

UNDER-EMPLOYMENT AND RURAL MIGRATION IN IRAN

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ABSTRACT

The relationships among under-employment, the opportunity cost of labor, and small farmers migration decisions in Iran were studied. The results of budgeting analysis indicated that despite a high under-employment rate and a low marginal productivity of farm labor, families on small holdings stayed and produced as long as the average value product of their labor equalled or exceeded their opportunity costs of remaining on the farm. Given the social cost of maintaining migrants and the negative impact of migration on agricultural output in some regions, policies to raise labor productivity and reduce rates of rural-urban migration for less developed countries are proposed.

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چکیده

در این مقاله رابطه میان کم کاری، هزینه فرصت نیروی کار (نرخ دستمزد خارج از مزرعه) و مهاجرت زارعین خرده پا به شهر در ایران مورد مطالعه قرار گرفت. نتایجی که از تجزیه و تحلیل بودجه مزرعه بدست آمد نشان داد که علیرغم بالابودن نرخ کم کاری و پایین بودن دستمزد در خارج از مزرعه، زارعین خرده پا به تولید ادامه داده و از مهاجرت به شهرها خودداری می کنند. با توجه به هزینه اجتماعی نگهداری مهاجرین در شهرها و اثر منفی این مهاجرت بر تولیدات کشاورزی در برخی از مناطق، سیاستهایی برای کشورهای در حال توسعه بمنظور افزایش بازده نیروی کار و کاهش نرخ مهاجرت پیشنهاد گردیده است.

INTRODUCTION

Considerable literature in economic development has been devoted to issues concerning labor surplus and its productivity in the agricultural sector of less developed countries (LDCs) (1, 2, 6). In spite of many empirical studies, testing and rejecting the hypothesis of zero marginal value product (MVP) of agricultural labor in LDCs (3, 4), the issue of the MVP of family labor on small holdings is far from being resolved. The main reason is that the concept of "surplus labor" is not carefully defined and a clear distinction is not made between peak and slack labor

demand periods of small farm agriculture in LDCs.

According to production theory, migration is a response of laborers to labor market disequilibrium and is explained by rural urban wage and productivity differentials. While lack of employment opportunities and lower wages are widely recognized as important variables pushing wage labor from rural areas, the evidence is less clear on the migration of unpaid family labor from the small holdings. Theory suggests that rural under-employment and the low MVP of labor will provoke migration from the rural sector, but in many areas small farmers and their families do not migrate even in the face of under-employment and very low marginal productivities of their labor.

This study examines the extent of rural under-employment and its relation to migration on small farm agriculture with the objectives of: a) determining the magnitude of under-employment and seasonal unemployment of family labor on small crop and livestock farms in Iran, and b) examining the relationships among under-employment, the opportunity costs of labor, and small farmers' decisions to continue or discontinue agricultural production. The hypothesis that production, as a family venture, continues as long as the average value product (AVP) of family labor exceeds its opportunity cost is tested.

MATERIALS AND METHODS

Iran is a relatively large country with a population of 58 million people. Close to half is considered rural and of this group nearly 75% are living on some 3 million farms. The rest of the rural population are landless inhabitants (Known as Khoshneshinha) (4).

Most data utilized in this analysis were collected through a survey of some 60 villages in Fars province. The province is located in south central Iran with a

population of about 2.3 million and an agricultural workforce of about 0.5 million people. In 1982 some 84% of the agricultural labor force was engaged in farming and the rest in rural industry and off-farm jobs (5).

Total agricultural land in the province is about 1.2 million ha of which approximately 64% is cultivated each year and the rest is left fallow. Most farms in the province are small with an average size of about 6.4 ha (5).

While much of the labor is provided by family members, given the low level of mechanization, in some regions, hired labor is employed during peak labor demand periods, especially at the planting and harvesting seasons. The contribution of landless villagers to the farm labor is about 20% (5). The province has been divided into 14 administrative regions (Shahrestan) with diverse climates ranging from cold and long winter to hot and long summer. Crop combination in the province is similar to traditional farming in semi-arid regions (about 70% cereals and 30% summer crops) (5).

The traditional budgeting technique was followed in estimating the AVP of labor. Input-output data were obtained by interviewing the farm operators in the selected villages. All production activities, including farm and non-farm activities, were included.

Total labor requirements were determined on the basis of *a*) physical input of labor per unit of crop, livestock and rural industry and *b*) annual crop acreage and total number of other activities existing in each region. To determine the seasonal labor requirements, total labor requirements in each region were split up among various months according to the timing of farm operations.

To determine the relation between the average income of family labor, under-employment and the decision to migrate, two periods were considered: 1977, when a large exodus of labor (mostly young) from villages to urban areas was observed, and 1982 (after the revolution), when migration of farm operators from

rural areas was insignificant. The average value product of labor in the two periods was determined and compared with the opportunity cost of remaining on the farm. Since the cost of living in urban areas is higher than rural areas, the opportunity cost of labor on farm was discounted by the difference between the per capita cost of living in the two areas. The opportunity cost of labor remaining on the farm was derived from reported days of available family labor valued at the going wage rate for unskilled labor in the cities to which the labor migrated.

RESULTS AND DISCUSSION

Table 1 shows labor requirements versus labor supply in various regions. As indicated, the amount of labor productivity employed in farming and related activities is about 51 million man-days. Compared with the total agricultural labor force of 110 million man-days, nearly 53% of agricultural labor in the province is under-employed. The rate of under-employment in the province ranged from 75% in region 9 to almost zero in region 6. In regions 3 and 11, due to the existence of carpet industry, and in region 6, because of labor intensive field and vegetable crops, the rate of under-employment is very low. In these regions almost all of the labor force is engaged in farming and related activities.

Seasonal Unemployment

Due to the seasonality of agricultural operations, it would be more appropriate to take account of seasonal variations in family labor employed. Table 2 shows the monthly distribution of labor employment in various regions. Comparison of monthly supply and monthly labor requirements indicates that in all but 4 regions

Table 1. Labor supply and labor requirement in various regions in 1982
(1000 man-days).

Region	Code	Labor supply	Labor requirements	Under- employment (%)
Abadeh	1	6300	3460	45
Darab	2	7800	4173	43
Eghlid	3	2660	2700	9
Fasa	4	6600	2816	57
Firuzabad	5	10500	3040	71
Jahrom	6	6300	6295	0
Kazerun	7	10600	4537	57
Lar [†]	8	4600	2464	46
Mamasani	9	14900	3724	75
Marvdasht	10	11000	5514	50
Nairiz	11	3250	3214	2
Sepidan	12	5000	1667	67
Shiraz	13	19900	6890	65
Stahban	14	1250	691	45
Province		110000	51100	54

[†] In this region about 70% of the labor force has migrated to Persian Gulf States. In computing total labor supply to farming, the number of migrants was deducted from the total labor force.

Table 2. Comparison of monthly labor requirements and monthly labor supply in 1982.

Region code	Monthly labor available	Monthly labor requirements (1000 man-days)											
		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	525	38	164	182	62	125	14	119	71	154	124	68	38
2	650	385	694	766	457	112	188	111	114	165	208	157	142
3	246	17	71	74	70	131	229	134	77	104	73	24	17
4	550	71	121	164	225	415	164	165	146	245	269	262	86
5	875	12	221	275	119	146	112	83	77	139	151	15	71
6	525	225	123	1146	1202	109	59	69	85	496	500	401	397
7	883	81	297	577	580	531	74	74	99	176	187	74	57
8	383	78	246	280	442	91	87	98	88	127	127	59	57
9	1240	13	246	247	146	504	103	102	102	187	194	86	12
10	916	158	160	238	730	743	428	301	180	374	377	319	262
11	270	39	94	106	129	164	130	581	136	126	177	150	39
12	416	0.6	97	99	61	62	163	163	14	123	109	0.4	0.4
13	1658	101	436	436	420	1074	328	322	253	421	363	691	99
14	104	4	87	97	40	42	45	36	55	59	46	10	1

(regions 2,6,8 and 11) labor supply is in excess of labor requirements throughout the year. Hence, MVP of family labor in these regions is zero. Only in regions 2,6,8 and 11 the marginal productivity of family labor during the periods of planting and harvesting is positive. Between these peaks, however, family labor becomes excessive, yielding a low marginal productivity for the entire production period. Table 2 also indicates that, as expected, the distribution of monthly labor requirements in warmer regions is more even than in colder regions. In the latter regions, there are the equivalent of several idle months each year for each farm operator and each family farm laborer. The number of idle months in warmer regions, however, is less than in colder regions.

Under-employment and Migration

As indicated in Table 1, in most regions studied between 2 and 75% of labor could be withdrawn without reducing agricultural output. This implies that the MVP of family labor in most regions is near zero. Although in regions 2,6,8 and 11 surplus family labor exists during some months of the year, this labor could not be withdrawn from the small holdings without reduction in crop output. Despite the low MVP, farmers and their families continue production in the face of a very low MVP for their labor. To find a rationale for such behavior, one can look at the AVP of family labor. The AVPs of total family labor and of family labor spent on farm and related activities in 1982 are shown in Table 3.

The average wage rate in off-farm employment in 1982 was about 1300 Rials per day (70 Rls.=1 U.S. \$). Discounting for the higher cost of living in the urban areas, the real wage rate (opportunity cost of labor on the farm) would be around 1100 Rls. per day.

As indicated in Table 3, the AVP of family labor spent on farm activities in all but two regions was higher than the real wage rate in off-farm employment. Thus, despite a high unemployment rate in most regions, there was no economic

Table 3. Annual family income, AVP of total family labor, and AVP of family labor spent on farm activities, respectively (Rls per day[†]).

Region code	No. of families	Family labor (man-days per family)	Family labor spent on farm (man-days per family)	Average annual family income	AVP of total family labor	AVP of family labor spent on farm
1	11990	525	290	233400	444	805
2	12957	600	324	546000	910	1700
3	4348	680	620	771000	1130	1240
4	10614	620	267	274600	443	1028
5	15910	650	188	251500	802	2770
6	9500	660	660	1130000	1710	1710
7	14890	710	350	687600	968	1964
8	20000	230	124	434000	1880	3500
9	20260	735	184	300000	408	1630
10	17900	614	313	579000	943	1850
11	6200	525	514	504500	1130	1150
12	7797	640	205	260000	406	1270
13	29530	670	234	489500	730	2090
14	1704	735	412	1674600	2270	4060

[†] At the official rate, approximately 70 Rls.=1 U.S. \$.

incentive for family labor to move out of farming in 1982. This explains why those remaining on the farm continued production. These findings seem to provide sufficient evidence to support the hypothesis mentioned above. Thus, it could be expected that a low marginal productivity of family members and a high under-employment rate would not provoke migration from the small holdings. Rather, families on small holdings seem to migrate as a unit. The fact that the AVP of total family labor in most regions is less than the real wage rate explains why family labor seeks partial off-farm employment. Rural migrants in most regions during 1978-82 period were mostly wage (landless) labor.

The AVP of family labor in 1977, when a large exodus of labor from villages was observed, was estimated to be lower than the real wage rate (390 and 510 Rls. per day, respectively) in region 10 (4). The fact that about one third of family workers had non-farm jobs in 1977 suggests that non-farm income plus farm income in the region may be higher than the amount which could be earned in a non-farm job only.

CONCLUSION AND POLICY IMPLICATIONS

In Iran, as in many less developed countries, there is a "push" effect exerted upon rural inhabitants to migrate to places where they might be more productive. Due to the high social cost of maintaining migrants, policies to reduce rates of rural-urban migration in Iran deserve attention. Maintaining the AVP of farm family labor equal to or greater than the real or perceived opportunity wage is, at minimum, a necessary condition to accomplish such an objective. By no means, however, can it be contended as a sufficient condition; the basis for migration decisions is indeed complex and beyond the scope of this paper. Yet, the analysis does point out to some areas for policy attention. The magnitude of under-employment and seasonal unemployment in various regions indicates that peak labor demand periods for small farms should be of less concern

than the periods of slack labor demand. Thus, land-saving technologies and non-traditional production and organization patterns may be more appropriate for enhancing labor productivity on small farms than labor-saving technologies.

Given the small size of holdings and the high rate of population growth, farm families are bound to end up with increasing surplus members who can not be absorbed in the agricultural sector alone. Therefore, increasing rural employment opportunities should be accompanied by the expansion of the urban labor market.

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