost involved. Therefore, because of the variable climate, yield variability is the major source of income uncertainty for the farmers operating in rain-fed lands.

² Climatic data from Marand Station have been used for this section. The length of the winter and number of days with frost are even greater in Kohnab due to its location in a higher altitude.

³ Due to the considerable difference in available data pertaining to the agricultural land area of the sample villages from sources such as Statistical Centre of Iran, Rural Service Centre of Marand, and the Jihad-e Sazandegi, the total land area has been calculated by multiplying the total number of holdings according to 1988 Agricultural Census results (SCI 1990b) by the average sizes of holdings according to survey data

Map 7.1: Slope Map of the Study Area



Source: Adapted from Plan and Budget Organization of Province of Eastern Azarbaijan n.d.

In accordance with the topography of the area, irrigated lands are mainly located in areas with mild slope, while rain-fed lands are in the foot hills, hills and the mountains close to the villages. As is evident in Table 7.2, the proportion of irrigated lands varies among the villages, ranging from about 31 per cent in Kohnab to about 70 per cent in Hodjaghan.

Table 7.2
AGRICULTURAL LAND AREA OF THE SAMPLE VILLAGES (hectare)

Sample villages	Total land area	Irrigated land		Land under cultivation (in 1994)		Land left as fallow (in 1994)	
		Area	Per cent	Area	Per cent	Area	Per cent
Dowlat Abad	2504	1649	65.8	1712	68.4	792	31.5
Abarghan	1534	996	64.9	989	64.5	545	35.5
Hodjaghan	861	609	70.70	553	64.3	308	35.7
Kohnab	503	157	31.3	262	52.1	241	47.9
All villages	5402	3411	63.1	3517	65.1	1885	34.9

Sources: 1) Total land area has been calculated by multiplying the total number of holdings according to 1988 Agricultural Census results (SCI 1990b) by the average sizes of holdings according to survey data; 2) data in columns 2, 4 and 6 have been calculated from column 1 by using the proportions of each variable according to survey data.

Thus, for a comparable estimation of agricultural land available for farmers in the sample villages, it seems to be logical here to convert the rain-fed lands to irrigated lands on the basis of output of the main crop per hectare from each land category. According to the survey data, as well as to data obtained through interviews, the output of wheat — the main crop in all four villages — per hectare from rain-fed lands in the area is on average about 40 per cent of the output from irrigated lands.⁴ The result is

⁴ At the national level, the output from the rain-fed lands is about 30 per cent of that of irrigated lands. In the study area, the average yield of wheat per hectare of irrigated land was 2100 kg and of rain-fed lands was 850 kg., a ratio of about 2.5 or 40 per cent. The average yield of wheat from the same category of lands

displayed in Table 7.3. As this table reveals, Dowlat Abad includes more agricultural land than the other three villages, but the land/man ratio is higher in the village of Kohnab (column 5 of the table).

Table 7.3
TOTAL AND PER CAPITA AGRICULTURAL LAND AREA IN THE SAMPLE VILLAGES (hectare)

Sample villages	Total land area			Total area as converted to irrigated land	Per capita land
	Total	Irrigated	Rain-fed		
Dowlat Abad	2504	1649	855	1991	0.47
Abarghan	1534	996	538	1211	0.51
Hodjaghan	861	609	252	710	0.30
Kohnab	503	157	346	295	0.70
All villages	5402	3411	1991	4207	0.45

Sources: Data in columns 1 to 3 were calculated from the same sources as for Table 7.2. Data in column 4 has been calculated from columns 2 and 3 assuming that one hectare of irrigated land = 0.4 hectare rain-fed land. Data in column 5 have been calculated as: data in column 4 / population of the villages in 1991.

Land accumulation

Farming in the sample villages is undertaken on a household basis. Prior to land reform, ownership of the six *dangs* of all four villages belonged to a few *omdeh maleks* and were of the *Arbabi* category (see Chapter 2). The six *dangs* of each of the two villages of Dowlat Abad and Kohnab were owned by one *omdeh malek*, Abarghan by two *omdeh maleks* and Hodjaghan by five *omdeh maleks* who had inherited the village from their father. Official documents do not specify the forms of production prior to

at the national level is 2300 kg and 700 kg respectively, a ratio of about 3.3 or 30 per cent (SCI 1994b, p. 62).

the implementation of land reform. However, according to the information obtained from local residents during the field survey, share cropping was the dominant form of production in the three villages of Dowlat Abad, Kohnab and Abarghan, and the tenant system was dominant in Hodjaghan.

The present-day ownership of the land has emerged from the implementation of the land reform and from later changes through inheritance or sale. Land reform in the study area was first implemented in Hodjaghan. The five owners of the village leased out the land to *nasaqdar* families on the basis of the law passed in 1964. This was known later as the second phase of the land reform. The six *dangs* of the village were later sold to the *nasaqdar* families, according to the law passed in the third phase of the reform. The six *dangs* of the two villages of Kohnab and Abarghan were also sold to *nasaqdar* families in 1969 and 1972 respectively. The landlord in Dowlat Abad chose the *division of land according to the traditional division of product* option of the five options proposed by the second phase of the law (see pp. 42-3). Accordingly, six *dangs* of the village was divided between the landlord and the *nasaqdar* families. Thus, the landlord took two-fifths of the village, while the remaining three-fifths were divided among the total *nasaqdar* families according to their *nasaq*. The landlord later sold much of his land to individuals on the basis of the market price.

Available data from the Rural Co-operative Administration (the then Land Reform Administration) in Marand do not specify the amount of land received by peasants. As well, the data pertaining to the number of beneficiaries from the reform seem to lack accuracy.⁵ However, field observation and interviews with local people and with officials in the Rural Co-operative Administration indicate that not all of the households in the sample villages received land through the reform and nor were the lands received by recipients in equal amounts. Survey data also suggest that there have been changes in the sizes of holdings since the reform through sales and inheritance. Although significant, it is beyond the scope of the present study to investigate the extent of, and factors resulting in, such changes. However, the availability of

⁵ According to these data, the number of beneficiaries in the sample villages in one instance was over 80 per cent and in another about 15 per cent higher than the number of total households of these villages in the years of implementation of the land reform.

agricultural land, the main source of income and employment generation for households in rural areas, needs to be addressed here.

The distribution of agricultural land among sample households is displayed in Table 7.4. Amid's classification (1990, p. 108) regards farms with less than 10 hectares in Iran as small farms. The overwhelming majority of the farms in the sample villages fall into this category. Furthermore, 25 per cent of the households own no land at all and the distribution of land among households with land is unequal. However, households with more than 10 hectares own only about 18 per cent of the total land area and the average size of their farms is 15.08 hectares (Table 7.5). As illustrated by Figure 7.1, only about 14 per cent of the households own more than 7 hectares of land, recognised as a minimum land size that on average an Iranian farmer has to have to support his family (see Chapter 2).

Table 7.4
SAMPLE HOUSEHOLDS BY SIZE OF THE AGRICULTURAL LAND THEY OWN (%)

Sample villages	N.S.H.*	Households own agricultural land		Total area (ha)	Size categories (ha)			
		No.	%		< 5	5 - 9.99	10 +	Average
Dowlat Abad	59	45	76.27	185.25	86.67	8.88	4.44	4.12
Abarghan	35	26	74.29	123.50	57.69	42.31	-	4.75
Hodjaghan	40	28	70.00	88.40	85.71	10.71	3.57	3.16
Kohnab	18	15	83.33	96.00	53.34	26.67	20.00	6.40
All villages	152	114	75.00	493.15	75.44	19.29	5.26	4.33

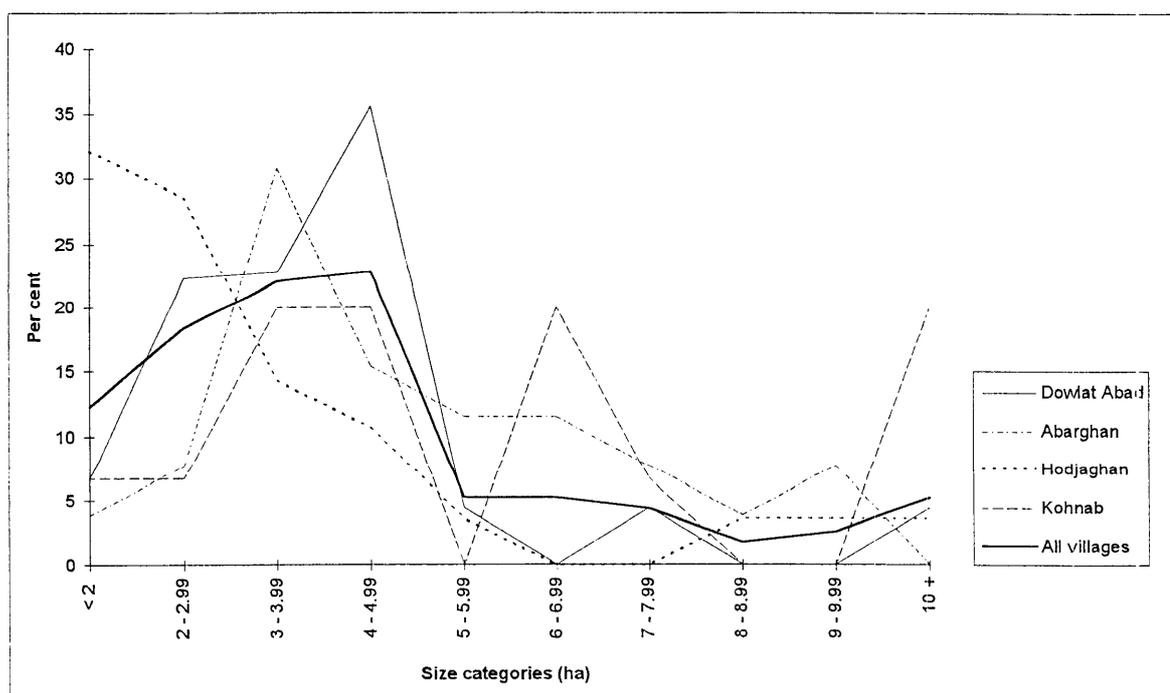
*Number of sample households

Source: Field survey, summer 1994.

Due to the low return from the small holdings, some of their owners either rent out their lands to other farmers or add to the land under operation by renting land from other landowners. Thus, as Tables 7.6 and 7.7 and Figure 7.2 reveal, the average size of land under operation is bigger than the average size of the land households own. In the meantime, not

all of the households who own land have been able to find employment in agriculture. Of the total of 114 sample households who owned land, only 103 of them operated land and the others leased out their lands. This latter group included only households with small land holdings and all belonged to the size category of less than 5 hectares.

Figure 7.1
SAMPLE HOUSEHOLDS BY SIZE OF THE AGRICULTURAL LAND THEY OWN



Source: Field survey, summer 1994.

Table 7.5
NUMBER OF HOUSEHOLDS POSSESSING LAND AND THEIR LAND AREA BY SIZE CATEGORIES

Size categories	Number of households possessing land		Area (ha)		Average size (ha)
	Number	Per cent	Area	Per cent	
< 5 Hectares	86	75.44	254.65	51.64	2.96
5 - 9.99 Hectares	22	19.29	148	30.01	6.73
10 + Hectares	6	5.26	90.5	18.35	15.08
Total	114	100	493.15	100	4.32

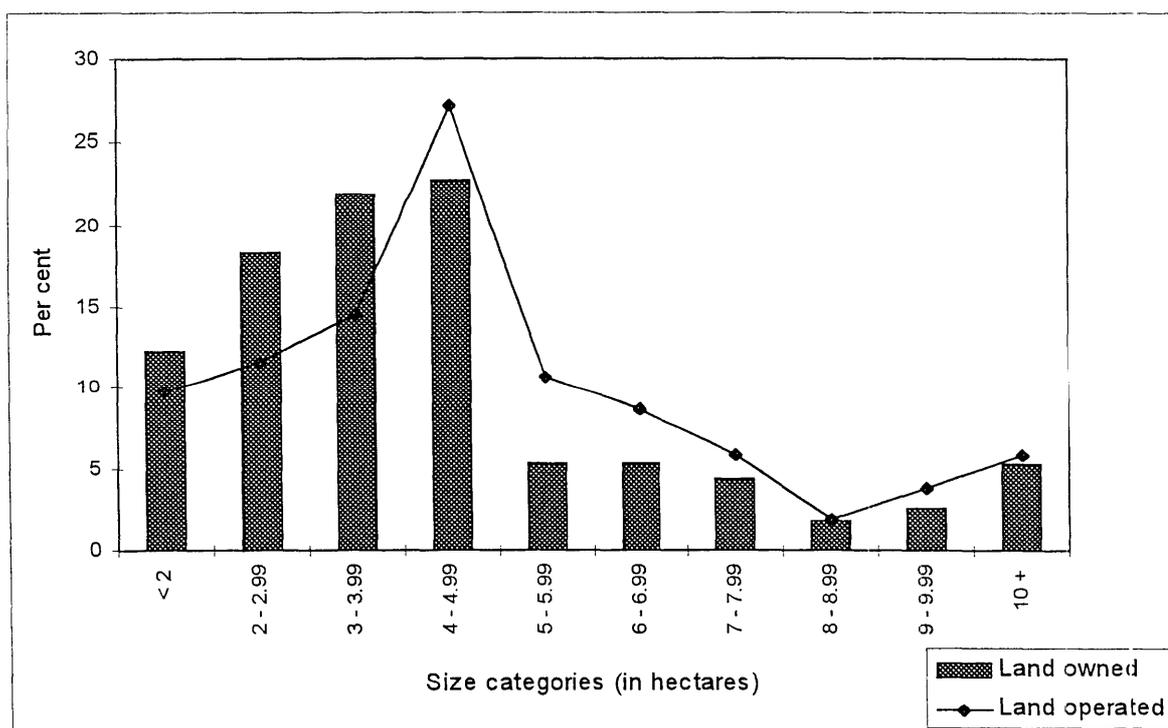
Source: Field survey

Table 7.6
 DISTRIBUTION OF AGRICULTURAL LAND AMONG SAMPLE HOUSEHOLDS BY OWNERSHIP AND OPERATION

Size categories	Land owned by households			Land operated by households		
	Number	Per cent	Average size	Number	Per cent	Average size
< 5 Hectares	86	75.44	2.96	65	63.10	3.10
5 - 9.99 Hectares	22	19.29	6.73	32	31.07	6.55
10 + Hectares	6	5.26	15.08	6	5.83	15.08
Total	114	100	4.32	103	100	4.87

Source: Field survey

Figure 7.2
 DISTRIBUTION OF SAMPLE HOUSEHOLDS BY OWNERSHIP AND OPERATION OF AGRICULTURAL LAND AND BY SIZE CATEGORIES



Source: Field survey

Table 7.7
 SAMPLE HOUSEHOLDS BY SIZE OF THE AGRICULTURAL LAND THEY
 OPERATE (%)

Sample villages	N.S.H.*	Households operating agricultural land		Total area (ha)	Size categories (ha)			
		No.	%		< 5	5 - 9.99	10 +	Average
Dowlat Abad	59	39	66.10	191.75	69.22	25.46	5.13	4.92
Abarghan	35	25	71.43	122.50	56.00	44.00	0.00	4.90
Hodjaghan	40	23	57.50	90.40	65.22	30.44	4.35	3.93
Kohnab	18	16	88.89	97.00	56.25	25.00	18.75	6.06
All villages	152	103	67.76	501.65	63.10	31.07	5.83	4.87

*Number of sample households

Source: Field survey

Owner operation of land is the dominant type of land operation in the area, although rental and fifty-fifty, *nesf-e kari*, arrangements are also practised. In rental arrangements, peasants operate the land for one year and pay fixed rent, irrespective of the yield. Payment is in kind if the agreement is made for the cultivation of staple crops, and in cash for other crops. Under the terms of the *nesf-e kari* arrangements between the landlord and the peasant, mainly practised for staple crops on irrigated lands, the landlord provides land and water and the peasant provides the labour. Current expenditure on ploughing, seeds, fertilizers, harvest and additional irrigation water costs in the years with low precipitation, is shared equally. The output is also divided between the landlord and the peasant on a fifty-fifty basis. This type of arrangement, although common in some parts of the county of Marand from long before the land reform, is new to the study area and is practised only in the two villages of Dowlat Abad and Hodjaghan.⁶ For the purpose of this study, the household survey

⁶ *Nesf-e kari* in the County of Marand prior to the reform was common in villages that did not belong to *omdeh maleks* and where *khord-e maleki* was the dominant type of ownership. For more on *nesf-e kari* in other parts of Iran see Mahdavi 1982 and Najmabadi 1987.

did not distinguish between lands under these two types of arrangements and they have both been classified as rental arrangements. Therefore, the following data on rental lands include lands under *nesf-e kari* arrangements as well.

As mentioned earlier in this chapter, this type of land operation is mainly practised by owners of small land holdings. According to the survey data, about 22 per cent of the total households who reported as working agricultural land worked 50 hectares of land under tenant arrangements. This accounted for only about 10 per cent of the total cultivated lands. Over 82 per cent of the households who leased land owned some land themselves, but the overwhelming majority of them belonged to the small farm size category of less than 5 hectares (Table 7.8). Those who lease out their lands are emigrants or small landowners who find work on small holdings less profitable. Some others, mainly in Hodjaghan, lease out land because they are primarily engaged in non-farm employment and do not have the time to cultivate parts or all of their lands themselves.

Table 7.8
LAND AREA UNDER TENANT OPERATION

Sample villages	Number of households operating land	Households operating leased lands (%)	Average size of leased lands (ha)	Tenants who also own land		
				Total Number	<5 (ha)	5 - 9.99 (ha)
Dowlat Abad	39	28.21 (11)*	2.3	90.91 (10)	70.00 (7)	30.00 (3)
Abarghan	25	12.00 (3)	2.5	66.67 (2)	100 (2)	0.00 (0)
Hodjaghan	23	34.78 (8)	2.1	87.50 (7)	100 (7)	0.00 (0)
Kohnab	16	6.21 (1)	1	0.00 (0)	N.A.**	N.A.
All villages	103	22.33 (23)	2.2	82.61 (19)	84.21 (16)	15.79 (3)

* Figures in brackets indicate the numbers

**N.A. = Not applicable

Source: Field survey

Land fragmentation

The smallness of holdings is not the only problem facing the farm sector in the study area. Land fragmentation and irrigation difficulties are two other factors that affect the sector adversely. Fragmentation of land has long been recognised as a constraint in agrarian systems in many of the developed as well as in developing countries (Mahmoodpour 1975; Grigg 1980; Todaro 1994) and, as Grigg noted, 'gives rise to many problems: time is wasted going from one plot to another; land is wasted in paths and boundaries; machinery is difficult to use economically; and pests and trespassers are difficult to control' (Grigg 1980, pp. 22-3).

As in other parts of the country (discussed in Chapter 2), peasant holdings before the reform consisted of several separate plots of varying quality. The reform transferred to the peasants the land that they were cultivating before the reform, and consequently their farms remained fragmented even after the reform. As a result, the individual fields or plots which make up the holding are dispersed in different parts of the village. On average, each holding in the study area consists of 4.6 plots and holdings consisting of one plot include only about 7 per cent of total. Giving the average size of holdings, each plot consists of only about one hectare (Table 7.9). Hence, fragmentation in holdings for farmers with small amounts of land causes more serious problems; the average size of plots in holdings of less than 5 hectares (which accounts for over 63 per cent of all holdings) is only 0.83 hectare.

Table 7.9
HOLDINGS BY NUMBER OF PLOTS (%)*

Sample villages	1 Plot	2 to 4 Plots	5 to 7 Plots	8 Or more plots	Average number of plots of each holding	Average size of each plot (ha)
Dowlat Abad	5.1	48.7	38.5	7.7	4.7	1.04
Abarghan	0.0	44	44	12	5.1	0.95
Hodjaghan	17.4	52.2	26.1	4.3	3.7	1.05
Kohnab	6.3	43.8	43.8	6.3	4.9	1.24
All villages	6.8	47.6	37.9	7.8	4.6	1.06

* Total may exceed 100 due to rounding.

Source: Field survey, summer 1994.

Irrigation problems

Given the limited amount of annual precipitation and its irregularity, successful cultivation in the area is only possible through irrigation. In practice, the amount of irrigated land able to be cultivated each year and the cropping system used on these lands are closely related to the provision of water for irrigation. Until recently, *qanats*⁷ were the main source of water supply in the area that would operate in conjunction with the provision of water from the Zilber River and a few streams. It was only in Kohnab that streams provided the main source of water for irrigation. Water rights in all of four villages had belonged to the landlords but were transferred to the peasants given irrigated lands by implementation of the land reform.

As a result of the introduction of pumped wells to the area since the late 1960s and the increasing use of groundwater, and of problems related to the maintenance of *qanats* which required collective decisions, the flow of the *qanats* began to decrease. Only three *qanats* are operating at present in Abarghan and the others have completely dried up.

Therefore, the major change in irrigation is the replacement of the traditional *qanat* system of using underground water by pumps. Today, irrigation water is provided, in addition to provision of water from the Zilber River, by pumping underground water through 36 wells from a depth of 100 to 150 metres. Of these wells, 13 are in Dowlat Abad, 9 in Abarghan and 14 in Hodjaghan. Streams are still the main source of water supply in Kohnab. In early spring following the winter precipitation, the discharge from the Zilber River and streams is high, but this decreases relatively quickly. By midsummer, when more water is needed for irrigation, the flow from these resources declines to their minimum.

Irrigation costs are one of the substantial expenditures of the farming sector. Almost all of the sample households who operated agricultural land complained about

⁷ 'A *qanat* is a system of water supply consisting of an underground tunnel connected to the surface by a series of shafts which brings water, mostly from the watertable, to the point of use by gravity' (Honari 1989, p. 61). For more on *qanat* see Beaumont, Bonine & McLachlan 1989.

the cost and shortage of irrigation water. Together with the long cold seasons, the cost and shortage of water are the main constraints that prevent intensification of agriculture and limit labour absorption capacity. This will be addressed in more detail later in this chapter.

7.4 Farming systems

The farming sector in the sample villages is typical of areas with small-sized farms throughout the country. Small-sized farms in Iran are predominantly semi-subsistence, with wheat and barley the main crops grown (Razzaghi 1988, pp. 266-72). Semi-subsistence farms usually have a few head of cattle and sheep. In addition to wheat and barley, other crops such as pulses, vegetables and some root crops are cultivated to a limited extent. Output is shared between home consumption and sale, depending on factors such as size of family, quantity of production, marketing facilities and market price. Furthermore, farm labour is principally supplied by the family (Soltani, Torkamani and Zarnegar 1987; Lahsaeizadeh 1993b; Taghavi 1995). These features of agriculture in the study area will be discussed in further detail hereafter.

Cropping systems

In the study area, cropping systems, or the proportional allocation of parcels of land to different crops, in the area are dominated by the production of basic food staples. Wheat, as the preferred staple, is the crop that is given priority in the cropping system in all four villages. Over 90 per cent of the farm households⁸ in the area produce wheat and this is the major crop in 82 per cent of the holdings in terms of land allocation (Table 7.10). However, this main crop has been replaced in some cases in recent years by more market-oriented crops such as sunflowers.

⁸ By 'farm households' here it is meant the households who operate agricultural land, regardless of whether farming is the main source of income or employment for the household.

The production of fodder crops has the second priority in the cropping system. The importance of fodder crops is due to the prominence of animal husbandry and to the length of the cold season which necessitates stall feeding. Fodder crops, mainly alfalfa, are produced by 53 per cent of the farm households. Fodder crop production is more dominant in the two villages of Abarghan and Kohnab, where animal husbandry is a more common practice.

Table 7.10
TYPES OF CROPS PRODUCED BY FARM HOUSEHOLDS IN THE SAMPLE VILLAGES

Sample villages	Wheat	Barley	Alfalfa	Sunflower	Fruit orchards	Chickpeas	Wheat as the main crop**
Dowlat Abad	84.62 (33)*	17.95 (7)	38.46 (15)	35.90 (14)	58.97 (23)	17.95 (7)	82.05 (31)
Abarghan	100 (25)	28.00 (7)	76.00 (19)	8.00 (2)	16.00 (4)	8.00 (2)	92.00 (21)
Hodjaghan	82.61 (19)	13.04 (3)	47.83 (11)	17.39 (4)	30.43 (7)	8.70 (2)	65.22 (13)
Kohnab	100 (16)	31.25 (5)	62.5 (10)	N.A*** (0)	12.5 (2)	50.00 (8)	93.75 (13)
All villages	90.29 (93)	21.36 (22)	53.5 (55)	19.42 (20)	34.95 (36)	18.45 (19)	82.52 (81)

* Figures in brackets indicate the numbers

** Main crop in terms of relative area allocation.

***N.A. = Not applicable

Source: Field survey

Sunflower, a market oriented crop, is relatively new to the area and is produced more in the two villages of Dowlat Abad and Hodjaghan. Due to its requirement for regular irrigation, the cultivation of this crop is limited to irrigated lands. Chickpeas, that do not require regular irrigation and can be grown in both irrigated and rain-fed lands, are usually cultivated as a rotation crop on the same piece of land which was used for wheat or barley in the preceding year. This crop is mainly produced for sale and some for domestic consumption.

Crop rotation on both irrigated and rain-fed lands is based on a two-year cycle. This means that about 50 per cent of the land devoted to wheat and barley is sown each

year and that the remaining would be left fallow. The cultivated and fallow lands are reversed the following year. From mid-summer until early spring, all rain-fed land remains idle and may be used for browsing purposes until the commencement of the cold season.

Some farmers cultivate vegetables and summer crops on irrigated lands as rotation crops. The most common crops of this type include melon, watermelon, tomatoes and cucumber. This form of land use is very intensive, but in most cases the product is for self-consumption. Intensive care is required if yields are to warrant the high expenditure on land preparation, water for irrigation and the application of pesticides and fertilizers. This requires more labour, but due to the shortage of irrigation water, these crops are cultivated only on relatively small sections of land. Almost all work is carried out by hand without the use of agricultural machinery.

Fruit orchards often occupy small pieces of lands and are mainly located close to the residential areas. Only in Kohnab, due to land topography and the problem of irrigation, are fruit orchards located across the valley in the South of the village, some distance from the residential area. The fruit orchards provide few employment opportunities and the products, mainly apples and apricots, are mostly for sale, with a little for self-consumption. The number of orchards in the area has increased in recent years because farmers believe they are more profitable and require little outside labour. But, the main constraint preventing the extension of fruit orchards is the provision of irrigation water.

One other feature of subsistence and semi-subsistence agriculture in the study area, the production of more than one crop at the same time in order to meet the households' various requirements for food and for cash (Mahmoodpour 1975), is evident from Table 7.11. Farm households in the area generally produce more than one crop each year. Each of the different parcels of land to be cultivated in one year is usually devoted to one crop. They may also produce the same crop on more than one piece of land. Over 82 per cent of the farm households produce more than one crop and almost half of them produce three or more crops each year. For those producing only one crop, which is more common in Hodjaghan, the main reason is that the small

size of holdings does not permit the production of several crops in one year. All farmers in the study area who produce only one crop have less than 5 hectares of land and their product is mainly for self-consumption.

Table 7.11
NUMBER OF CROPS PRODUCED BY FARM HOUSEHOLDS

Sample villages	Number of farm households	Only one crop	Two crops	Three or more crops
Dowlat Abad	39	15.83 (6)*	30.77 (12)	53.85 (21)
Abarghan	25	20.00 (5)	20.00 (5)	60.00 (15)
Hodjaghan	23	30.43 (7)	47.83 (11)	21.74 (5)
Kohnab	16	N.A. (0)	43.75 (7)	56.25 (9)
All villages	103	17.48 (18)	33.98 (35)	48.54 (50)

* Figures in brackets indicate numbers.
Source: Field survey, summer 1994.

However, due to climatic constraints, multi-cropping on the same parcel of land in the same year (i.e., more than one harvest from the same land in one year), is not possible. As mentioned earlier in this chapter, the area experiences long cold seasons, as the result of which farm activities and the cropping season are limited to some seven months of the year. Thus, after the harvest of the main crop, usually over by the end of July, there remain only three months till November, when the frost starts. The provision of water also adds to the problem, for the flow from both surface and underground water resources decline to their minimum by this time of the year.

Sale or self-consumption

Meeting domestic demand is the main purpose of the cropping systems used by the farm households in the study area. According to the survey data, over 27 per cent of farm households solely produce for self-consumption. Those who sell their output

on average sell only about 28 per cent of the main crop (in terms of land allocation) they produce (Table 7.12). In the two villages of Dowlat Abad and Hodjaghan, self-consumption is the prime motive for a higher proportion of farm households than is the case in Abarghan and Kohnab. Most of the households who produce mainly for self-consumption rely on sources other than farming for their main income and employment. In all four villages, such households either have a considerable number of animals or their breadwinners are employed in the non-agricultural sector. The latter seems to be the main reason for the higher proportion of farmers producing only for self-consumption in the two villages of Dowlat Abad and Hodjaghan. Because they have another income, they do not need to produce crops for sale from their small plots, but only for their own consumption. This is also related to their relatively higher number of smaller-sized holdings, since produce from such holdings can barely meet household domestic demands.

Nevertheless, as Table 7.12 indicates, it seems that self-consumption, although with varying degrees among the villages, is the prime motive for farm households. Farm households sell a lower proportion of those crops which are produced on larger portions of their lands, suggesting that subsistence agriculture is still dominant. In summary, a higher proportion of farmers from the two villages of Kohnab and Abarghan sell their products, but the proportion of the product sold by such households is higher in Dowlat Abad and Hodjaghan.

Table 7.12
PROPORTION OF CROP TO BE SOLD BY FARM HOUSEHOLDS

Sample villages	Number of farm households	Households producing solely for self-consumption	Proportion of crop to be sold by households producing for sale		
			Sale from first crop	Sale from second crop	Sale from third crop
Dowlat Abad	39	28.21 (11)*	34.82	68.74	82.30
Abarghan	25	20.00 (5)	24.61	51.12	63.68
Hodjaghan	23	34.78 (8)	31.51	71.67	84.18
Kohnab	16	25.00 (4)	21.96	38.47	44.80
All villages	103	27.18 (28)	28.23	57.50	68.74

* Figures in brackets indicate the numbers.

Source: Field survey, summer 1994.

Use of farm machinery

The use of machinery has become relatively common among farmers over the last 25 years. There was no tractor in the study area in 1966 (SCI n.d.) and according to field survey, the first tractor was brought to Dowlat Abad in 1971. The use of draft animals for farm operations nowadays is limited to specific areas. They are used mainly on small farms for operations such as transportation and, to a lesser extent, for farm work on inaccessible plots. Only in Kohnab do some farmers use draught animals for ploughing and threshing as well as for transportation.

At the time of survey, there were 15 tractors in Dowlat Abad, 12 in Abarghan, 8 in Hodjaghan and 2 in Kohnab. Combines and threshers began to appear in these villages at a much later date than tractors. Ownership of tractors and threshers is mainly limited to relatively wealthy farmers and only four tractors in Abarghan and one tractor in Dowlat Abad belong to Co-operatives. The other farmers rent tractors and other agricultural machinery from the Rural Service Centre located in Marand, or from the Co-operatives. Individual owners of agricultural machinery also rent out their equipment to other farmers. Farmers may have access, on a rental basis, to combines provided by the Rural Service Centre in Marand.

The extent of machinery use in farm operations in the area varies, depending on the cropping patterns adopted by farm households. The case of wheat production will be used to explain the extent of machinery use in agriculture in the study area. Wheat, as mentioned earlier, is the main crop which occupies most land in all four villages and is produced by the overwhelming majority of farm households.

The sequences of work tasks in the cultivation of wheat in the area can be divided into three main operations: (1) cultivation, which includes the preparation of the soil, e.g., ploughing prior to sowing, the application of deep fertilizer, and bordering, sowing, and covering seed; (2) crop maintenance which includes irrigation, surface fertilization, weeding; and (3) harvest, which includes harvesting, threshing, and

transportation. In the study area, four categories of farms can be identified, based on the use of machinery to perform these operations:

Category 1: Machinery is used for land preparation and harvesting. This category includes large and some of the medium-sized holdings in Dowlat Abad and Hodjaghan and, to a lesser extent, in Abarghan (Table 7.13);

Category 2: Tractors are used for land preparation and threshing is carried out by threshers, but harvesting is done manually using a sickle. This is prevalent in the area and occurs on over 57 per cent of total holdings;

Category 3: Tractors are only used for land preparation. This occurs on most of the holdings in Kohnab and on some smaller holdings in the other three villages;

Category 4: No machinery is used in production processes, and all work is done manually. Draught animals are used for operations such as land preparation and threshing. This occurs on a small proportion of farms in Kohnab and Abarghan.

Table 7.13
CLASSIFICATION OF THE HOLDINGS IN TERMS OF MACHINERY USE

Sample villages	Number of farm households	Category 1	Category 2	Category 3	Category 4
Dowlat Abad	39	15.38 (6)*	64.10 (25)	20.51 (8)	0.00 (0)
Abarghan	25	8.00 (2)	52.00 (13)	32.00 (8)	8.00 (2)
Hodjaghan	23	17.39 (4)	69.57 (16)	13.04 (3)	0.00 (0)
Kohnab	16	0.00 (0)	31.25 (5)	50.00 (8)	18.75 (3)
All villages	103	11.65 (12)	57.28 (59)	26.21 (27)	4.85 (5)

* Figures in brackets indicate the numbers.

Source: Field survey, summer 1994.

In general, there seems to be a direct relation between the size of holdings and machinery used in the sample villages. Households with larger holdings use more machinery on their holdings for wheat production (see Appendix 5). However, this does not mean that all villages with relatively bigger holdings use more machinery in farm practices. For comparison, the average sizes of holdings are bigger in the two villages of Abarghan and Kohnab (Table 7.4), but households in the two villages of Dowlat Abad and Hodjaghan use relatively more machinery in their farm practices. This could partly be related to the land topography and spatial location of the villages, where the higher degree of slope in the two former villages acts as a constraint. The other factors affecting the extent of machinery use are its availability, its relative cost and the availability of profitable alternative employment opportunities.

The majority of households, and in particular those with less land, hire machinery from, in addition to local sources, either the public or private sector outside the area. Machinery like combines are provided from outside the area, but are not always available for hire when they are needed. Farmers from all four villages encounter this problem. But this is more common in the two villages of Abarghan and Kohnab due to their relatively longer distances from the suppliers in Marand. The other factor, the availability of alternative employment opportunities, seems to have played a more important role in contributing to the differences in extent of machinery use between these villages. Using hired agricultural machinery for harvest reduces the demand for all, even family labour, and adds to the cost of the final product. Thus, only those farmers with profitable alternative employment may wish to use machinery to harvest crops. For machinery to make any economic sense to the peasant, as stated by Najmabadi, '... he should be able to cover the costs through alternative employment of family labour released from agricultural work' (Najmabadi 1987, p. 139). As mentioned in Chapter 6 and as will be discussed in more detail in the following chapter, such alternatives are more available for the labour force in the two villages of Dowlat Abad and Hodjaghan, than in Kohnab and Abarghan.

The cultivation of other crops such as alfalfa, sunflower, and summer crops is mainly non-mechanized. Tractors are only used for land preparation and the remaining

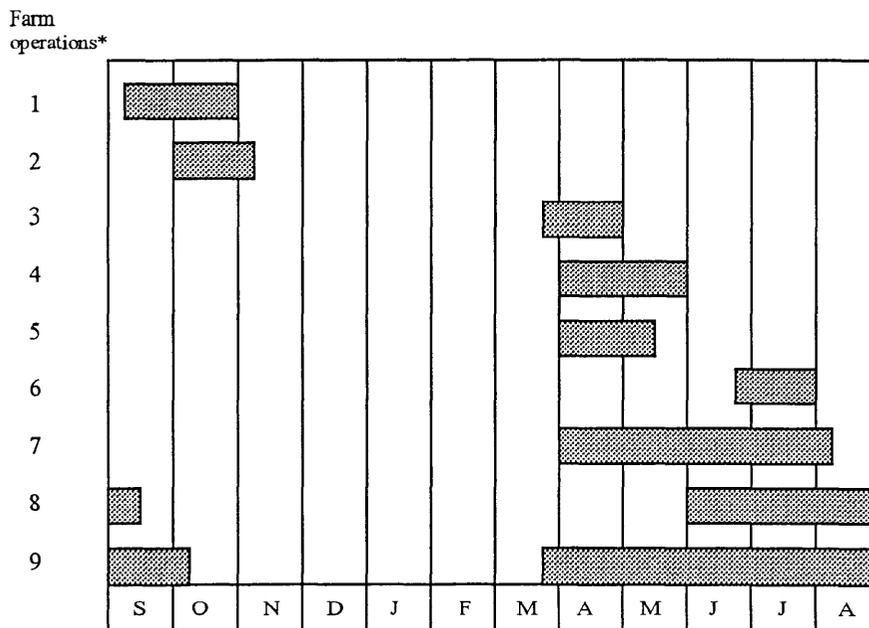
work, such as maintenance and harvesting, are carried out manually. The cultivation of summer crops in smaller plots is totally performed by hand.

7.5 Agricultural calendar and demand for labour

Due to the dominant role of wheat in the cropping pattern of the study area, the extent and timing of labour needs in the farming sector are related mainly to the cultivation requirements of this crop. The demand for workers is at its greatest during the cereal crop harvest in July. Once wheat has matured around the end of June, the crop needs to be harvested quickly enough to minimise the risks of damages from storms or strong winds. The demand for harvest workers reaches its peak early in July and continues for about three weeks. The harvest of wheat in rain-fed lands takes place after about two weeks delay, a few days after the harvest has finished in irrigated lands. However, the demand for wage labour on these lands is not great and most of the work is done with the help of family members. Due to the high altitude in Kohnab, the maturity of wheat and its harvest starts about 20 days later than in the other three villages. Threshing may continue until August due to the limited number of threshing machines available at this time. But this operation, even where it is practised by draught animals, requires relatively little manual work and demand for labour is limited.

Ploughing and seedbed preparation take place between mid-September and October. With the exception of bordering, which is done manually in all farms and often requires hired labour, other operations at this stage are performed mainly using agricultural machinery. Thus demand for labour is limited. Wheat is sown in October and early in November. After the completion of this operation, the slack period of farm practices begins and lasts until almost the end of March. At this time, seedbed preparation in rain-fed lands starts and sowing takes place until the end of April (Figure 7.3). On these farms, after sowing, there is little operation until harvest in late July. Thus, work tasks in rain-fed farms include the two main operations of cultivation and harvest.

Figure 7.3
 SCHEDULE OF FARM OPERATIONS IN THE STUDY AREA



* Key for farm operations:

1- Ploughing and seed bed preparation in irrigated lands

2- Sowing in irrigated lands

3- Seed bed preparation and sowing in rain-fed lands

4- Caring for the main crop, including irrigation, application of fertilizers and weeding

5- Cultivation of summer crops

6- Harvesting, threshing and winnowing the main crop

7- Caring for summer crops

8- Harvesting summer crops

9- Caring for fruit orchards

Source: Field survey, summer 1994.

In irrigated lands, April and May are occupied with irrigation, applying fertilizers, and weeding. Land preparation and cultivation of summer crops also take place in April and May. Thus the four months of April, May, June and July are the busy period of the year, reaching a peak by the beginning of harvest at the end of June.

Apart from the farms that use combines for harvesting and belong to the first category in terms of machinery use, others, in addition to family labour, hire wage labourers at this stage. The demand for wage labour at this stage is so high that local wage labour does not meet the demand, and workers from neighbouring or faraway villages come to the area in this period. The two months of August and September are less busy. Only summer crops require work from this time until mid-September when preparation of land for the cultivation of wheat starts.

The labour for these operations is mainly supplied by family members and, as discussed in Chapter 6, there is only a very small proportion of hired labour among the area's agricultural work force. This is in line with other findings at the national level that the labour force on farms of less than 50 hectares mainly consists of family labour (Khosrovi 1978; Mahdavi 1983; Najmabadi 1987; Amid 1990; Taghavi 1995). As Amid noted, small farms have difficulty in providing sufficient work even for family members and one can hardly expect them to provide any significant employment for outsiders (Amid 1990, p. 119).

Households with small amounts of land depend on the availability of wage labour on others' farms or in the non-farm sector in addition to the cultivation of their own lands. This is evident from Table 7.14 which details the main and second job of those heads of the households operating agricultural land. Use of the main and second job of heads of households to examine the extent of their dependency on other sources of income and employment is justified by the fact that the head of the household, usually male, is often the main breadwinner of the household. He also manages agricultural activities and the crop cycle. Management includes all the decisions regarding the production of farm crops.

Of the 103 surveyed households which operate land in the study area, farming is the main job of only about 58 per cent of their heads. For those households operating less than 5 hectares of land, the proportion declines to 46 per cent. Given the fact that the main job during the survey was assumed to be the one which occupied the most time, it is evident that there are insufficient employment opportunities for household members on these farms. Furthermore, 60 per cent of the heads of the households with

farming as their main job from all size categories and over 63 per cent from the small size category rely on a second job for household subsistence. As is apparent from Table 7.14, there are differences among the sample villages in this respect and a higher proportion of heads of households in the two villages of Abarghan and Kohnab allocate most of their time to farming. This seems to be related partly to the relatively higher demand for work in the farming sector of these two villages, as their average sizes of holdings are relatively larger and they use less machinery in farm operations.

The differences between villages in this regard are also related to variations in the extent to which alternative employment opportunities are available for the work force in the non-farm sector. As discussed in Chapter 6 and as will be discussed in more detail in the following chapter, such opportunities are more available for the work force of the two villages of Dowlat Abad and Hodjaghan than for Kohnab and Abarghan. However, even in the latter two villages, where a much higher proportion of the heads of the farm households operating small lands have recorded farming as their main job, more than three quarters of them rely on a second job (column 7 of the table).

Table 7.14
MAIN AND SECOND JOB OF THE HEADS OF THE FARM HOUSEHOLDS

Sample villages	All size categories				Holdings with less than 5 hectares			
	Total Number	Farming as the main job	Farmers with second job	Farming as second job	Total number	Farming as the main job	Farmers with second job	Farming as second job
Dowlat Abad	39	41.03 (16)*	62.50 (10)	56.41 (22)	27	22.22 (6)	50.00 (3)	74.07 (20)
Abarghan	25	84.00 (21)	71.43 (15)	12.00 (3)	14	85.71 (12)	75.00 (9)	7.14 (1)
Hodjaghan	23	43.48 (10)	10 (1)	52.17 (12)	15	26.67 (4)	0.00 (0)	66.67 (10)
Kohnab	16	81.25 (13)	76.92 (10)	12.50 (2)	9	88.89 (8)	87.50 (7)	11.11 (1)
All villages	103	58.25 (60)	60.00 (36)	37.86 (39)	65	46.15 (30)	63.33 (19)	49.23 (32)

* Figures in brackets indicate the numbers.

Source: Field survey, summer 1994.

Table 7.15 includes a rough estimation of the labour requirement by holdings in the study area. This estimation is based on the labour requirement for the cultivation of wheat, which is the main crop cultivated by the majority of farm households each year.⁹ According to a study by the Plan and Budget Organisation, non-mechanised irrigated wheat and barley cultivation takes 47 to 56 workdays per hectare. Using tractors for ploughing reduces this figure to 30 to 37 work-days per hectare, while complete mechanisation reduces it to only 19 workdays per hectare (Najmabadi 1987, p. 139). The overwhelming majority of farm operations in the study area are performed by using farm machinery only in some stages (Table 7.13), so it can be assumed that labour requirements are 30 to 37 workdays per hectare. Taking into account the average size of land each household operates and the proportions of the land left fallow and cultivated each year, each household on average cultivates the equivalent of 2.43 hectares of irrigated land each year. Assuming that all the land is allocated to the cultivation of wheat, each holding requires, on average, 73 to 90 days of work each year (Table 7.15).

Table 7.15
LABOUR REQUIREMENT BY HOLDINGS

Sample villages	Average size of holdings (ha)*	Average area under cultivation each year (ha)	Labour requirement by each holding (days)
Dowlat Abad	3.91	2.67	80 to 99
Abarghan	3.87	2.50	75 to 92
Hodjaghan	3.24	2.08	63 to 77
Kohnab	3.55	1.85	55 to 68
All villages	3.74	2.43	73 to 90

* All area has been converted to irrigated by assuming one hectare rain-fed land as 0.4 hectare irrigated land (see pp. 190-91 for this assumption).

Source: Field survey, summer 1994.

⁹ Table 7.17 gives a rough estimation of the labour requirement by holdings in the study area and is based on the average size of holdings and general level of machinery use in farm practices. In addition to these two factors, the labour requirement by farm holdings is also related to other factors such as cropping patterns, the cropping cycle, irrigation cycle, application of fertilizers, extent of using HYVs, and the wage rate of labour (Mukhoti 1985; Booth and Sundrum 1985; Bentaya and Zagdouni 1990; Najafi and Nabieian 1993). A detailed estimation of labour requirement by holdings in the study area has to take such factors into consideration and requires further research.

Hence, due to the seasonal nature of farming activities, there are considerable fluctuations in demand for labour by the farming sector in the study area. Farming activities stop completely for almost four months of the year and four other months may require only part-time work — one or two days a week or a few hours each day. In the harvest period though, family labour does not meet the labour requirement of the farms and hired labour might be necessary for a few days.

7.6 Animal husbandry

Animal husbandry is closely interwoven with cropping and is an important source of supplementary income and employment for the majority of households in the study area. This is in line with the findings of many other studies in rural Iran which have examined the supplementary role of animal husbandry (English 1966; Khosrovi 1972 and 1979; Najmabadi 1987; Lahsaeizadeh 1989 and 1993; Taghavi 1995). Almost 59 per cent of the sample households are involved in animal husbandry. Of these, over 90 per cent produce crops as well.

With the exception of hired shepherds, all labour requirements are met from the household. Both men and women take part in feeding, watering, and cleaning barns though, as in many other rural areas of the country (Lahsaeizadeh 1993a, p. 71), the heavy task of home-based animal husbandry in the peak seasons of farm activity is always shouldered by the women of the household. Milking and processing of dairy products is always undertaken by women. The task of collecting fodder through weeding farms and from fallow lands is also often carried out by women. Feeding animals and cleaning barns is usually done by men in the winter season. Boys take part in animal raising during summer by taking younger animals to graze in nearby pastures and fallow lands.

Households raising sheep or goats hire a shepherd for 7 to 8 months of the year. These households often hire shepherds jointly, as one shepherd can look after about

150 sheep and goats and individual households do not own more than about 20 sheep and goats on average. Shepherds collect the animals from the various households in the morning and drive them to communal pastures or fallow lands to graze during the day. At nights, they drive the animals back to the village and return them to their owners. In summer, they keep sheep and goats outside the villages in open spaces but bring them to the village at midday for milking (see Plate 7.1). Open grazing lasts for about 8 months each year as by the beginning of winter, stall-feeding replaces open grazing. Shepherds are paid according to the number of sheep and goats each household sends for grazing. Households hire another herder to graze cattle. Herders are also paid by individual families according to the number of cattle they send for grazing.

Open-grazing facilities are limited in the study area since they are restricted to a few permanent communal pastures belonging to each village, wastelands, and farmlands after harvesting of crops. The latter are also considered to be communal and can be used by any individual resident of the village for grazing purposes. Kohnab has access to relatively more grazing lands due to its upland location and its short distance from the permanent pastures of the nearby mountains. However, because of their location in mountainous areas, these pastures are less suitable for cattle grazing.

Due to inadequate resources for open grazing and climatic restrictions in winter, stall feeding is practised as well (Plates 7.2). This depends upon fodder, mainly from the farming sector, as the supplementary source of feed for livestock. During the cold seasons the livestock population largely depends upon dry fodder from forage crops and from straw. It is mainly for this reason that, as discussed earlier in this chapter, the land area devoted to the production of the forage crop alfalfa, is second to wheat. Over 53 per cent of the farm households grew this crop. The supply of fodder is even more important for households raising cattle, as the need of cattle for feed is greater than that of sheep and goats. Thus households without land, or those without adequate fodder from their own farms, need to meet the demand by buying from other farmers. This, although common in the area, makes cattle-rearing more costly. It is because of this that, except in Hodjaghan, there appears to be some relationship between the size of holdings and the mean size of herds of the households (Table 7.17). However, over 16 per cent of the households in the area raise cattle without operating any farmland

(column 7 of the table), though the mean size of herds is only 2 for this group. The dairy products from this group are mainly for self-consumption.

Households rely mainly on external resources such as communal pastures or other open grazing grounds for feeding their animals. These resources help in sustaining a larger number of animals than would be possible on the individual's own land. It is for this reason that one does not necessarily have to own or lease farm land for animal rearing and, as Tables 7.16 and 7.17 reveal, there is not a strong relationship between the size of holdings and the number of animals held by a household. This is especially the case for sheep and goats which can be fed for a longer period than cattle through open grazing.

Table 7.16
RAISING SHEEP AND GOATS BY SURVEYED HOUSEHOLDS ACCORDING TO HOLDING SIZE CATEGORIES

Sample villages	Households raising animals (%)	Households raising sheep or goats (%)	Proportion of the farm households raising sheep or goats by holding size categories (ha)				Non-farm households raising sheep or goats (%)
			Total	<5	5 - 9.99	10 +	
Dowlat Abad	54.23 No. 32	30.51 (13.9)*	38.64	44.44 (11.7)	30.00 (12)	0.00 (N.A.)**	15.00 (24.7)
Abarghan	62.85 No. 22	57.14 (14.1)	68.00	71.43 (15.8)	63.64 (14.7)	N.A.**	30.00 (7)
Hodjaghan	50.00 No. 20	30.00 (11.3)	52.17	60.00 (7.7)	42.86 (22.3)	0.00 (N.A.)	0.00 (N.A.)
Kolnab	83.33 No. 15	77.78 (35.1)	87.50	88.89 (17.1)	75.00 (26.7)	100 (91.7)	0.00 (N.A.)
All villages	58.55 No. 89	42.11 (18.1)	56.31	60.00 (12.9)	50.00 (17.9)	50.00 (91.7)	12.24 (15.8)

* Figures in brackets indicate the mean sizes of flocks

** N.A. = Not applicable

Source: Field survey, summer 1994.

Plate 7.1



Village of Abarghan. Sheep and goats are brought back to the village by the shepherd for milking at midday.

Plate 7.2



Village of Kohnab. A son of the family is carrying fodder using draught animals. His younger brother and sister have joined him for the photograph. The fodder will be used for stall feeding the animals in winter.

Table 7.17

RAISING CATTLE BY SURVEYED HOUSEHOLDS ACCORDING TO HOLDING SIZE CATEGORIES

Sample villages	Households raising animals (%)	Households raising cattle (%)	Proportion of the farm households raising cattle by holding size categories (ha)				Non-farm households raising cattle (%)
			Total	<5	5 - 9.99	10 +	
Dowlat Abad	54.23 No. 32	42.37 (3.8)*	51.28	55.56 (3.8)	40.00 (4)	50.00 (10)	25.00 (2.2)
Abarghan	62.85 No. 22	40.00 (3.2)	52.00	42.86 (3.2)	63.64 (3.4)	N.A.**	10.00 (2)
Hodjaghan	50.00 No. 20	37.50 (3.3)	56.52	46.67 (3.9)	71.43 (2.4)	100 (8)	11.76 (1.5)
Kohnab	83.33 No. 15	55.56 (2.5)	62.50	44.44 (2)	100 (2.3)	66.67 (4)	0.00 (N.A.)
All villages	58.55 No. 89	42.11 (3.3)	54.37	49.23 (3.5)	62.50 (3.1)	66.67 (6.5)	16.33 (2)

* Figures in brackets indicate the mean sizes of herds.

** N.A. = Not applicable

Source: Field survey, summer 1994.

Due to factors such as the extent of access to grazing grounds, the availability of fodder crops, and the availability of alternative income and employment resources, the proportion of the households involved in animal husbandry in the sample villages varies, from 50 per cent in Hodjaghan to over 83 per cent in Kohnab (see column one of Table 7.16). Animal husbandry plays mainly a supplementary role for farm households' income and employment in the study area. Where other sectors provide alternative sources of income and employment, it affects the relationship between the holding size and the number of animals raised by the households. Najmabadi (1987, pp. 126-9) found that the average number of animals raised by rural households at the national level declined from 1960 to 1974, mainly because of new restrictions in making use of communal grazing lands and because of the new employment opportunities provided by other sectors. Further research is required to investigate the extent of these effects in the study area. However, it seems that the relatively small proportion

of households involved in animal husbandry in Hodjaghan and their higher proportion in Kohnab is mainly related to these factors.

7.7 Conclusion

There are several factors limiting the labour absorption potential of agriculture in the study area. Due to land topography, to inadequate precipitation and shortages of irrigation water, only a small portion of the area is suitable for farming activities. Hence crop yields from the rain-fed lands are very low and over one-third of the total arable land is left fallow each year. Not all of the households have access to land and the majority of those with land face problems such as small sizes of holdings, fragmentation of plots, and lack of irrigation water. The use of farm machinery has become a more common practice in the area, though its use in some farm operations such as harvests has reduced the demand for labour.

In addition, the two factors of inadequate water for irrigation and the length of the cold season act as constraints against the intensity of labour use in farming activities. Animal husbandry provides some supplementary income and employment opportunities, but its labour demand (which reaches its peak in the slack season of farm activities), is limited on average to only a few hours each day.

There appear to be some differences between the sample villages in the extent of machinery use in farm practices and in the cropping systems. However, the constraints mentioned above and the limited employment opportunities for the labour force in the agricultural sector can be seen in all four villages. These limitations seem to be the main force behind the expansion of the non-agricultural sector in the area. This issue will be addressed in the following chapter.

CHAPTER EIGHT

LABOUR ABSORPTION BY NON-FARM SECTOR

8.1 Introduction

The discussion about demographic changes and labour force participation presented in Chapters 4 and 5 revealed a trend towards an increase in the size of the labour force in the study area. Chapter 6 indicated a trend of labour transfer from the agricultural to the non-agricultural sector and Chapter 7 revealed limitations in the labour absorption capacity of the agricultural sector. The aim of the present chapter is to document the alternative, namely non-farm, employment opportunities available for the labour force in the sample villages.

Although agrarian-based employment provides income for the majority of the households in the study area, increasing proportions of household income are derived through employment in the non-farm sector. This reflects a transformation process affecting villages throughout rural Asia (Koppel and Hawkins 1994, p. 39). The main objective of this chapter is to use primary data gathered through the field survey to document employment opportunities provided by the non-farm sector in the study area. It will describe and explain the types of non-farm activities found in the villages and the general characteristics of their workers. This will assist to explain whether the growth of the non-farm sector and increasing involvement of the labour force in these activities in the study area are positive developments or whether these changes arise as a last resort.

For the purpose of the study, non-farm activity includes any activity which is non-agricultural. Rural non-farm work can be done, as Mukhopadhyay and Lim stated, '... on a farm site or away from it ... and excludes such activities as wage employment in agriculture away from one's own plot of land, and to the extent it is rural, it excludes

income of household members earned in urban areas' (1985, p. 6). These features distinguish 'non-farm' from 'off-farm' employment, that is 'employment of the members of farm households in activities off their own farms' (Koppel and Hawkins 1994, p. 4). On the basis of Oshima's study, Hasbullah stated that the employment in rural areas not included in farm activities are rural non-farm activities (Hasbullah 1989, p. 50).

Thus, the present study will include non-farm activities of both farm and non-farm households' members but will exclude employment opportunities available for the labour force through commuting to Marand.

8.2 Types of non-farm activities

As discussed in Chapter 6, the industrial sector in the study area accounts for the highest share of total employment and the contribution of the service sector to total employment also seemed to be important (see Table 6.1). The two sectors include a diverse range of activities which are carried out through both private and public enterprises. The number of such enterprises in the four sample villages was estimated to be about 1075 at the time of the survey (Table 8.1). Over 85 per cent of these enterprises belong to the rural industrial sector.

According to an ILO report (1988a, p. 72), rural industries in developing countries have four major characteristics. First, they tend, like agriculture, to be based primarily on family labour. That is, they are predominantly household industries. Secondly, rural industries often play a supplementary role in terms of both employment and incomes of the rural workers. Thirdly, employment in rural industries is predominantly seasonal in character. Finally, the degree of dependence of households on employment in rural industries first declines and then rises as the size of holding rises. On the basis of these characteristics, the report suggests two basic categories of existing rural industries: 'The first category consists of those petty enterprises which fundamentally represent the means of survival of the rural poor. ... The second category

consists of what may be called genuine enterprises. These are likely to be wage-labour based, market oriented and based on profitability calculation' (ILO 1988a, p. 72).

In an almost similar classification of rural non-farm activities, as mentioned in Chapter 1, Mukhopadhyay and Lim (1985) suggested two broad types of rural non-farm activities. In the first type, enterprises are run on a more or less stable basis with a business goal of surplus generation and growth, using hired labour and a certain degree of technical sophistication. The second type comprises of enterprises or activities which are often, though not always, seasonal, run solely with the help of family labour, using rather primitive technology catering mostly to the local market and responding more to the supply side of the labour market than to the market demand for output (Mukhopadhyay and Lim 1985, p. 18). The first type are often called 'small' industries that are 'demand-pull' or 'market demand-determined' activities. The second type are usually called 'cottage' or 'household' industries and are 'supply-push' or 'labour supply-determined' activities (Tambunan 1995, p. 205). In the Indonesian context, Tambunan argued that the intensity of the latter type in densely populated rural areas is seen 'as a sign of distress adaptation to the growing density of rural population, poverty, and landlessness rather than a sign of dynamic growth in the rural areas' (Tambunan 1995, pp. 205-6).

The following sections will document these characteristics of the enterprises and of their workforce in the context of the study area. Meanwhile, for the purpose of the study, the discussion is designed to shed light on the employment opportunities available for the labour force in the non-farm sector and is based on a relatively small number of the sample. Due to the diverse types, as well as to the large number, of enterprises in the area, a detailed study of their characteristics could be a subject for another independent study.

On the basis of economic sectors, enterprises in the study area can be classified into the two broad categories of industrial and services. The service-related enterprises include private enterprises, as well as public institutions

providing services such as education and health. All of the industry-related enterprises belong to the private sector. The industry sector enterprises in the study area consist of carpet weaving, wick weaving, and other industry-related enterprises which include activities such as blacksmiths and wheat grinding mills. The service sector includes public sector services, the retail trade, and other service-related enterprises such as transport and health services (Tables 8.1 and 8.2). For the purpose of the study, and due to the small number of 'other industry-related' and 'other service-related' enterprises in the area, all existing private sector enterprises have been classified into five categories of 'carpet weaving', 'wick weaving', 'retail trade', 'other industry-related' and 'other service-related'.

This study, based mainly on data collected through the enterprise survey, concentrates on private enterprises. Focusing the study on private enterprises is deliberate since, as discussed in Chapter 6, the overwhelming majority of the workforce employed by the public sector are from outside the area. Non-farm enterprises are defined here as the production of goods or services in situations of self-employment. As mentioned previously, the importance of this form of work is usually viewed in terms of its supplementary role for farm households (Guest 1987, p. 192). In the four villages studied here, however, non-farm enterprises are often the only component of a household's livelihood, act as a means of utilising family labour, and in some cases are large enough to require hired labour.

Before discussing the forms of production and characteristics of the workforce in each type of enterprise, their dominant type in each of the villages will be addressed first.

As is apparent from Table 8.1, carpet weaving is by far the dominant type in the area and it includes over 72 per cent (778 out of 1075) of total enterprises in the study area. However, the expansion of a different type of enterprise in Hodjaghan distinguishes this village from the rest of the sample. The wick industry, which includes a quite different process of production than that of the carpet industry, is the dominant type of enterprise there.

Table 8.1
PUBLIC AND PRIVATE NON-FARM ENTERPRISES ACTIVE IN THE STUDY AREA

Enterprises	Dowlat Abad	Abarghan	Hodjaghan	Kohnab	All villages
Public enterprises					
Educational	6	2	4	1	13
Health care & medical services	2	1	1		4
Telecommunication	1	1	1		3
Administration	1				1
Rural co-operation	1				1
Cultural centre	1				1
Private enterprises					
Industrial⁽¹⁾					
Carpet weaving ⁽²⁾	356	273	83	66	778
Wick weaving	4		104 ⁽³⁾		108
Sock weaving	2				2
Spinning			12		12
Tailor	1				1
Carpenter	2	2	1		5
Blacksmiths	2	1	2		5
Bakery	2		1		3
Grinding mill	2			1 ⁽⁴⁾	3
Services					
Retail trade	34 ⁽⁵⁾	15	19	1	69
Repair shop	2		3		5
Transportation ⁽⁶⁾	14	7	8	1	30
Coffee shop	5	3	2		10
Butcher	3	2	3		8
Barber	3	1	2		6
Public bath house	2	1	1		4
Medical services	2				2
Entertainment	1				1
Total	449	309	247	70	1075

(1) Classifying the non-farm enterprises into two broad industry sectors of industrial and services has been in accordance with the classification used in the 1986 census (see SCI 1993f).

(2) All of the carpet weaving units are home-based and figures are estimations on the bases of the household survey data and the data obtained from the Health Houses located in villages.

(3) This figure includes some 82 enterprises located outside the houses and were counted during the survey plus about 22 units located inside the houses and were estimated as for carpet weaving.

(4) Located in the same place as the shop and belongs to the shop owner.

(5) Includes three yarn shops, two building material stores as well as 29 grocery stores.

(6) Includes 10 mini buses, 12 mini cabs and 8 vans. These vehicles belong to individuals and are often operated by the owners.

Source: Field survey, summer 1994.

The demographic, economic and social changes that have been taking place in the study area in recent decades resulted in, as Vadie (1973) noted about the Iranian villages prior to the land reform, the once self-sufficient rural society becoming dependent on the outside market for consumption needs such as home appliances, clothes and footwear, and some food items like rice or sugar. Most of these consumer items had to be brought from Marand and other distant urban centres like Tabriz. This need gave rise to the establishments of retail shops and an increase in the number of traders.

The increasing demand resulting from population growth of the study villages, except Kohnab, has also led to the growth of selected consumer-related rural industrial activities. This category of rural industries includes bakeries, carpenters, repair shops, and blacksmiths. However, as discussed in Chapter 6, due to the short distances of these villages from Marand and the relatively easy access to the range of such enterprises in that city, their expansion in the study area has not been considerable.

In comparison to the other three villages, the range of enterprises in Dowlat Abad is relatively diverse. This seems to be related mainly to the larger size of the population of the village creating more local demand for consumer goods and services. The development of new types of enterprises through backward or forward linkages with the agriculture or the manufacturing sectors appears to be less important. Sanchez (1991) argued that the primary sources of demand for rural non-farm goods are those stemming from rural households. He also noted that the rural households' demands for consumer goods tend to be quantitatively the most significant, followed typically by their demand for intermediate goods and services that arise from links to agriculture or other enterprises (Sanchez 1991, p. 6). However, the overall expansion of agricultural-linked industries in the village is negligible and, due to the dominance of Marand in the area's economy (Seyyed Zonuzi 1979; Sadr Mousavi, Hadili and Zahedi, 1992), the expansion of the enterprises linked to the dominant carpet industry is limited to only three yarn shops, of which two are run on a part-time basis. Most of the carpet producers in the area, as will be discussed later in this chapter, work under contract for merchants in Marand, and thus, are connected to that city for provision of materials as

well as for the marketing of the products. Nor does the relatively diverse pattern of enterprises in this village relate to the expansion of new urban market-oriented enterprises. The only exceptions are the four wick weaving enterprises that have been established in recent years. The remaining enterprises, as is apparent from Table 8.1, are those that produce consumer goods and services for the local population rather than intermediate ones for the other sectors of the local economy or goods for urban markets.

Apart from home-based carpet weaving, private enterprises in Kohnab are limited to one transport enterprise, one shop and one grinding mill. The latter two belong to a single person and are operated on a part-time basis. Expansion of enterprises other than carpet weaving in Abarghan is also moderate and is restricted to providing a limited range of consumer goods and services for the local market. Hodjaghan presents a relatively different pattern in this respect. The expansion of the wick industry in the village has not only increased the local demand for labour, it has also resulted in the expansion of related enterprises of spinning in the village. In addition to the 12 independent spinning enterprises that appear in Table 8.1, a similar number of spinning enterprises are attached to bigger wick weaving enterprises.

In summary, the dominant activity of carpet production in the sample villages has contributed very little to the expansion of related enterprises, but this differs from the wick industry. Some of the other categories of non-farm activities are directly linked with agriculture either through production or through demand, but include only a smaller proportion of the non-farm activities. Activities like repair and maintenance of agricultural machinery or wheat grinding mills fit into this category.

Meanwhile, it appears that the close distance from Marand has assisted the emergence and expansion of certain non-farm enterprises in the study area. Both the field survey and available census data indicate that the production of non-farm goods and materials for commercial purposes has a longer history in the two villages of Dowlat Abad and Hodjaghan. According to the 1966 census data, the number of households involved in carpet weaving in these two villages were 24 and 11 respectively, while only three households in Abarghan and none in Kohnab were

involved in this activity in that year. Interviews with local people revealed that the production of wick in its traditional form had started in Hodjaghan at least 30 years before the establishment of the first mechanised wick weaving workshop in 1972.

The earlier expansion of these activities in the two villages of Dowlat Abad and Hodjaghan seems to be in close relation to their shorter distance from urban centres and to the availability of physical infrastructure allowing easy access to these centres. On the basis of East Asian experiences, Islam (1987, p. 13) noted that a developed road network and transport system and the availability of electricity enable industries to be located in rural areas without having to suffer from special disadvantages. Other researchers like Guest (1987 and 1989), Khandker (1988), and Taryoto (1989) have also described a close relationship between accessibility and the expansion of non-farm activities in rural Asia. Through his study of farm productivity in Bangladesh, Khandker (1988) found that the closer the farms are to market centres, the more likely the farmers are to work in off-farm activities. Thus, the distance to various urban centres can then be predicted to influence the growth of non-farm activities (Taryoto 1989). As mentioned in Chapter 4, in comparison with the two villages of Abarghan and Kohnab, Dowlat Abad and Hodjaghan are located closer to Marand and have better road access to it. This has been particularly important in the expansion of carpet weaving in these villages because, as will be discussed later in this chapter, the city of Marand is the main source of material and capital, as well as the main market for this product from the study area.

One other factor contributing to the earlier expansion of non-farm activities in the two villages of Dowlat Abad and Hodjaghan seems to be related to the limited access to land and agricultural resources. As discussed in Chapter 7, the average size of agricultural land owned by households is lower in these two villages and the incidence of landlessness in Hodjaghan is the highest among the sample. This may suggest the emergence of non-farm activities of residual types in these villages, at least at the early stages. In areas with poor agricultural resources, as Verma and Verma (1995, p. 426) found through their study of the expansion of non-farm employment in the Eastern region of India, non-farm activities 'act like a sink and which are joined by that part of the rural labour force which is unable to find employment in agriculture'.

As discussed in Chapter 2 earlier, household subsistence has been one of the main reasons causing multiple income generation and the emergence of the craft industry in rural Iran. Thus, it seems that the earlier expansion of the non-farm enterprises in the two villages of Dowlat Abad and Hodjaghan is largely related to the two factors of lack of land and population pressure on the one hand, and to the easy access to urban centres on the other.

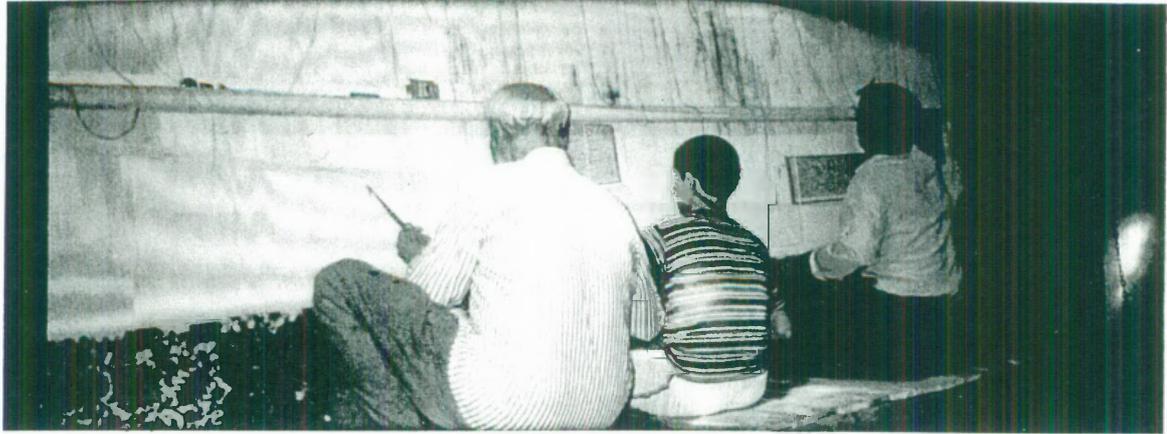
Given the dominant role of carpet weaving among the non-farm enterprises in the study area and of wick weaving in one of the sample villages, before discussing the overall characteristics of all enterprises, some general production and work conditions of these two dominant industries will be discussed hereafter.

Carpet weaving industry

Carpet weaving (Plate 8.1) has been the most rapidly growing non-farm activity in the area in recent years. The number of households involved in this activity increased from 38 in 1966 (SCI n.d.) to 778 in 1994 at the time of survey. As mentioned in Chapter 2 of the present study, carpet weaving has long been the main source of supplementary income for rural residents in many parts of the country, particularly in areas with poorer agricultural resources. According to estimates made by Dhamija (1976, p. 39), some 40 per cent of rural families had subsidiary employment in the carpet industry by the mid-1970s. According to this estimate, 732,000 people were employed full-time by the traditional craft sector and another 1.56 million were employed in subsidiary employment in the carpet industry.¹ Guha (1974, p. 238) noted that the engagement of a high proportion, over 43 per cent, of all employed persons by rural craft and manufacturing activities in Birjand in Khorasan Province in 1971 was due to the poor agricultural resources as well as a drought that occurred in that period. McLachlan found carpet weaving being introduced into Ferdaws in Eastern Iran in the 1960s 'as a means of creating alternative incomes in a region badly affected by a series of drought years' (McLachlan 1988, p. 239).

¹ Although Dhamija has not made it clear, the overwhelming majority of the 732,000 people employed as full-time in the 'traditional craft sector' might also belong to carpet weaving.

Plate 8.1



Carpet weaving in Dowlat Abad. A typical family group works together on a 3 × 4 metre carpet.

Although products from the new urban-based manufacturing sector have put products of much of the traditional craft sector out of the market (Dhamija 1976; Lahsaeizadeh 1993a, Zanjani 1991), the market for hand woven carpet and employment by this activity has expanded further in recent years.² The industry plays an important role in the nation's economy and is the second largest hard currency earner after oil. Out of about US\$3 billion worth of non-oil exports of the country each year, over 40 per cent is earned from the export of carpets. Export of this commodity has risen

² According to 1986 Census data, some 256,354 were employed by this industry throughout the country in that year, of which 67,536 were settled in urban areas. It is important to note that the census data includes only those who were reported to be in the labour force and does not indicate the exact number of people involved in carpet weaving. Due to the nature of the industry, which is a home-based one, and to the involvement of women and children in this activity on a part-time or casual basis, most of those involved, as findings of the present study indicate, are not included in census data. According to a report by the Ministry of Health in 1994, some 2.5 million were involved in carpet weaving throughout the country in that year (IRNA, November 1994). Another report by the Handicraft Organisation indicated that some 2.2 million in 28,000 villages of the country are involved in carpet weaving (IRNA June 1996).

substantially in recent years, from about US\$345 million in 1989 to US\$1.4 billion in 1992-93 (Pessaran 1995). Exports then rose to a value of US\$1.6 billion in 1993-1994 (Reuters, 26 August 1996).

Most carpet weaving enterprises in the study area present the characteristics of industrial home work, that is the production of a good 'for an employer or contractor under an arrangement whereby the work is carried out at a place of the worker's own choosing, often the workers own home, where there normally is no direct supervision by the employer or contractor' (Schneider De Villegas 1990, p. 423). Among the industries with extensive resources devoted to home work are the clothing and textile industries, which are particularly labour-intensive and lend themselves well to decentralised production. Given the possibility of learning the required skill on the job and the minimal tools required for the work, carpet production on a large scale can also be distributed to home workers.

The provision of material for carpet weavers by merchants from urban centres, which is also common in many other parts of the country (English 1966, McLachlan 1988, Hakimian 1990), provides easy access to labour with lower wages and is one of the main reasons behind the expansion of this activity in rural areas. After studying the growth of garment making in the rural area of Peonia in Northern Greece since the early 1970s, Kalantaridis and Simmons found that the rapid growth of small rural enterprises was initiated by large garment manufactures who began to see the advantages of diffusion of parts of their production to lower wage-cost areas (1996, p. 169).

The relatively easy access to materials has been an important factor in the expansion of carpet weaving in the area. The well-off households may operate largely using their own financial resources and on their own behalf. This group, which comprises mainly those with relatively large-sized agricultural holdings, buy materials themselves and sell their products at market prices after completion of the work. Others may work either under contract for merchants, often residents of Marand, or buy materials on credit. The former type includes an outwork system organisation of work under which, as noted by English (1966, pp. 92-4) pertaining to the organisation

of the work in Kerman, the merchant provides materials to contract weavers to produce carpets of a design and for a price determined by the merchant. In the latter form, the carpet weaver buys the material on credit which is repaid after selling the product. The product is usually, but not necessarily, sold to the person from whom the material was bought. In this case the price of the product is determined jointly by the merchant and the contract weaver when the product is ready for sale. According to data from both the household and the enterprise survey, this type of material provision is dominant in the study area.

Income levels from carpet weaving depend on factors far beyond the control of those who do the work. Among these factors, the demand for hand made carpet in both national and international markets, and the export policies adopted by government are significantly important. According to Hakimian, the increase of 154 per cent in the number involved in carpet weaving in rural areas of the country from 1966 to 1976, 'was brought about by a combination of strong export demand and rising domestic incomes which had significantly boosted the demand for high-priced Iranian carpets since the late 1960s' (Hakimian 1990, p. 119). Similarly, a marked increase in carpet exports from 1989 till 1994 was mainly due to the government policy of placing high priority on and facilitating the export of non-oil goods. Exports declined the following year due to a new export policy adopted by the government in May 1995 which required exporters to repatriate their hard currency income and exchange it at the official rate (Reuters 26 August 1996).

These changes result in changes in demand, and consequently, in changes in the price of carpet. Following the increase in the export volume during 1989-1994, the price of carpet recorded its highest level in 1994. This coincided with the present study's survey time and producers in the study area seemed to be pleased with the price of their products. But, the declining volume of exports in following years resulted in a declining price of the product in local markets so that, as a report published in *Iran* indicates, many of the producers have had to look for alternative sources of income for their livelihood. According to this report, out of some 10,000 carpet weavers in the county of Bonab in Eastern Azarbaijan, about 2,000 have stopped their work due to declining prices (*Iran* 27 Nov. 1996, p. 11).

There are other problems associated with carpet weaving in the sample villages. Households often allocate part of their residential units for this activity but, in some cases, the activity is carried out in their living quarters. These workplaces often lack adequate light and suitable conditions (Sadr Mousavi, Hadili and Zahedi 1992, p. 71). Other studies have noted the long term health hazards and the foregone educational opportunities caused by carpet weaving (Majd 1983, p. 27). Hosseinzadeh (1992, p. 40) found a close relationship between the high proportion of illiterates and the households' involvement in carpet weaving among slum dwellers in Tabriz. Many carpet weavers suffer from deformed knees after sitting cross-legged for many hours every day, and tying the hundreds of thousands of tiny knots that make a small carpet often leads to swollen fingers (Malekafzali 1994) (printed from Internet, Wednesday 23 Nov. 1994).

Wick weaving industry

The wick industry in Hodjaghan presents a successful example of transformation of the structure of traditional cottage industry to bring considerable benefits to the village in terms of income and employment. Wick weaving in its traditional form had been practised in Hodjaghan long before carpet weaving and the number of households involved in this activity was reported to be 63 in 1966 (SCI n.d.). However, up until 1972, the sector in the village consisted of traditional wick producers who produced wick exclusively for the regional market. The product would be sold in Marand to retailers. By transforming the traditional form of production, wick production has grown remarkably in the village so that the product not only meets demand from Marand, but some producers directly supply their products to the bigger markets in Tabriz and Tehran and the sector has become well integrated into national markets.

The present form of wick production using machinery (see Plate 8.2) started in 1972. Central to the transformation of traditional wick weaving has been the involvement of a small number of migrants from the village who engaged in the same activity in Tehran. The first enterprise was established by two brothers who returned to

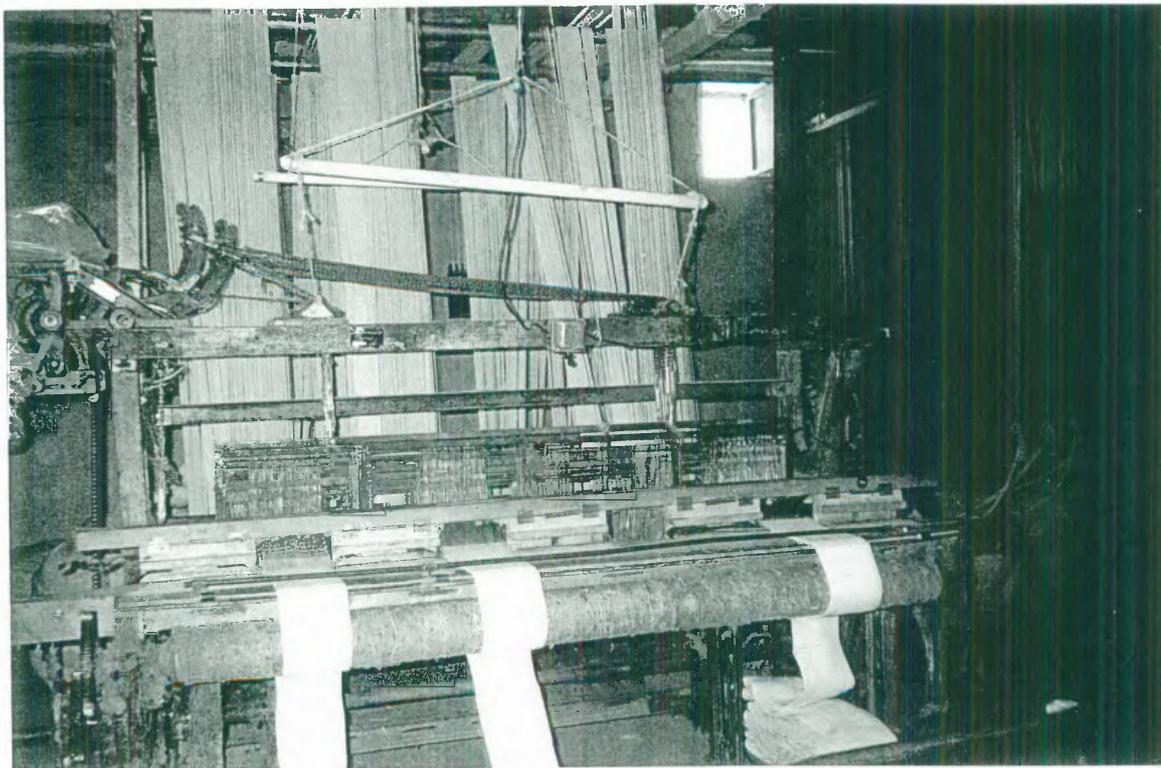
the village after working in the same activity in Tehran for some years. They were the first entrepreneurs who had realised the market potential for wick production and, after several years work in Tehran, possessed some capital and the necessary skills. It is important to note that this enterprise was established soon after electricity became available in the village. Others also transferred to the new form of production within about 10 years. At present, all of the reported 108 workshops producing wicks and about 12 related spinning workshops (Plate 8.3) use machinery in production processes.

Over the last two decades or so, this former cottage industry has gradually been transformed from one in which some households produced for a fairly limited local and regional market using rather primitive production techniques, into one that now involves a certain level of mechanisation and which serves a much wider market. The profitability of wick production has attracted more people into this business. The industry provides more than 120 households with a reliable source of cash income that, for some, helps to supplement agricultural earnings and, for others, represents a reasonable source of livelihood in its own right. Furthermore, it provides full-time employment for an estimated 70 wage labourers in the village.

In spite of some disadvantages of being located in a rural setting,³ the industry has thrived. The cost of the product is comparatively lower due to factors such as: a) the considerably lower cost of establishing workshops in the village than in urban settings like Marand; b) the substantially lower cost of living in comparison to the urban settings; and c) the relatively lower wages of labour for those using wage labour. In addition to this, maintaining connection with land is an important factor in encouraging the transformation of traditional enterprises in the village rather than the establishment of new and mechanised ones in urban settings. About 90 per cent of the entrepreneurs that owned agricultural land, also farmed their land, although farming was only a secondary job for all such entrepreneurs.

³ The main disadvantage, as stated by many entrepreneurs, is being away from urban centres and consequently, unaware of the market conditions. One was planning to move his enterprise to Marand because he said he did not have access to a telephone in his work and residential place and could not update his information pertaining to daily market conditions in Tabriz or Tehran.

Plate 8.2



Wick weaving workshop in Hodjaghan

Plate 8.3



Spinning workshop in Hodjaghan

The requirements of capital for establishing wick enterprises differ vastly from those of carpet weaving because of the heavy fixed capital needs of wick weaving such as land, buildings and more importantly, the machinery. Home-based carpet weaving, like most other cottage industries, is often undertaken in a part of the households' living quarters, and thus, does not generally involve investment in a building. Although the wick weaving enterprises also often occupy part of residential accommodation, its larger space requirements necessitates extra investment in building additions. Another major difference lies in the tools and machinery requirements of each activity. Compared to carpet production, the capital requirement of machinery is much higher for wick weaving enterprises. They require textile machines, while carpet weaving requires only locally made wooden looms and simple tools such as a pair of scissors, a comb and a knife. As a consequence, most of the wick producing enterprises involve fairly substantial capital investment.

Sources of capital for investment in these two industries are also different. The main requirement of capital for investment in carpet weaving enterprises is the cost of materials which in most cases, as discussed earlier in this chapter, comes from merchants in Marand. In contrast, the capital for investment in wick weaving enterprises come from savings, from open market loans and from banking systems.

However, the future of the wick weaving industry in Hodjaghan is a bleak one, largely because demand for its product seems likely to decline in the near future. The product is often used by kerosene home appliances, mainly lamps, *samavars* and stoves. The demand by the former has already declined because of its replacement by electric lamps through the extension of electricity to even remote areas. The demands by the latter two also seem likely to decline in the near future due to the expansion of a piped gas supply and its availability for low prices. However, these enterprises may be able to produce for different purposes, such as the production of materials for the traditional slipper making industry. However, this will require some changes in production processes as well as changes in the marketing of the new product.

8.3 Major features of the non-farm enterprises

Major features of the surveyed non-farm enterprises and the characteristics of their workforce will be discussed in this section. Enterprises, as mentioned earlier in this chapter, have been categorised here in the five groups of 'carpet weaving' (CW), 'wick weaving' (WW), 'retail trades', 'other industry-related' (OI) and 'other service-related' (OS).⁴ However, due to the relatively smaller number of OI and OS enterprises both in the area and among the samples, and the relatively smaller number working in the retail trade enterprises, the main focus of the study will be on CW and WW enterprises.

As is apparent from Table 8.2, the enterprises in the study area are small-scale and the overwhelming majority of them employ less than 5 workers. This group includes 90 per cent of the total surveyed enterprises and employs 75 per cent of the sector's workforce — very close to the average figure for rural areas of the country. According to the estimation

Table 8.2
ENTERPRISES CATEGORIES BY NUMBER OF WORKERS

Type of the enterprise	Surveyed enterprises	Total workers	1 Worker	2 to 5 Workers	6 to 8 Workers	Average number of workers
Carpet weaving	17	74	0.00	70.59 (12)**	29.41 (5)	4-5
Wick weaving	15	38	20.00 (3)	80.00 (12)	0.00	2-3
Retail trade	7	7	100 (7)	0.00	0.00	1
Other industry-related	7	15	14.29 (1)	85.71 (6)	0.00	2
Other service-related	4	7	75.00 (3)	25.00 (1)	0.00	2
Total enterprises	50	NA	28.00 (14)	62.00 (31)	10.00 (5)	2-3
Total workers	NA*	141	9.93 (14)	64.54 (91)	25.54 (36)	NA

*. *NA = Not applicable*

** *Figures in brackets indicate the numbers*

Source: Field survey, summer 1994.

⁴ Surveyed OI enterprises included one from each of the following industries: blacksmiths, spinning, sock weaving, grinding mill, carpenter, bakery and tailor; and the OS enterprises included one coffee shop, one barber, one public bath house and one repair shop.

made by Lahsaeizadeh, enterprises with less than 5 workers comprise 74.30 per cent of the workers of rural non-farm enterprises. (1993a, p. 295). However, the proportion of persons working in enterprises with only one worker is comparatively low in the study area. While such enterprises include less than 10 per cent of the total persons working in enterprises in the study area, they include almost half of the total at the national level (Lahsaeizadeh 1993a, p. 295).

Rural industries and trade are the most important categories of non-farm enterprises in the study area. Trading enterprises are small-scale and are operated only by the owner. However, other members of the households, often a son and in a few cases the wife, may provide help where assistance is needed.

In comparison, CW enterprises employ more workers, although, as will be discussed later in this section, the proportion of family and part-time labour are comparatively higher in these enterprises. The average number of persons working in CW enterprises is almost twice the number of persons working in WW enterprises and, while 20 per cent of the latter employ only one person, none of the enterprises of the former fall in this category. The enterprises in the two other categories of OI and OS are also small scale and, on average, each employs 2 workers including the owner.

Major characteristics of the workforce

Tables 8.3 to 8.6 display the general characteristics of the persons working in the enterprises. In terms of gender balance, female workers comprise more than one-third of total workers in the surveyed enterprises. This figure, although relatively low compared with male workers, is much higher than reported figures based on census data pertaining to female labour force participation and supports the suggestion, made earlier in Chapter 5, that female labour force participation is understated in census data. It also supports the suggestion that they participate more in home-base activities. As it is apparent from Table 8.3, over 55 per cent of the workers in CW enterprises are women while, their contribution to the total workforce of the WW enterprises is only about 13 per cent. This is in line with the findings of other studies about the participation of women in rural Iran (see Chapter 5).

Table 8.3
AGE AND GENDER OF LABOUR WORKING IN THE ENTERPRISES

Type of the enterprise	Total No. of labour	Male	Female	Average age	Median age	< 15 Years old
Carpet weaving	74	44.59 (33)*	55.41 (41)	28	23	14.86 (.1)
Wick weaving	38	86.84 (33)	13.16 (5)	31	30	5.26 (2)
Retail trade	7	100 (7)	0.00	46	49	0.00
Other industry-related	15	100 (15)	0.00	34	37	0.00
Other service-related	7	71.43 (5)	28.57 (2)	44	42	0.00
Total enterprises	141	65.96 (93)	34.04 (48)	31	30	9.22 (.3)

* Figures in brackets indicate the numbers.

Source: Field survey, summer 1994.

Schneider De Villegas (1990) noted women's predominance in home-based work in both the developed and the developing countries. On the basis of studies in some Asian countries, including Nepal, Bangladesh and Indonesia, Islam (1987) found that for the female labour force, cottage industries are a more important source of employment than for the labour force as a whole. He concluded that 'A major factor which can explain this high proportion of females in the workforce of cottage industries is that they are mostly located within the homestead ... so that women can work there without having to disrupt their household chores' (Islam 1987, p. 4). In the context of the study area, cultural factors also place constraints on women's participation in enterprises located outside the home (see Chapter 5).

Table 8.3 also reveals that there is a lower median and average age for the workforce of CW enterprises. This is mainly related to the presence of persons under working age among the workforce in this sector (column 6 of the table), suggesting another characteristic of cottage industries of CW enterprises. Feldman noted that in home-based cottage industries, women comprise a significant percentage of the workforce and that these industries 'depend on the hidden contribution of women and

children' (1994, p. 119). It has been argued that child labour is a problem often associated with home-based work and in traditional cottage industries, even in the industrialised world, children form part of the regular home-based labour force (Schneider De Villegas 1990, p. 427). However, the problem is more serious in developing countries and as Schneider De Villegas added, 'it is generally admitted that a high proportion of children work at home, often at the expense of basic schooling' (Schneider De Villegas 1990, p. 427).

This leads to one other characteristic, namely the literacy level among the persons working in the enterprises. As is apparent in Table 8.4, over 38 per cent of the workers in the enterprises are illiterate and have had no formal education what so ever. The highest rate of illiteracy belongs to the workers of OS enterprises, followed by those engaged in carpet weaving. There seem to be marked differences in terms of illiteracy between the two dominant types of enterprises in the area. While 31.58 per cent of workers of WW enterprises are illiterate, the percentage of this group among workers of CW enterprises is over 43 per cent. Relatively low rates of illiteracy are seen among the labour force working in the retail trade and OI enterprises.

Table 8.4
LITERACY AMONG THE LABOUR FORCE WORKING IN THE ENTERPRISES

Type of the enterprise	Total No. of labour	Literate			Illiterate
		Attained a formal education	Attending formal education	Others	
Carpet weaving	74	45.95 (34)*	9.46 (7)	1.35 (1)	43.24 (32)
Wick weaving	38	63.16 (24)	5.26 (2)	0.00	31.58 (12)
Retail trade	7	57.14 (4)	0.00	14.29 (1)	28.57 (2)
Other industry-related	15	66.67 (10)	6.67 (1)	0.00	26.67 (4)
Other service-related	7	42.86 (3)	0.00	0.00	57.14 (4)
Total enterprises	141	53.19 (75)	7.09 (10)	1.42 (2)	38.30 (54)

* Figures in brackets indicate the numbers.
Source: Field survey, summer 1994.

The lower rate of illiteracy among the retail trade workers while their average and median age are higher (column 4 of Table 8.3), is interesting since, as discussed in Chapter 4, the literacy level is lower among the higher age groups in the study area. In contrast to the retail trade, the proportion of illiterates among the workers of CW enterprises is higher while they represent the lowest average and median ages among all enterprises workforce. This may suggest that the latter offers little attraction for the literate labour of the study area. Further, CW enterprises also include a relatively higher proportion of school students (column 3 of the table) and, as Hosseinzadeh (1992, p. 40) found in his study of literacy level among slum dwellers of Tabriz, students often take part in carpet weaving after returning back from school. Illiteracy rates among the labour working in WW enterprises is relatively low and the average and median ages of labour employed by these enterprises are moderate. This seems to be partly related to the use of a relatively sophisticated technology in WW enterprises which require more skills and, unlike carpet weaving, are too complex for children.

There are also differences, as one would expect, in levels of educational attainment between the workers of the different enterprise categories. Tambunan (1995) noted that people with higher levels of formal education may operate more modern types of industries, while those with low formal education undertake cottage industry type activities. Wickramanayake (1988), for example, found in his sample survey in some rural areas in Southern Sri Lanka that the educational level of labour who were involved in cottage industries was significantly lower than of those who were involved in small industries. As figures in Table 8.5 reveal, more than three-quarters of the literate workers of all enterprises attained only an elementary level of education. However, in comparison, the proportion of people attending only this level of education is much higher in CW and OS enterprises' workers and includes over 88 per cent and 100 per cent of their total literate workers respectively. The corresponding figure in WW enterprises is under 67 per cent and one-third of their literate workers have accomplished higher levels of formal education.

Table 8.5
LEVELS OF EDUCATIONAL ATTAINMENTS AMONG LITERATE WORKFORCE
OF THE ENTERPRISES

Type of the enterprise	Total number attained formal education	Elementary	Orientation	Secondary
Carpet weaving	34	88.24 (30)*	8.82 (3)	2.94 (1)
Wick weaving	24	66.67 (16)	25 (6)	8.33 (2)
Retail trade	4	75 (3)	25 (1)	0.00
Other industry-related	10	70.00 (7)	30.00 (3)	0.00
Other service-related	3	100 (3)	0.00	0.00
Total enterprises	75	78.67 (59)	17.33 (13)	4.00 (3)

* Figures in brackets indicate the numbers.

Source: Field survey, summer 1994.

Family versus wage labour

The majority of the persons working in the enterprises in the study area are family members. Wage labour contributes to only one-third of the total workforce (Table 8.6). This is partly related to the small size of the enterprises which do not require outside labour and, in some cases, such as in retail trades, are operated only by the owners. As mentioned earlier in this section, some 28 per cent of total enterprises fall into this category. However, the proportion of non-family members employed by various types of non-farm enterprises vary considerably and do not reveal a strong relationship between enterprise size and the incidence of using wage labour. As mentioned earlier, the average number of workers is higher in CW enterprises but, the proportion of wage labour among their workers is comparatively low.

In contrast, owners of WW and OI enterprises are more likely to include among their workers non-family members (see the last column of Table 8.6). Hence, as was shown earlier in Table 8.2, their average number of labour is almost half of the CW

enterprises. While over 73 per cent of the WW enterprises use wage labour, the proportion of CW enterprises using wage labour is only 35.29 per cent. The WW enterprises present firm-like conditions and employees work in the workshop of the owner and are paid a wage on a daily or monthly basis. In contrast, family labour is far more important in CW than in other enterprises, a common characteristic of the cottage type industries mentioned earlier in this chapter.

Table 8.6
PROPORTIONS OF FAMILY AND WAGE LABOUR WORKING IN THE ENTERPRISES

Type of the enterprise	Total No. of workers	Both sexes		Male		Female		Ent. using wage labour
		Family labour	Wage labour	Family labour	Wage labour	Family labour	Wage labour	
Carpet weaving	74	67.57 (50)*	32.43 (24)	78.79 (26)	21.21 (7)	58.54 (24)	41.46 (17)	35.29 (6)
Wick weaving	38	55.26 (21)	44.74 (17)	48.48 (16)	51.52 (17)	100 (5)	0.00	73.33 (11)
Retail trade	7	100 (7)	0.00	100 (7)	0.00	NA**	NA	NA (0)
Other industry-related	15	60.00 (9)	40.00 (6)	60.00 (9)	40.00 (6)	NA	NA	71.43 (5)
Other service-related	7	71.43 (5)	28.57 (2)	100 (5)	0.00	0.00	100 (2)	25.00 (1)
Total enterprises	141	65.25 (92)	34.75 (49)	67.74 (63)	32.26 (30)	60.42 (29)	39.58 (19)	46.00 (23)

* Figures in brackets indicate the numbers.

** NA = Not applicable

Source: Field survey, summer 1994.

The number and proportion of female wage labourers is higher in CW enterprises. Guha, on the basis of his survey of villages in Birjand, Hamadan and Nain in the East, Centre and Western part of the country respectively, found that the overwhelming majority of women in employment in rural areas were in craft and carpet industries (Guha 1974, p. 240). This again suggests the influence of cultural factors and is related to the location of these enterprises inside places of residence. Families in the study area would prefer their female members to work in enterprises located inside

places of residence in their neighbourhood rather than working in enterprises located in public places. Also, the majority of persons working in such enterprises are females who work in separate places from male labour. This situation is not available in WW enterprises. Another significant contributing factor in the involvement of females in home-based carpet weaving is that, as mentioned earlier, women can oversee domestic duties and mind children while working at home.

Work stability

It has been argued that most rural non-farm enterprises in developing countries run on a seasonal basis (Mukhopadhyay and Lim 1985; ILO 1988a; Sanchez 1991; Tambunan 1995). The seasonality of work in rural non-farm enterprises relates mainly to their cyclical linkage with agriculture. As Hearn, McNamara and Gunter (1996) found, 'farm labour requirements may mandate that farm residents seek off-farm jobs in industries which offer flexible, part-time, or seasonal hours' (1996, p. 31). Similarly, a study conducted by Choe on the structural significance of rural non-farm activities in monsoon economies in 1986, introduced the M-cycle hypothesis pertaining to the phenomenon of cyclically repeating peak and slack seasons in farm labour utilisation in monsoon agriculture. Choe argued that non-farm and off-farm activities increase labour productivity of farmers through providing employment during slack seasons (Choe 1986, pp. 5-6, quoted in Sanchez 1991, p. 2). However, enterprises in the study area, as shown in Table 8.7, present a rather different picture in this regard. Of the total labour working in the enterprises, over 86 per cent work the whole year and more than 68 per cent work full-time throughout the year. Meanwhile, there are differences among enterprise categories in this regard. Work in the two categories of OI and WW enterprises are more stable and the proportions of labour working full-time for whole year include 93.33 and 84.21 per cent of total labour working in these enterprises respectively. In contrast, the proportion of this category of workers in OS and CW enterprises are only 57.14 per cent and 56.76 per cent respectively and imply the seasonal characteristic of cottage industries (see Chapter 1 and the section 2 of this Chapter). As discussed in Chapter 6, the expansion of carpet weaving among the farm households in the area is closely related to its time flexibility and it is cyclically linked

with agriculture, providing employment for the farm household during the slack seasons of farm activities.

The flexibility of work in CW enterprises is mainly related to the industry's home-based nature, and to its low fixed capital requirements. While in WW enterprises that are firm-like and require higher investments on buildings and machinery, enterprises require regular work and provide less flexibility to be adjusted according to farm operations. They have to operate much of the time in order to cover the higher fixed costs.

Table 8.7
SEASONALITY AND MODE OF WORK IN THE ENTERPRISES

Type of the enterprise	Total No. of labour	Full-time whole year	Part-time whole year	Full-time part of the year	Part-time part of the year	Full-time some parts and part-time some others
Carpet weaving	74	56.76 (42)*	27.03 (20)	6.76 (5)	4.05 (3)	5.40 (4)
Wick weaving	38	84.21 (32)	5.26 (2)	7.90 (3)	0.00	2.63 (1)
Retail trade	7	71.43 (5)	14.29 (1)	0.00	0.00	14.29 (1)
Other industry-related	15	93.33 (14)	0.00	6.67 (1)	0.00	0.00
Other service-related	7	57.14 (4)	28.57 (2)	14.29 (1)	0.00	0.00
Total enterprises	141	68.79 (97)	17.73 (25)	7.09 (10)	2.13 (3)	4.25 (6)

* Figures in brackets indicate the numbers.

Source: Field survey, summer 1994.

Sources of income

In general, carpet weaving in the study area is very much a sideline activity for farm households with relatively larger land areas. It provides a source of employment

during the long cold season, and occasionally supplements earnings from agriculture when there is a shortfall in production from the farm. However, this industry is the main source of income and employment for many of those with small plots of land and for those without access to land. As shown in Table 8.8, running the CW enterprises is the main job of over 76 per cent of their owners, but over 53 per cent of such owners have to rely on other sources of income as well. Farming is the main job of 17.65 per cent of CW enterprise owners. Only two of the CW enterprise owners hold more than 5 hectares of agricultural land and both of them reported farming as their main job.

In contrast, apart from one WW enterprise owner that is a government employee, working in the enterprise is the main job of all of WW enterprise owners and the proportion of those with a second job is the lowest among all enterprise categories. On average, working in enterprise is the main job for 86 per cent of the all enterprise owners from all categories and 48.84 per cent of them have a second job. The corresponding figures for WW enterprise owners are 93.33 per cent and 42.86 per cent respectively. The Farming sector provides a secondary job for almost 42 per cent of all owners who indicated that working in enterprise is their main job. This includes over 85 per cent (18 out of 21) of all enterprise owners with a second job (columns 3 and 4 of the Table 8.8). In summary, the farming sector provides employment either as the main or secondary job for over 53 per cent of the enterprise owners from all categories (columns 4 and 5). The corresponding figures for the dominant categories of CW and WW enterprises are 63.80 per cent and 35.71 per cent respectively.

Involvement of a high proportion of enterprise owners in a second job might be a strong indication that, as mentioned in Chapter 6, most non-farm activities do not guarantee adequate income so that it is necessary for the enterprise owners to assume a secondary job to gain additional income. Thus, the higher rate of occupational multiplicity among owners of some types of enterprise is mainly related to the low return from their principal enterprises. Further, with the low returns obtained from these enterprises, there is no indication of labour being attracted from agriculture. Except for WW enterprises, those with relatively large land holdings are mainly employed in agriculture. However, as work on the enterprise is the main job of the overwhelming majority of the owners of WW enterprises and the incidence of

landlessness among them is comparatively low, there is a strong indication of better returns from this activity. It also seems that farming as a second job for some WW enterprise owners is not due to the low return from their enterprises. They operate the land mainly because they just own it, and in most cases their farm products are for self-consumption rather than for commercial purposes. This appears to be the main reason for the relatively higher proportion of farmers producing crops for self-consumption in Hodjaghan discussed in the previous chapter (see p. 204).

Table 8.8
ENTERPRISES BY MAIN AND SECOND JOB OF THE ENTERPRISE OWNERS

Type of the enterprise	Total	Enterprise as the main job of the owner	Owners with second job**	Farming as the second job of the owner**	Farming as the main job of the owner
Carpet weaving	17	76.47 (13)*	53.85 (7)	46.15 (6)	17.65 (3)
Wick weaving	15	93.33 (14)	42.86 (6)	35.71 (5)	0.00
Retail trade	7	71.43 (5)	60.00 (3)	60.00 (3)	28.57 (2)
Other industry-related	7	100 (7)	57.14 (4)	42.86 (3)	0.00
Other service-related	4	100 (4)	25.00 (1)	25.00 (1)	0.00
Total enterprises	50	86.00 (43)	48.84 (21)	41.86 (18)	10.00 (5)

* Figures in brackets indicate the numbers.

** Proportion of the owners that enterprise is their main job.

Source: Field survey, summer 1994.

However, as is apparent from data in Table 8.9, unlike findings of some other studies in rural Asia (Islam 1984; Hasbullah 1989; Verma and Verma 1995), there does not seem to be a strong relationship between the size of agricultural land and types of dominant enterprises established by the owners. On the basis of his study of 11 villages in six Asian countries, Islam (1984) found that the families owning large farms had high incomes and therefore were able to penetrate the organised sector of the economy and

find relatively prestigious and high income occupations there. Similarly, Verma and Verma (1995, p. 423) found in the case of India that the large size farmers had greater access to more remunerative non-farm enterprises. They noted that:

The more remunerative self-employed enterprises in the rural areas or in nearby towns tend to need relatively larger amounts of capital. With easy access to capital owned or borrowed and generally higher levels of formal education and skill formation, the large size farmers in traditional agrarian society ... probably enjoy much better access to remunerative self-employed ventures and regular jobs (Verma and Verma 1995, p. 423).

As Table 8.9 shows, some 48 per cent of all enterprises belong to landless families, though the proportion varies from about 28 per cent in retail trades to 100 per cent in OS enterprises. Further, the appearance of relatively more enterprises among owners

Table 8.9
ENTERPRISES BY AGRICULTURAL LAND AREA OF THE OWNERS

Type of the enterprise	Landless	<5 Hectare	5 <10 Hectares	10 + Hectares	Total
Carpet weaving	47.06 (8)*	41.18 (7)	11.76 (2)	0.00	100 (17)
Wick weaving	33.33 (5)	46.67 (7)	20.00 (3)	0.00	100 (15)
Retail trade	28.57 (2)	14.29 (1)	42.86 (3)	14.29 (1)	100 (7)
Other industry-related	71.43 (5)	28.57 (2)	0.00	0.00	100 (7)
Other service-related	100 (4)	0.00	0.00	0.00	100 (4)
Total enterprises	48.00 (24)	34.00 (17)	16.00 (8)	2.00 (1)	100 (50)

* Figures in brackets indicate the numbers.

Source: Field survey, summer 1994.

of less than 5 hectares of agricultural land compared to the other two land size categories, seems to be related merely to the higher proportion of this category among

total land owners (see Chapter 7). Overall, some 82 per cent of the enterprise owners either have no land or own smaller holdings with less than 5 hectares. The corresponding figures for the two dominant enterprise categories of WW and CW are 80 per cent and 88.24 per cent respectively.

Thus, it appears that the land has not been the major source of capital for establishing the enterprises and, as discussed in the previous chapter, 25 per cent of the households own no land and some 86 per cent of the agricultural holdings are so small that they can hardly meet households' subsistence. As discussed earlier in this chapter, the fixed capital requirement of CW enterprises is limited and the required materials in most cases are provided from Marand through contract arrangements. In the meantime, the present WW enterprises have flourished through transformation of traditional enterprises that belonged mostly to poorer families in Hodjaghan where the average size of agricultural holdings in this village is the smallest among the sample.

The only exceptions in this regard are the retail trade enterprises where some 57 per cent of them belong to owners of more than 5 hectares land. One important point to be mentioned here is that although income from land seems to have been the main source of capital for this group, the relatively larger size of their land is also related to their income from their enterprises. It is beyond the scope of the present study to investigate this process of changes in the sizes of holdings for, it requires, as mentioned in the previous chapter, another major study. However, it is worth mentioning here that, as findings of different studies in other rural areas of the country show (Khosravi 1972 and 1978; Lahsaeizadeh 1990b; Azkia 1991; Taghavi 1995), access to capital earned from enterprises has enabled them, such as the shop owner in Kohnab, to increase their land size through buying land from small land owners.

Occupational background of enterprise workers

The occupational background of labour working in enterprises is examined here in order to find out whether there is a trend of transfer of labour among various categories of enterprises on the one hand, and from the farm to the non-farm sector on

the other. Table 8.10 details the previous jobs of all persons working full-time in enterprises. Exclusion of the part-time and seasonal workers from Table 8.10 is deliberate since they include primarily the homemakers and students, often without any occupational backgrounds.

As data in Table 8.10 show, some 44 per cent of the total workforce was not in the labour force before and over 25 per cent have moved between enterprises within the same category. This latter group mainly includes workers who started the job in other enterprises as wage labourers and, after learning the necessary skills on the job, started their own enterprises. The important point revealed by this table is a considerable mobility of labour among the sectors, which involves about 30 per cent of total full-time workers. Over 55 per cent of the intersectoral mobility of labour relates to the movement of labour from the farming sector (16 out of 29), and supports the trends observed in the sectoral composition of labour in the study area and discussed earlier in Chapter 6 (see pp. 149-51).

Table 8.10 also indicates that there is labour mobility among non-farm sectors in the study area. Movements of labour from the two categories of 'other industry-related activities' and 'other service-related activities' seem to be related to outside factors as well as to domestic factors which affect the labour markets of the study area. Movement of labour from the former partly relates to the declining demand for labour in the construction sector throughout the county, mentioned in Chapter 6. This involved 3 out of 5 workers moving from this sector. Movement from other service-related activities included two workers both of them worked before in the transport sector outside the area.⁵ However, the highest percentage of labour moving from the non-farm sector belongs to carpet weaving. This seems to be related to the lower attraction of work in this industry, outlined earlier on this chapter (see pp. 230-31).

⁵ One owned a truck before and the other was a driver and both worked in the transport sector. They were mainly involved in transporting imported goods through Jolfa (a border town located about 70 km. distance to the North of the area) to different parts of the country. Import of goods through this border town which would include most of the country's imported goods from Russia and the East European countries, first declined and then completely stopped after the collapse of the Soviet Union and then the dispute between two of the former Soviet Republics of Armenia and Azarbaijan. As the result, most of the businesses and transport related activities of the town and nearby areas suffered due to a decline in demand and many were completely closed down.

Table 8.10
PREVIOUS JOB OF THE FULL-TIME WORKERS OF THE ENTERPRISES

Enterprises ⇒ Previous job of the enterprise workers* ↓	Carpet weaving	Wick weaving	Retail trade	Other industry- related	Other service- related	Total
Not in the labour force	54.76 (23)**	43.75 (14)	40.00 (2)	28.57 (4)	0.00	44.33 (-3)
Work in another enterprise of the same category	28.57 (12)	12.50 (4)	0.00	42.86 (6)	75.00 (3)	25.77 (25)
Farming	11.90 (5)	18.75 (6)	40.00 (2)	14.29 (2)	25.00 (1)	16.49 (16)
Carpet weaving	NA***	9.38 (3)	20.00 (1)	14.29 (2)	0.00	6.19 (5)
Wick weaving	0.00	NA	0.00	0.00	0.00	0.00
Retail trade worker	0.00	0.00	NA	0.00	0.00	0.00
'Other industry-related enterprise' worker	4.76 (2)	9.38 (3)	0.00	NA	0.00	5.15 (5)
'Other service-related enterprise' worker	0.00	6.25 (2)	0.00	0.00	NA	2.06 (2)
Total full-time workers	100 (42)	100 (32)	100 (5)	100 (14)	100 (4)	100 (57)

* Any job workers held before commencing work at the surveyed enterprise, including work at the enterprises of the same category.

** Figures in brackets indicate the numbers

*** NA = Not applicable

Source: Field survey, summer 1994.

In terms of absorbing labour from other non-farm activities, the highest proportion belongs to WW enterprises. Some 25 per cent of the total full-time workers in this category have moved there from other non-farm activities. The corresponding figures for retail trades, OI and CW enterprises were 20 per cent, 14.29 per cent and 4.76 per cent respectively. No one from OS enterprise workers had moved from other non-farm activities.

In summary, both of the dominant enterprises of CW and WW received labour from the farming sector, but the numbers of people moving to the former from other

non-farm sectors is lower than the number moving from this category to other non-farm sectors (2 against 6). In contrast, while the WW enterprises have received the highest proportion of labour from other non-farm sectors, there has not been any movement of labour from this category to other non-farm sectors.

8.4 Conclusion

The overall study of employment by non-farm sector in the study area indicates an expansion in employment opportunities related to economic growth, as well as types of employment that were created because of the demand for any kind of work due to the lack of employment opportunities. There is, therefore, an expansion in both, to use Hasbullah's terms, 'progressive' and 'distress' types of non-farm activities (Hasbullah 1989, p.314). Carpet weaving has been the most rapidly growing non-farm activity in the study area. However, although urban market-oriented, its workforce characteristics suggest that push factors are responsible for its growth and it represents the 'distress' type of rural non-farm activities. The wick weaving industry has features of progressive rural industries and its growth seems to be related mainly to wider market demands.

The growth of non-farm activities suggest that there has been a process of diversification within the economy of the study area. However, the present study does not suggest a linkage between agriculture and the growing non-farm sector in the sample villages. The expansion in non-farm employment in these villages is mainly related to growth in types of rural industries that have no linkage with local agriculture either through provision of goods and services for that sector, or through processing its products. Nor these industries depend on agricultural incomes as their capital sources.

Similarly, due to the short distance of the sample villages from Marand and the direct connection of the owners of the dominant enterprises with that city for both provision of materials and marketing of products, the expansion of these urban-oriented activities have had very little effect on the expansion of related employment opportunities in these villages.

CHAPTER NINE

SUMMARY AND CONCLUSION

9.1 Introduction

This thesis has explored labour force trends in a sample of villages in Northwest Iran. In so doing, it examined the extent to which many general statements made about changes in the rural labour force in developing countries (discussed in Chapter 1) are reflected in the study area. Hence, in some respects, this thesis presents a case study of change in rural employment through the expansion of both progressive and distress types of non-farm activities. These changes in rural employment have been neglected in the study of changes in rural Iran in micro as well as in macro level research. While it is, of course, not possible to generalise fully from this case study to all other areas in Iran, the results of this research are substantially relevant to the study of other rural localities throughout the country. Moreover, this research will contribute towards a deeper understanding of changes in the rural labour force and employment in Iran generally, since the extent of contemporary knowledge about these issues is still very limited.

This chapter presents a summary of the findings of this study and then discusses some of the policy implications of these findings for development and expansion of employment opportunities in the study area and in rural Iran in general. Some recommendations for future research are discussed in the final section of the chapter.

9.2 Summary of the findings

The main aim of this study was to describe and explain the characteristics and composition of the labour force, its changes over time, and the availability of employment opportunities in the study area. The discussion presented in section 1.2

revealed that among the major factors affecting the composition of the rural labour force and the employment opportunities available to it, two factors are particularly important: demographic change and development policies adopted by governments. Chapter 2 reviewed the trends in demographic changes and government policies towards rural development at the national level in recent decades. It revealed that while a rapidly growing population has resulted in an increase in the rural labour force in Iran, government policies were concerned little with the creation of rural employment opportunities. In addition, introduction of new mechanised farm enterprises and agricultural machinery further reduced employment opportunities for rural labour in the agricultural sector.

The population within the study area (Chapter 4) increased over 73 per cent within the 25 years from 1966, resulting mainly from a high fertility rate. This high fertility rate, together with outmigration of people primarily of working age, has resulted in a young age structure of the population and a high youth dependency ratio. The trend of declining fertility rates in recent years, discussed in Chapter 4, may reduce the rates of increase in the number of persons seeking work in the longer term, but over 45 per cent of the area's current population that are under the age of fifteen will need to find employment in the near future.

The increasing population, together with the small size of agricultural holdings and landlessness, have compelled members of households either to migrate or to adopt alternative strategies to increase their incomes. These latter broadly involve participation in non-farm and off-farm employment. As a result, the position of agriculture as the main source of employment in the study area has been declining, while the contribution of other sources of employment has been increasing.

The discussion about the sectoral composition of the workforce, presented in Chapter 6, revealed that only about one-third of the employed population is employed on the land or in activities directly related to the agricultural sector. Rural industries, both traditional and mechanised, are the dominant source of work for the remainder. The growth of non-farm activities has expanded employment opportunities and is a major factor contributing to the low rate of unemployment in the area, as discussed in

section 5.5. However, due to the small sizes of the majority of holdings and due to the seasonal nature of the work in the farming sector on the one hand, and the involvement of a considerable proportion of the non-farm sector workforce in traditional cottage industries on the other, the low rate of open unemployment in the area does not mean better utilization of labour. Nevertheless, it indicates that, as Islam (1987, p.4) has argued, the promotion of the rural non-farm sector can contribute to an increase in employment opportunities for the rural labour force. Further, given the home-based nature of some of the non-farm activities, it can increase the participation in the labour force by women, as discussed in section 5.4.

While the four villages selected in the sample are not necessarily representative of all villages in Iran, the agricultural structure of the villages is similar to that found in other villages studied in the region (Sadr Mousavi, Hadili and Zahedi 1992 and 1993). A notable proportion of the households has no, or very little, access to agricultural land. This lack of access, in conjunction with reliance on family labour to fulfil agricultural labour requirements for those owning land, means that there are very limited employment opportunities in the agricultural sector for landless households. Given the small sizes of the overwhelming majority of the holdings and an average size of 4.32 hectares for each holding in these villages, any major improvement in the labour absorption capacity of agriculture is unlikely and the sector will not provide an arena for the absorption of the growing labour force in these villages. Prospects for the intensification of agriculture to increase the sector's labour absorption capacity are limited due to the physical constraints discussed in Chapter 7. Expansion of irrigation water resources may increase the sector's labour demand through the elimination or reduction of the fallow period in the cropping cycle in irrigated lands, and by enabling irrigated farming on the rain-fed lands with low or mild slopes. However, the scope for expansion of irrigation water resources in the area is limited and, due to the topography of the land, not all of the rain-fed lands in the area can be irrigated. Further, sections 7.2 and 7.4 revealed that employment creation through the application of the short maturing varieties of crop discussed in section 1.2 is limited in the area due to the length of the cold season.

Although factors such as the lack of access to land or the smallness of holdings have been the main forces pushing labour to seek income and employment from the non-farm sector, at present both the progressive and the distress types of non-farm activities discussed in sections 1.2 and 8.2 can be seen in the study area. Wick weaving represents the progressive type in that this industry has adopted new technology, runs on a stable basis and acts as the main source of income for its employees. Carpet weaving represents the distress type. A traditional industry, it often operates on a seasonal basis and acts more as a supplementary source of income for farm households. Nevertheless, this traditional industry is the main source of income and employment for the majority of households without access to land.

The quality of labour in the non-farm sector is higher than that of the agricultural sector. As X. Wu has argued about the rural enterprises in China (1994, p. 144), among the non-farm sector activities, an increase in the capital intensity of enterprises has increased the demand for higher quality labourers. The workforce in the wick industry is more literate, works on a full-time basis and the proportion of wage labour is higher than amongst the workforce employed by other industries. Carpet weaving, on the other hand, is based on family labour with low levels of literacy and work is usually on a part-time basis.

The processes of change in the sample villages are diverse. While all four villages experienced expansion of non-farm activities, the type and the nature of the growing non-farm activities in each village is different. The dominant and expanding non-farm activity in the two villages of Kohnab and Abarghan is carpet weaving which is controlled mainly from outside the villages. The non-farm activities of the workforce of Dowlat Abad are closely related to the employment opportunities available for them in nearby Marand, although the declining demand for construction workers in that city in recent years has pushed some of the labour towards carpet weaving. The growing number of service sector workers also distinguishes this village from the others. The dominant and growing activity in Hodjaghan is of a different type and has resulted from the transforming of traditional wick weaving into a relatively mechanised industry.

The diversity in processes of change in the labour force in these villages is, among other factors, closely related to the geographical locations of the villages and to ease of access to urban centres. The nature of change in the labour force of the two villages of Dowlat Abad and Hodjaghan has been affected by their short distance from, and their connections with, the urban centres. Thus Dowlat Abad has benefited from its easy access to the labour market in Marand. Similarly, the transformation of the traditional wick industry of Hodjaghan is closely related to its short distance from Marand and to the information obtained by traditional wick producers about the mechanised form of wick production through their migration. In contrast, the village of Kohnab suffers from remoteness and from its location in a mountainous area. Both factors have limited its connection with the outside world.

The diversity of the processes of change has resulted in different socio-economic structures in these villages. In general, the two villages of Abarghan and Kohnab present different pictures compared to those of Dowlat Abad and Hodjaghan. The literacy level among the population of the two villages of Kohnab and Abarghan is very low. Subsistence and semi-subsistence agriculture are the main sources of income and employment in these two villages, and carpet weaving is the only important non-farm activity. The non-farm sector provides more secondary employment and employs more family labour. In contrast, the literacy level among the population of the two villages of Dowlat Abad and Hodjaghan is relatively high. The industrial sector is the main source of income and employment for residents and the non-farm sector includes relatively diverse activities. The non-farm sector provides more principal employment and employs relatively more wage labour. In addition, there is a major difference between these two villages. While commuting to work in Marand is a major source of non-farm employment for the labour force of Dowlat Abad, non-farm employment for the labour force in Hodjaghan is largely generated by the local economy.

Hodjaghan is distinctive among the villages in the employment of labour in the non-traditional non-farm sector while, at the same time, having a very low level of labour commuting to work to Marand. Why Hodjaghan, in comparison to the other three villages, has such a high proportion of non-farm labour allocated within the village reflects the ability of its enterprises to absorb labour. This was best illustrated in the comparison with Dowlat Abad, presented in Chapter 6 of this study.

A final finding of this study is that the main factor contributing to the emergence and growth of the dominant non-farm activities in these villages has not been the increasing local demand for their goods and services; nor has the development of the agricultural sector resulted in their emergence and growth. While growing local demand has contributed considerably to the growth of some non-farm activities such as trade or public services, the need for any kind of work to enable survival by the landless, and to supplement the income of farm households, has been the prime reason for the emergence of the dominant non-farm activities. The sector includes mainly urban-market-oriented small and traditional industries which receive their raw materials from urban centres and which have no linkage with the agricultural sector. Changes in the wick weaving technology in Hodjaghan, which were initiated by emigrants coming back to the village, have transformed the previously traditional industry into one that presents the characteristics of progressive non-farm activities.

9.3 Some policy implications

Given the already serious problems of unemployment among the country's rapidly growing urban population, which is apparent from government statistics (SCI 1993b, p. 68), and the dismal labour absorption record of industrial development in recent decades (discussed in Chapter 2), there seems to be little likelihood of growth in employment opportunities for rural labour in urban centres. Solutions to rural unemployment must therefore be sought primarily in the rural economy itself. As noted by Lea and Chaudhri:

... when there is an absence of any rapid expansion in the urban and industrial sectors, income and employment opportunities have to be generated in rural areas to exploit labour *in situ*, to generate development (however defined), and to halt rural-urban migration (Lea and Chaudhri 1983, p. 10).

However, considering the characteristics of some of the non-farm activities in the area discussed in Chapter 8 from the point of view of the policy-maker, as Lim and Mukhopadhyay (1985) suggest, the real issue would not necessarily be an indiscriminate generation of non-farm activities with little regard for the profitability of such activities: 'The issue is not just creation of employment but also whether such employment is sufficiently remunerative or not' (Lim and Mukhopadhyay 1985, p. 22). Carpet weaving plays an important role in employment generation, but it needs improvement in work conditions. Further, the industry's dominant outwork system means the industry is controlled from outside and consequently, the some of the profit is lost from these villages. The provision of credit through the banking system or through micro-enterprise credit schemes and the regulation of provision of materials and marketing of products through appropriate organisations may increase income and remunerative employment opportunities.

The findings of this study indicate that non-farm activities are really needed to help retain population in the villages. However, the main factor keeping residents in these villages is the agricultural sector. The present non-farm activities can be practised in urban as well as in rural areas, and have no linkage with the area for their raw materials or their products. Nor do they have backward or forward linkages with the agricultural sector. In most cases, farm households practise these activities to supplement farm incomes. Without solving the problems facing the agricultural sector, and given the attractions of cities discussed in section 4.6, these non-farm activities will provide little motivation for residents to stay in the villages. This is already happening in Kohnab where, despite growth in carpet weaving, the village is losing its population.

There are even signs of movement of some of the wick weaving enterprises from Hodjaghan to Marand. The reasons for establishment of these enterprises by entrepreneurs in the village rather than in an urban setting like Marand which offers some advantages (discussed in Chapter 8) were, among other reasons, the low cost of establishing the enterprise in the village and the maintenance of connections with agriculture for those holding some land. The former is becoming less important for those enterprise owners who have acquired some financial capability through saving and who have sufficient capital to move their enterprise to Marand. The latter, too, is

losing its importance due to low returns from small pieces of land compared to the returns from wick weaving enterprises.

Therefore, the creation of employment opportunities through the expansion of the non-farm sector in rural areas not only requires additional support for rural enterprises compared to their urban counterparts, but solutions to problems encountered by the farming sector and the development of agriculture is a necessity.

The agricultural sector faces such problems as small sizes of holdings, fragmentation and the shortage of irrigation water. Lack of irrigation water means that intensive use of land is prevented and that there is additional length of the fallow period in the cropping cycle. In addition, the problem of fragmentation makes, as Najafi and Soltani (1983) have argued, working the small plots of land less economic. While there is little scope for increasing the sizes of individual holdings due to the villages' limited agricultural land area, appropriate policies are required to overcome problems of irrigation water shortages and fragmentation. Solutions to these and other problems encountered by the agricultural sector could improve intensive agriculture and enhance its labour absorption capacity. Further, developed agriculture will increase farm incomes which may lead to an increase in non-farm activities by, as Koppel and James (1994, p. 290) noted, increasing the demand for their goods and services.

9.4 Limitations of the study and some suggestions for further research

This study has documented trends in the labour force and employment in a sample of villages in Northwest Iran. In the course of this study many other issues have been raised which need to be examined in more detail than has been possible here. For example, due to the number of villages covered by the study and the diverse activities within each of them, only general characteristics of the workforce were discussed. A more detailed study of workforce characteristics, focusing on the gender structure of the workforce and the levels of income and labour productivity in the farm and various non-farm sectors, is greatly needed. The former will provide an actual assessment of the contribution of women to the rural economy and will assist in the development of

policies which aim to create employment opportunities for the female population. The study of income and the productivity of labour, on the other hand, will lead to an assessment of the extent to which rural labour is being utilized.

As was apparent from the discussion presented in Chapters 4 to 8, the changes in Hodjaghan have been different from those taking place in the other three villages. This study identified the existence of the wick weaving industry as the prime reason for these differences and noted that its earlier emergence and growth in Hodjaghan was related to the two factors of easy access to urban centres and the limited agricultural resources. However, not all of the villages in the region with similar characteristics have been able to develop such industries. Given the role played by emigrants returning to the village in replacing traditional wick weaving by mechanised approaches, further research is needed to explore the impact of the entrepreneurs and the local leadership on the processes of change in these villages.

Another important issue concerns the effectiveness of existing government policies related to rural industries. Analysis of these would also provide vital information as a basis for future policy development.

The field experience of this researcher indicated that there is also a pressing need for development of more appropriate research methods to be applied in the socio-cultural situation in rural Iran. The conventional methods used in census data collecting underestimate labour force participation. This is particularly the case when, as discussed in section 5.4, the research is concerned with the participation of women in the labour force. To explore the actual labour force participation of women in the labour force in the study area, further research based on data collected by interviewing individual female household members is required. Due to cultural factors, it would be more appropriate if such data is collected by female interviewers.

Since census data about the labour force for a longer period was not available, the period covered by this study was limited only to the 1986-94 period. This problem of access to data about the labour force at the village level pertaining to the period prior to the year 1986 places a serious restriction on any research about the processes

of change at the micro level in rural Iran over a longer period. To overcome this problem, appropriate methods of data gathering need to be developed to obtain data pertaining to the past few decades through local investigations.

Finally, given the limited geographical coverage of the of the present study, and considering the diverse physical, social and economic conditions found in different parts of rural Iran, further research needs to be undertaken based on samples of villages in other parts of the country. Greater breadth of information may permit generalisations about work and life in Iranian villages.

9.5 Summary

Despite the limitations outlined and the necessity for further research, the findings of this study do, however, make an important contribution to the limited existing knowledge and understanding of labour force change in rural Iran. This village level analysis has filled a gap in existing research and provides a basis for future comparative studies. This analysis has also demonstrated that there is an urgent need to develop appropriate policies aiming to generate more progressive forms of rural employment in order to prevent rural decline and to ensure adequate income for rural families.