



Relationship Among Dual-labor Market, Food Security, and General Health in Rural Areas

Parvaneh Khosravi^a, Hossein Agahi^b and Shahpar Geravandi^{c,*}

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Abstract

This study aimed to determine whether dual-labor markets increase the income and consequently the food security of rural households and whether they improve the general health of the heads of these households. To achieve this goal, a descriptive cross-sectional survey with comparative designs was conducted to explore the relationship among the research variables. The statistical population was composed of the heads of rural households living in the rural district of Mahidasht in Kermanshah County, Kermanshah province, Iran. Overall, 283 household heads, who were chosen by the systematic sampling method, were interviewed. Food security and general health were measured using the 18-items Household Food Security Survey Module (HFSSM-18) and the 28-items General Health Questionnaire (GHQ-28). The validity of the research instrument was assessed and confirmed by an expert panel at Razi University and its reliability was established using Cronbach's alpha. Data analysis was performed in the SPSS16 and AMOS software packages. The results show that dual-labor markets significantly increase the income of the household heads who work in secondary labor forces, and as a result, they enjoy a higher degree of food security in their households. However, a closer examination reveals that the income generated from the secondary labor market has a significant inverse correlation with the general health of these household heads, as they are more likely to suffer from severe depression, anxiety, insomnia, and social dysfunction (compared to the household heads who were not working in secondary labor forces). In the end, the paper provides several recommendations for local officials, planners, and policymakers.

Keywords:

Dual-labor market; food security; general health

^a M.Sc. Graduate of Rural Development, Department of Agricultural Extension & Education, Faculty of Agriculture, Razi University, Kermanshah, Iran

^b Associate Professor, Department of Agricultural Extension & Education, Faculty of Agriculture, Razi University, Kermanshah, Iran

^c Assistant Professor, Department of Agricultural Extension & Education, Faculty of Agriculture, Razi University, Kermanshah, Iran

* Corresponding author's email: sh.geravandi1@gmail.com

INTRODUCTION

The past decades have experienced a dramatic increase in dual-labor markets (DLM) in Iran. The primary and secondary segments, to use the terminology of the DLM theory, are differentiated mainly by stability characteristics. Primary jobs require and develop stable working habits, skills are often acquired on the job, wages are relatively high, and there are job ladders. Secondary jobs do not require and often discourage stable working habits, wages are low, turnover is high, and job ladders are few (Jiobu, 1988; Reich et al, 1973). The basic idea of the DLM setup of Harris and Todaro comes in on the labor supply side (Boeters & Savard, 2013). The DLM models rest on three general hypotheses. First, the economy contains two sectors, i.e., a primary high-wage and a secondary low-wage sector, and the behavior of firms and individuals in the two sectors require different theoretical explanations. Second, the important distinction for economic analysis is that between good and bad jobs rather than between skilled and unskilled workers. Third, workers confined to the secondary sector develop a pattern of job instability, moving frequently among jobs into and out of unemployment and labor force participation (Wachter, 1974).

The stark differences between primary and secondary labor markets create a spatial dichotomy between labor benefits in rural and urban areas, resulting in complete, seasonal, or daily migration of job seekers from rural areas to urban areas (Taherkhani, 2000). Although the negative consequences of DLMs have been well discussed in the literature, this study aims to approach this phenomenon from an alternative perspective to determine how effective DLMs are in the income and food security of rural households, and whether they affect the general health of household heads.

Many studies have shown that the migration of rural labor to cities increases the income level of workers and remittances to the origin households (Ghadiri Masoum et al.,

2016; Ishtiaque & Mahmud., 2011; Korpi & Clark, 2017; Qin, 2010; Wouterse & Taylor, 2008). It is widely believed that an increase in off-farm incomes of rural households improves their food access and consumption, resulting in their higher food security and diversity (Isanaka et al., 2007; Mengistu et al., 2009; Oliveira de., 2010; Omotesho et al., 2010; Ruben & Van Den Berg, 2001; Sharafkhani et al., 2011; Yilma, 2005; Zakari et al., 2014; Zereyesus et al., 2016). Some have estimated that a 1 percent increase in household income will increase the probability of food security of rural households by 0.22 percent (Pakravan et al., 2015). The importance of this point stems from the serious consequences of food insecurity such as stress, anxiety, irritability, social dysfunction, and depression, which can devastate a vulnerable rural household (Alaimo et al., 2001; Diange et al., 2013; Hadley et al., 2007; Siefert et al., 2004; Weiser et al., 2012; Whitaker et al., 2006; Zaslow et al., 2009).

The literature contains a few studies on the relationship among DLM, food security, and general health. Notable studies include Silfelani (2009), Reardon et al. (2001), Ramezani Ahmadi et al. (2017), and Babatunde and Qaim (2010), which have shown that remittance has a significant positive impact on household food security and health by positively affecting income. On the contrary, Siefert et al. (2004) and Whitaker et al. (2006) have found no association between food insecurity and general health.

As can be observed, there is little consensus about the effect of DLMs on rural households. Some believe that DLMs have a negative impact on the agricultural output of rural households by reducing their labor size, which forces women to engage more in agricultural labor (Silfelani, 2009). Others argue that this phenomenon can lead to the integration of urban and rural labor forces and reduce regional unemployment, so remittance of money and wealth from cities to villages reduces the income gap between rural and urban areas (Mansourian et al., 2018). This

group of scholars also believes that remittance helps alleviate the problem of food insecurity, thereby enhancing household health and welfare (Silfelani, 2009). Given the existing gap in the literature, this study attempted to answer the following questions:

Can DLMs have a significant impact on the food security of rural households?

Can food security have a significant impact on the general health of rural household heads?

Can DLMs have a significant impact on the general health of rural household heads?

To answer these questions, the authors

used the conceptual framework illustrated in Figure 1. This framework consists of three main components:

1. **Dual-labor market.** It determines rural household heads' income in the primary and secondary markets.

2. **General health.** This component consists of four scales: physical symptoms, sleeping problems and anxiety, social functioning impairment, and depression symptoms.

3. **Food security.** The main task of this component is to estimate the level of food security in the household respondents.

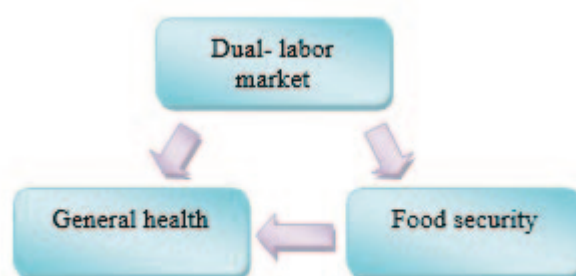


Figure 1. The Conceptual Framework of the Study

METHODOLOGY

Study area

The study focused on Kermanshah province in western Iran. A brief field survey conducted before the study showed that Kermanshah County among the counties of Kermanshah province and the rural district of Mahidasht within this county had the biggest DLM. Field interviews also confirmed the great DLM in Mahidasht District because of its closeness to the city and factories relative to other rural districts of the county. Observations showed that a major portion of people living in this district was working in nearby urban labor forces or factories. It should be noted that at the time of the study, official databases contained no detailed information about DLM in this area. However, the consulted experts believed that about half of the household heads in this district earn part of their income by working in nearby facto-

ries or the provincial capital (the city of Kermanshah).

Data collection

The study was designed as a descriptive cross-sectional survey to analyze the relationship among DLM, food security, and general health in rural households of Mahidasht District in Kermanshah province. The target population was composed of household heads living in Mahidasht District estimated to be 3533 people based on the 2018 report of the local office of the Iranian Ministry of Agriculture. The sample size was determined using the table of Krejcie and Morgan ($n = 283$). The sample households were chosen by systematic sampling. The data collection instrument was a three-part questionnaire. The first part of this questionnaire consisted of 20 questions related to demographic and occupational information. The second part was

dedicated to estimating the level of food security in the households, which was done using the 18-item Household Food Security Survey Module (HFSSM-18) developed by the United States Department of Agriculture (USDA). The third part aimed to measure the general health of households. This measurement was performed using the General Health Questionnaire (GHQ), which consisted of 28 questions in four scales: physical symptoms, sleeping problems and anxiety, social functioning impairment, and depression symptoms. To verify the validity of the demographic questionnaire, it was reviewed by six experts on the subject and three people with long experience in field research, and some modifications were made according to their feedback to ensure that the questions can measure the target variables. The reliability of the questionnaire was established using Cronbach's alpha method. In a pilot study conducted for this purpose, the questionnaire was administered to 30 villagers outside the sample and the results were analyzed in SPSS to compute Cronbach's alpha for different components of the questionnaire. Using this method, Cronbach's alpha was calculated to be 0.90 for the food security-related part and 0.91 for the general health-related part of the questionnaire. It should be noted that the HFSSM was developed by USDA in 1995 and has since been widely used as a reliable instrument for epidemiological studies. This questionnaire examines the status of household food security over the past twelve months. In Iran, this questionnaire has been used in many studies, including Sharafkhani et al. (2011) and Karam Soltani et al., (2007), which have confirmed its validity. Regarding GHQ-28, in a study by Taghavi (2008) on 92 students at Shiraz University, the test-retest reliability, split-half reliability, and Cronbach's alpha coefficients were measured for this questionnaire to be 70 percent, 0.093, and 90 percent, respectively. Also, in this study questionnaire showed acceptable reliability for food security (0.73) and GHO (0.91). All statistical analyses of the study

(like: mean, Std, frequency, and SEM) were performed by the statistical software SPSS and AMOS.

RESULTS

The collected data showed that 54.8 percent of the participants had only a primary job and 41.7 percent had a secondary job along with their primary job. As shown in Tables 1 and 4, household heads who had both primary and secondary jobs had a slightly lower mean age (45.74 years) than those who only had a primary job (46.98 years). The household heads with only primary jobs were 85.2 percent men, but the ones with both primary and secondary jobs were 98.3 percent men and 1.7% women. The people who were engaged in secondary labor forces had a higher level of education (8th grade and higher) than those who were only working in the village. The household heads with only primary occupations had a higher mean job experience (28.06 years) than those who had both primary and secondary jobs (21.96 years). The analysis of the reported incomes showed that the household heads who were working in the secondary labor market had significantly higher average incomes. Using the t-test, it was found that the difference between the incomes of the two groups was statistically significant ($t=-13.937, p<0.01$).

The results showed that the households whose heads were also working in the secondary labor market had a higher food security level than those who were not (Table 2). However, the t-test did not find this difference to be statistically significant ($t=504.5, p>0.05$).

The household heads who were engaged in the secondary labor market also had a lower general health score than those who were not (Table 3), but this difference was insignificant ($t=-2.494, p>0.05$).

Table 1
Socioeconomic Characteristics of the Participants

Household income	No. (%)	Gender (%)	Age (year)	Education*	Income (IRR)	Experience (year)
			Mean± SD			
Primary job	155 (54.80)	M (58.2) F (14.80)	46.98±11.89	2.61±0.98	14754840±4932450	28.06±14.42
Both primary and secondary jobs	118 (41.70)	M (98.30) F (1.70)	45.74±12.76	3.50±1.41	258290000±8120590	21.81±11.34

*Education: 1=Illiterate, 2= Elementary school, 3=High school, 4=Diploma, 5= Academic education

Table 2
Household Food Security Status

Food security status	Primary job		Both primary and secondary job			
	Frequency	(%)	Score of 18	Frequency	(%)	Score of 18
Food secure	19	12.3		41	34.7	
Food insecure without hunger	105	67.7	14.47	68	57.6	16.26
Food insecure with moderate hunger	28	18.1		9	7.6	
Food insecure with severe hunger	3	1.9		0	0	

Table 3
Average Scores for Subscales of GHQ-28

GHQ subscale	Primary job			Both primary and secondary job		
	Mean	St.d	Rank	Mean	St.d	Rank
Somatic symptoms	2.57	0.26	3	2.61	0.25	4
Anxiety and insomnia	3.03	0.55	2	3.25	0.48	2
Social dysfunction	2.30	0.32	4	2.25	0.32	3
Severe depression	3.32	0.51	1	3.40	0.52	1

Next, the research model was tested with AMOS. The results of standardized regression showed that in both models, beta coefficients for the “Primary labor force income→food security→general health” relationship was statistically significant at the 99 percent level. But, the “primary labor force income→general health” relationship was significant at the 95 percent level in the first model and at the 99 percent level in the second model

(Table 4). Table 5 shows the percentages of variance accounted for by these models.

The field models of the study are illustrated in Figures 2 and 3. The results showed that although DLM can slightly increase the food security of households and their general health, the income from secondary labor forces has a significant inverse relationship with general health. In other words, while the rural household heads who work in the cities

can earn higher incomes, this comes at the expense of their general health (Figure 2). On the contrary, for the rural household heads

with only primary jobs, the relationship between income and general health was direct (Figure 3).

Table 4
Standardized Regression

	Primary job			Both primary and secondary job		
	Estimate	S.E.	p-value	Estimate	S.E.	p-value
Income→ food security	0.000	0.000	***	0.000	0.000	***
Food security → GHQ	0.858	0.157	***	0.497	0.154	0.002
Income→ GHQ	0.000	0.000	0.028	0.000	0.000	0.002

Table 5
Percentages of Variance Explained by the Models

Primary job		Both primary and secondary job	
Variables	Estimation	Variables	Estimation
Food security	0.101	Food security	0.180
GHQ	0.234	GHQ	0.105

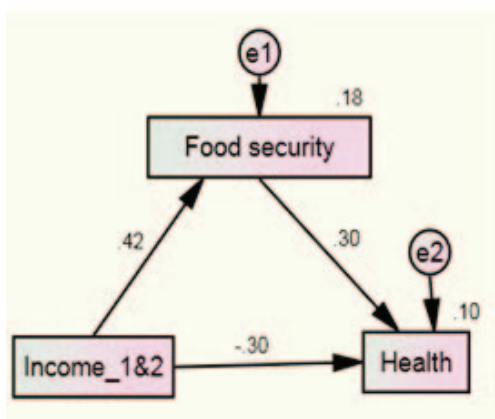


Figure 2. The Relationship between Variables in the Primary and Secondary Job

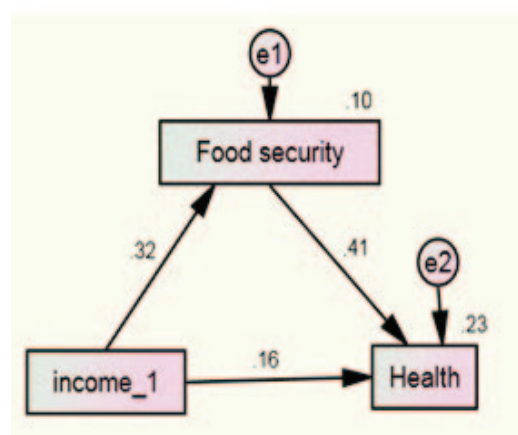


Figure 3. The Relationship between Variables in the Primarily job

DISCUSSION

An analysis of descriptive findings showed that the rural household heads who were working in secondary labor forces had a slightly lower mean age, which corroborates the results related to work experience. In general, younger people are more creative, more ambitious, and more aggressive risk-takers than older people, which makes them more likely to seek higher-paying jobs farther away from home. In addition, the findings showed that the household heads who were engaged in secondary labor forces were predominantly male because in Iran it is easier for rural men to get a second job in the cities, but rural women are more likely to engage in traditional activities closer to home. It was also observed that the household heads who only had a primary job had a lower level of education than those with primary and secondary jobs. This is consistent with the previously mentioned differences in terms of age and work experience.

The results revealed that the household heads who were engaged in secondary labor forces had higher food security. To explain this, it can be argued that rural people with only one job are more likely to lack enough income to get healthy food with sufficient diversity and in sufficient amounts for their household, but people with a second income are less likely to suffer from this problem. This is consistent with the results of Babatunde and Qaim (2010), Dastgiri et al. (2006), Hadley et al. (2007), Omotesho et al. (2010), Rose et al. (1998), Ruben and Van Den Berg, (2001), Sharafkhani et al. (2011), and Zereyesus et al. (2016) who also found that having multiple income sources helps rural households have a stable income and achieve higher levels of food security. In general, the positive impact of DLM on food security can be attributed to the increase in the purchasing power of households and, consequently, their greater access to food.

The results indicate a significant positive relationship between food security and general health of both groups of rural house-

holds as their general health increases (or decreases) with an increase (decrease) in their food security. This is related to the fact that, in addition to the stress and anxiety induced by the difficulty of affording sufficient amounts of nutritious food, food insecurity causes poor nutrient intake and impaired physical and mental performance, especially in children, which decreases disease resistance. This result is inconsistent with the reports of Siefert et al. (2004), Whitaker et al. (2006), and Frongillo et al. (2003), as they found a very weak relationship between food insecurity and household mental health. However, it is consistent with the results of Alaimo et al. (2001), Collins (2009), Diagne (2013), Kursmark and Weitzman (2009), Ramezani Ahmadi et al. (2017), Weiser et al. (2012), Whitaker et al. (2006), and Zaslow et al. (2009) who reported a strong correlation between food insecurity and risk of poor physical and mental health. This result can be attributed to the impact of food insecurity on nutrition conditions, which can have an adverse effect on physical performance and the fact that the causes of food security can directly cause depression, anxiety, and social isolation. The observed relationship is completely expectable because the increased income resulting from having multiple jobs can positively affect the household's purchasing power, which results in increased food security, and this not only decreases the incidence of diseases caused or exacerbated by poor nutrition but also reduces the psychological impact of having to deal with nutrition problems and resulting illnesses.

The results showed a significant inverse relationship between the incomes of the household heads who were working in secondary labor forces and their general health, but for other household heads, this relationship was direct. A closer examination of these relationships showed that people with secondary jobs were more likely to suffer from depression and anxiety disorders. Therefore, these conditions appear to be the cause of an inverse relationship between the income and

the general health of these household heads. Similarly, McKenzie et al. (2013) argue that there is an association between the type of living environment (urban versus rural) and anxiety, depression, and psychosis in the Scottish population.

CONCLUSION

This study reached two major conclusions. First, the income gained from secondary labor forces cannot significantly increase the food security of rural households. Second, the migration of rural household heads can have a significant negative effect on their general health and eventually lead to depression, anxiety, and sleep disturbances. A few recommendations can be drawn from the results. It is recommended to build industrial estates in the proximity of rural areas with high DLM to recruit the surplus labor of rural communities and reduce their seasonal unemployment in order to prevent labor migration and the resulting anxieties and stresses in rural households. For this to become possible, these industrial estates should be dedicated to food processing industries and their complementary businesses so that a part of raw materials can be acquired locally from the surrounding rural communities. Also, to improve the food security and general health of rural communities, policymakers and planners of poverty alleviation programs need to find a way to diversify the income sources of rural households without labor migration, e.g., by providing training for the expansion and optimization of their existing agriculture business. Given the importance of food security for keeping our communities healthy, active, and poised for development, it is necessary to closely monitor the status of food security in both urban and rural communities and identify the factors that may boost or undermine their food security at any given time.

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