

HOW THE CHINESE RURAL WORKERS CHOOSE OCCUPATION: A CASE STUDY OF NINE VILLAGES IN THE NORTHEAST CHINA

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1. Introduction

After the two-decade economic reform, the Chinese rural workers enjoy much more freedom of choosing their occupations among household farming, local non-farm employed job, local non-farm self-employment and migration, whereas before the late 1970's they had no choice but collectivised farming. Under these circumstances, answering the following questions would be very meaningful economically and socially: how the rural workers choose their occupations among local non-farm employed jobs, local non-farm self-employment and migration besides household farming? What are the factors affecting their choices? What are the main changes of the factors that influence the Chinese rural non-farm job allocation after the 1990's further drastic market-oriented reform and economic growth?

Based on a rural household survey conducted in nine villages in Xinmin County that lies in the northeast China in 1998, this paper intends to shed lights on the above questions. Xinmin County is a 50-km away west neighbour of Shenyang – the Liaoning province's capital city. Shenyang is a huge city (with a population of 4 million) even by Chinese standard and the number 1 heavy industrial city of China. As situated besides Shenyang, Xinmin is in good situation in term of the transportation and communication, cultivable land and other natural resources. For example, the arable land per rural capita is 4.9 Chinese Mus and per rural workers is 13.59 Chinese Mus. In other words, its supply of arable land is abundant comparing with the provincial average condition and of course that of most other provinces of the country (See Table 1). Consequently, its rural workers would not be forced by lack of arable land to find jobs in local non-farm sectors or urban area, which happens in

many parts of China. The southeast part of the county, which lies in the east of Liaohe River and the south of the railway, is the richest and developed area of Xinmin. The main reason would be that this area is very close to Shenyang and oil field is situated here. The rest of the county is much poorer and almost indifferent.

After consulting with the county statistical department, 9 villages from 9 townships scattered in the whole county were selected. Of them, village 2 and 9 are characterised by the most developed non-farm activities in the county. Village 4 and 5 has relatively developed non-farm activities. Village 6 is well known for its collective enterprises. Village 7 is famous for its cash crop. Village 1 and 8 nearly only has agricultural activities. Household survey was conducted village by village. In each village, 50 households were selected randomly according to the household name list of the village.

Table 1. Arable Land Per Rural Workers by Province (1995)

Heilongjiang	Xinjiang	Inner Mongolia	Jilin	Ningxia	Gansu	Liaoning	Shanxi	Qinghai	Shaanxi
15.1	9.81	9.09	6.28	4.78	3.93	3.89	3.82	3.72	2.55
Tianjin	Hebei	Beijing	Tibet	Hainan	Shandong	Hubei	Henan	Anhui	Jiangsu
2.54	2.52	2.43	2.33	2.08	1.88	1.87	1.77	1.64	1.61
Yunnan	Jiangxi	Guangxi	Shanghai	Sichuan	Hunan	Guizhou	Fujian	Guangdong	Zhejiang
1.55	1.50	1.31	1.28	1.20	1.18	1.14	1.03	0.91	0.77

Source: State Statistical Bureau, 1997, pp. 367 and 368.

Note:

- I. Land unit – Chinese Mu.
- II. A good comparison of arable land of different the provinces would be “arable land / rural per capita”. However, due to the unavailability of the provinces’ rural population, it was forced to use the provincial total rural workers to divide the provincial total arable land to get the arable land per rural workers by province.
- III. 1 hectare = 15 Chinese Mus.

The rest of the paper is structured as follows. In section 2, some hypotheses are to be put forward through literature survey. In section 3, the variables to be used in regression are discussed. In section 4, the result of the econometric analysis of the rural workers choices of occupation is to be presented. Section 5 is a summary.

2. Context and Issues

To the poor rural households in the area of interest, securing non-farm wage occupation, either local or migrant, would make them walk out of poverty. Moreover, setting up their own non-farm business can make them rich (see the Table 3).

However, the big differences between workers' marginal products of farming, non-farm employed job and running own non-farm business revealed in last chapter¹ suggested the rural workers market is segmented (also see Knight and Song, 1995; Cook, 1996). In other words, non-farm jobs are not available to all rural workers, so the Chinese rural workers cannot freely choose their occupations that would reward them optimal returns (Knight and Song, 1997). Under these circumstances, it would be very meaningful economically and socially to find out what factors make some rural workers get non-farm job especially non-farm self-employment and migration occupations.

Concerning this issue, there have been serious debates. Some previous studies argued that non-market factors are more important than market forces in determining who gets non-farm jobs (Parish, Zhe and Li, 1995; Cook, 1998; Sato, 1998). Wu, Wang and Xu (1990) and Wu(1994) argued many Chinese rural workers had been securing non-farm job through their friend or relatives, in other words, kinship or social capital plays key role. Hare (1996) more or less shared the same view that networks of information and assistance are important for rural workers to get migrating jobs. Knight and Li (1996) found in a seven village survey in Hebei province that location related with natural resources, transportation conditions, access to cities and accumulative advantages and technical skills is more important.

All previous studies mentioned above were based on their different rural surveys conducted before 1995. However, China is in the transitional period, everything changes rapidly. Since 1995, Chinese government had reorganised its rural enterprises. Most of the township and village owned enterprises had been privatised (Oi, 1999; Fong, 1999). In addition, due to the economic depression since the middle of 1990's, the state-owned enterprises and government departments sacking superfluous employee in a very large scale, the whole country's employment pressure has been mounted. At the turn of the century, the Chinese government had passed the

¹

Type of household	Marginal products of labour
Only farming households	3.86 Chinese Yuan
Diversified households (farming)	9.20 Chinese Yuan
Diversified households (non-farm)	10.99 Chinese Yuan
Specialised non-farm households	39.86 Chinese Yuan

Source: calculated from the Fieldwork Survey.

Act of Private Enterprises that removed all the restrictions on private enterprises, and this act has been the most radical political and economic reform measure since the implementation of the Household Production Responsibility System in the late 1970's. These changes have dramatically reduced the non-market factors' role in allocating non-farm jobs among rural workers. Considering this macroeconomic background and the rural household survey conducted for this research, the following hypothesis is put forward: On determining who gets non-farm jobs especially high-earning jobs, the role of non-market or political factors would not be important any more. Market forces – human and productive capital, social and location effects would play more roles.

3. Data and Variables

Based on the data collected from the 450 strong household survey mention in the Section 1, the issue of how the Chinese rural workers choose their occupation will be analysed by the Multinomial Logit Model. Following the previous studies (Knight and Song, 1997; Cook, 1998) and considering the data here, the rural workers' occupation of this sample can be classified as farming (F), local non-farm employed jobs (NFE), combined local non-farm employed job and farming (NFE + F), local household-owned non-farm business (NFB), combined local household-owned non-farm business and farming (NFB + F) and migration (M). Due to the Multinomial Logit Model's limitation of its dependent variable and considering the mean of the rural worker's earning of the above groups (see the Table 3), the rural workers' option of occupation are regrouped as following:

- (a) F;
- (b) (NFE + F) and NFE;
- (c) (NFB + F) and NFB;
- (d) M.

Because the arable land is distributed equally between the rural household according to the number of household members, theoretically all the rural workers can work on their household farm. In other words, household farming is a rural worker's last resort option. So the household farming is a best one to serve as the default option. This is the dependent variable (see Table 2).

The independent variables include the rural workers' individual characteristics, their household characteristics and their location effects (see Table 2). Of them, the variables, "being a party member", "having been a soldier" and "having a township or village leader inside household" can serve as non-market factors or political factors. While "age", "age squared", education whose best proxy would be "school years", "health status", "with farming skills" and "with non-farm skills" can be classified as human capital or market factors.

"Gender", "marital status" and the variables under the household characteristics except for "having a township or village leader inside household" can function as social factors. However, the roles of the variables "ratio of household per capita income to that of its village", "household wealth" and "arable land per worker" are not clear, because they could be the result of occupation.

The location or village effects would be rather complicated. For the Chinese rural residents, a village functions as a society. Socially villagers of a village got their kinship, friendship, information and opportunities from their village. Economically people in the same village share land, natural resources and traditional advantages that their village has. A village's distance to nearby urban area, transportation and communication condition would heavily affect its development level of local non-farm sectors and migration. The degree of non-farm sectors' development and migration would further affect a village's ability of creating non-farm jobs and migration opportunities. In addition, the size of a village is also important. The bigger a village, the more active its non-farm activities. (Song, 1997(1)). Table 5 gives the details of the sample's workers distribution in different occupations in each sample village. The order of the villages is arranged according to the villages' per capita income from rich to poor. The rich village 2, 5, 4 and 9's proportions of workers in agriculture are in the range of 44 and 65%. On the contrary, the middle rich village 7 and 3, the poor village 8's proportions are around 87%, but those of the other two poor villages 1 and 6 are around 75%. Moreover, 12-16% of the four rich villages' workers is completely engaged in their household-owned non-farm business. Whereas all other villages' counterpart proportions are much smaller or zero. This finding further proved the conclusion that setting up their own non-farm business is the key for the rural households to become rich.

The other descriptive results of the variables used in econometric analysis are presented in Table 3 and 4.

Table 2. Means and Standard Deviations of Variables Used in Regressions

<i>Variable name and description</i>	Absolute number	percentage
Outcome of rural workers' choice of occupations		
F	675	(71.1%)
NFE + F and NFE	99	(10.4%)
NFB + F and NFB	132	(13.9%)
M	43	(4.53%)
	Means	Standard deviation
Individual characteristics		
Gender – male 1 and female 0	0.55	0.50
Age	36.17	10.33
Marital status – married 1, unmarried 0	0.89	0.32
Health – good health 1, not good 0	0.98	0.15
Household head – yes 1, no 0	0.46	0.50
Education – school years	6.97	1.94
Party member – yes 1, no 0	0.04	0.20
Had been in service – yes 1, no 0	0.02	0.13
Being a teacher – yes 1, no 0	0.02	0.14
With farming skills – yes 1, no 0	0.03	0.16
With non-farm skills – yes 1, no 0	0.06	0.25
Characteristics of households		
Household size	3.62	0.96
Arable land per worker	6.92	5.04
Number of workers – number of people really working	2.33	0.72
Number of workers – people in working age (16 – 65)	2.70	0.93
Rate of dependants	0.63	0.51
House wealth – estimated value of house	20805.80	23015.67
Township or village leader inside household – yes 1, no 0	0.04	0.19
With good urban contact – yes 1, no 0	0.52	0.50
Ration of per capita net income of household to that of its village	0.96	1.72
Characteristics of villages (dummy variables)		
Village 1	0.12	0.32
Village 2	0.10	0.30
Village 3	0.11	0.31
Village 4	0.12	0.32
Village 5	0.09	0.29
Village 6	0.12	0.33
Village 7	0.12	0.33
Village 8	0.10	0.31
Village 9	0.11	0.32

Note: total observation is 949.

Source: calculated from the Fieldwork Survey.

Table 3. Individual Characteristics of the Sample Workers

	<i>F</i>	<i>NFE</i>	<i>NFE+F</i>	<i>NFB+F</i>	<i>NFB</i>	<i>M</i>	<i>Total</i>
Mean of worker's net income	1,643	4,183	4,944	7,269	11,214	9,185	
Mean of worker's working days	209	322	286	295	304	300	
No. of sample workers							
Absolute value	675	28	71	56	76	43	949
By percentage	71.1	3.0	7.5	5.9	8.0	4.5	100
Male (55% of the sample)%	65.0	4.2	9.8	7.3	8.6	5.2	100
Female (45% of the sample) %	78.6	1.4	4.7	4.2	7.3	3.8	100
Marital status							
Married (841 of the sample)	73.4	2.5	7.4	5.9	7.3	3.6	100
Single (108 of the sample)	53.7	6.5	8.3	5.6	13.9	12.0	100
Married male (448)	66.5	3.3	10.3	7.4	8.3	4.2	100
Married female (393)	81.2	1.5	4.1	4.3	6.1	2.8	100
Single male (75)	56.0	9.3	6.7	6.7	10.7	10.7	100
Single female (33)	48.5	0.0	12.1	3.0	21.2	15.2	100
Education (school years)							
Total	6.73	7.69	7.76	6.86	7.55	8.05	
Male	6.79	7.57	7.96	6.92	7.60	8.30	
Female	6.68	8.16	7.25	6.72	7.48	7.63	
Party members							
Yes (41 of the sample)	43.9	7.3	34.1	7.3	4.9	2.4	100
No (908 of the sample)	72.4	2.8	6.3	5.8	8.1	4.6	100
With farming skills							
Yes (26 of the sample)	30.8	0.0	38.5	7.7	11.5	11.5	100
No (923 of the sample)	72.3	3.0	6.6	5.9	7.9	4.3	100
With non-farm skills							
Yes (61 of the sample)	26.2	8.2	19.7	8.2	27.9	9.8	100
No (888 of the sample)	74.2	2.6	6.6	5.7	6.6	4.2	100

Source: calculated from the Fieldwork Survey.

Table 4. Household Characteristics of the Sample Workers

	<i>F</i>	<i>NFE</i>	<i>NFE+F</i>	<i>NFB+F</i>	<i>NFB</i>	<i>M</i>	<i>Total</i>
Household size							
2 (70 of the sample)	70.0	1.4	8.6	7.1	11.4	1.4	100
3 (413 of the sample)	74.8	2.7	8.0	4.1	5.3	5.1	100
4 (318 of the sample)	72.6	3.5	6.6	8.2	6.0	3.1	100
5 (116 of the sample)	65.5	2.6	6.0	6.0	13.8	6.0	100
6 (22 of the sample)	40.9		13.6		27.3	18.2	100
Average household size	3.54	3.93	3.51	3.70	4.09	3.81	
Land per worker (Chinese Mu)	8.06	2.74	6.73	5.90	1.52	3.02	
Rate of dependants	0.60	0.55	0.59	0.81	0.84	0.75	
Ratio of household per capita income to that of its village	0.63	1.41	1.37	1.43	2.05	2.61	
Average no. of workers in household	2.64	3.00	2.58	2.73	3.14	2.84	

Source: calculated from the Fieldwork Survey.

Table 5. The Sample's Workers Distribution in Different Occupation

<i>Village</i>	<i>F</i>	<i>F + NFE</i>	<i>F + NFB</i>	<i>NFE</i>	<i>NFB</i>	<i>M</i>	<i>Total (%)</i>	<i>Total (as)</i>
2	43.5	18.5	9.8	5.4	12.0	10.9	100.0	92
5	64.4	5.6	12.2	4.4	12.1	1.1	100.0	90
4	59.3	5.3	9.7	1.8	16.8	7.1	100.0	113
9	56.1	13.1	9.3	2.8	15.0	3.7	100.0	107
7	85.5	4.3	3.4	5.1	0.9	0.9	100.0	117
3	86.5	1.9	1.9	1.9	7.7		100.0	104
1	76.4	1.8	3.6		7.3	10.9	100.0	110
6	75.2	9.4	2.6	5.1	1.7	6.0	100.0	117
8	88.9	9.1	2.0				100.0	99
Total	71.1	7.5	5.9	3.0	8.0	4.5	100.0	949

Source: calculated from the Fieldwork Survey.

4. Multinomial Logit Estimation and Results

The econometric results include the coefficients of the independent variables and their significance levels (Table 6), the simulated or predicted probabilities of the rural workers working in different sectors under effects of certain variables (Table 7 and 8). As mentioned in the last section, the default choice for the Chinese rural workers is farming (F). If a variable's two coefficients' t statistics are bigger than one, its predicted probabilities will be calculated and presented. In addition, only the significant coefficients' predicted probabilities are meaningful. In other words the insignificant coefficients' predicted probabilities should not be considered seriously. If a variable's coefficients are all significant, the default choice's predicted probability will be significant and meaningful, otherwise it shouldn't be looked seriously as well.

The Effect of Political Factors. The variables representing non-market factors or political factors include “being a party member”, “having been a soldier” and “having a township or village leader inside household”. The coefficient of “being a party member” on local non-farm-employed job is very significant, but for the local non-farm self-employment and migration the coefficients are very insignificant and with negative signs. It suggests that the possibility for a rural worker to engage in local non-farm self-employed or migrating be negatively affected by being a party member. The predicted probability for the party members to get local non-farm-employed job is 23.8%, whereas for the non-party members it is only 7.3%.

The coefficients of “having been a soldier” are not significant at all and therefore it was excluded in the regression. The coefficients of “having a township or village leader inside household” are not significant but all their three t statistics are bigger than one, and for the local self-employed non-farm job and migration the coefficients got negative signs. Therefore, the signs of the variable’s coefficients are in the same situation with that of “being a party member”. With a township or village leader inside household, the probability for a rural worker to find local non-farm wage job is 13.8%, otherwise it is 7.6%. Also with a leader at home the probabilities of engaging in non-farm self-employment or migration occupations are 1.8% and 0.09% respectively, otherwise they are 6.1% and 0.75% respectively.

The above facts suggest that political factors or non-market factors do help rural workers get local non-farm wage jobs but negatively affect them to engage in local non-farm self-employment or migration occupations. This conclusion confirms part of the hypothesis that “On determining who gets non-farm job especially high-earning jobs, the role of political factors and institutional arrangement would not be important any more”. From the Table 3 it can be found that the mean of the local non-farm employed jobs’ earning is much lower than the other two off-farm occupations.

The Effects of Market Factors. In this research, market factors or human capital include the variables “age”, “age squared”, “school years”, “health status”, “with farming skills” and “with non-farm skills”. The coefficients of age, age squared and health status are not significant at all, so it is not necessary to discuss them and further the health status as variable was excluded in the multinomial logit regression.

The most important human capital or market factor would be education. In this research, the education – school-year variable’s coefficients on local non-farm wage job and migration are significant and with positive signs, but for local self-employed non-farm occupation it is nearly zero, not significant and with negative sign. The probabilities for rural workers with zero school year to find local non-farm wage job and migration occupation are 2.6% and 0.08% respectively, with 6 school-year or primary school education the probabilities are 6.7% and 0.51%, with 9 years or secondary school education they 10.4% and 1.3%, finally with 12 years or high school education they 15.7% and 3.1%. Therefore, education as one of the most important

human capital does significantly help rural workers get local non-farm wage job or migration occupation, whereas it negatively but insignificantly affect them to work in local self-employed non-farm sector.

Table 6. the Coefficients and their Significance Level of the Multinomial Logit Model

	<i>NFE+F & NFE</i>	<i>NFB+F & NFB</i>	<i>M</i>
Constant	-4.56**	-4.87**	-6.38**
Male single	1.63**	1.35**	1.39#
Female single	1.46*	1.23#	1.70*
Male married	1.06***	0.79***	0.72#
Age	0.14e-01	0.13e-01	-0.12
Age squared	-0.36e-03	-0.54e-03	0.86e-03
School years	0.16**	-0.63e-01	0.32**
Party members	1.38***	-0.17	-0.13e-01
With farm skills	1.66***	1.25*	1.82**
With non-farm skills	1.62***	1.74***	1.63**
Household size	0.42*	0.30#	-0.21e-01
Land per worker	-0.14***	-0.23***	-0.28***
No. of workers of household	-0.47*	0.18	-0.18e-01
Rate of dependants	-0.81e-01	0.84***	1.05***
With township or village leader inside household	061#	-1.19#	-2.11#
Ratio of household per capita income to that of its village	0.51***	1.10***	1.05***
V1	-1.23#	0.33	4.03***
V2	1.45***	1.59***	3.61***
V4	0.39	1.92***	3.35***
V5	0.59#	1.86***	1.61#
V6	1.10***	-0.88#	2.89**
V9	1.69***	2.71***	3.78***
Log likelihood ratio	593.10		
Significance level	0.0000		
Sample size	949		

Source: calculated from the Fieldwork Survey.

Note:

*** = Significant at 1%,

** = Significant at 5%,

* = Significant at 10%

= Significant at t ratio is bigger than 1.00.

The next important human capital to education would be skills. All the coefficients of the variables “with farming skills” and “with non-farm skills” are significant and with positive signs as expected. The probabilities for rural workers without farming skills to engage in local non-farm wage job, local non-farm self-employment and migration occupation are 7.4%, 5.7% and 0.67% respectively, whereas with farming skills they are 26.2, 13.4 and 2.7%. The probabilities of without non-farm skills are 7.1%, 5.3% and 0.64% respectively, while with non-farm skills they are 22.8%, 19.5% and 2.1%. Consequently, the farm or non-farm skills do apparently encourage rural workers to go off farm. As for the difference between these two variables, farming skills are more helpful than non-farm skills for the rural workers to find local non-farm

employed jobs, by contrast non-farm skills are more helpful than farming skills for the workers to work in local non-farm self-employment.

Except for the variables age, age squared, health status, and education's effect on local self-employed non-farm occupation (professional local non-farm self-employed occupation got the highest earning in the study), all the other human capital variables listed above work well on explaining the rural workers' occupation choice. In other words, market forces in terms of education and skills nearly fully play their roles.

Table 7. Simulated Employment Probabilities of Individual Characteristics

	<i>F</i>	<i>NFE+F & NFE</i>	<i>NFB+F & NFB</i>	<i>M</i>
Gender & marital status				
Male single	70.9	16.6**	11.2**	1.4#
Female single	73.3	14.5*	10.2#	2.0*
Married male	81.2	10.7***	7.3***	0.8#
Married female	91.6	4.2	3.7	0.4
School years				
0	87.9	2.6**	9.4	0.08**
3	87.9	4.2**	7.7	0.20**
6	86.5	6.7**	6.3	0.51**
9	83.3	10.4**	5.0	1.3**
12	77.3	15.7**	3.9	3.1**
Party member				
Yes	70.0	23.8***	5.7	0.56
No	86.1	7.3	5.9	0.70
With farming skills				
Yes	57.7	26.2***	13.4*	2.7**
No	86.2	7.4	5.7	0.67
With non-farm skills				
Yes	55.6	22.8***	19.5***	2.1**
No	86.9	7.1	5.3	0.64

Source: calculated from the Fieldwork Survey.

Note:

*** = significant at 1%,

** = significant at 5%,

* = significant at 10%

= significant at t ratio is bigger than 1.00.

The Effects of Social Factors. Social factors include gender, marital status and household characteristics apart from the variable – “with township or village leaders inside household”. Except for the t-ratios of the coefficients of “single female” (for local non-farm self-employment) and “married male” (for migration) are not significant but bigger than one, all the other coefficients of gender and marital status are significant and in right sign. The variable “married female” is omitted to avoid dummy variable trap. Being single and male does significantly elevate the probabilities of working off farm (See Table 7). The astonishing thing is that the

probability for single females to migrate is higher than single males. Generally speaking, the effects of social factors are in the line of reasonable logic.

Social factors in the household characteristics are “household size”, “number of household’s workers”, “rate of dependent” (ratio of a household’s number of dependent on the number of its workers who actually work with income), “arable land per worker”, “ratio of a household per capita income to that of its village’s”, “household wealth” for which the best available proxy in the data of interest is value of house, and “good urban contact”. Of them, the variables – “value of house” and “good urban contact” were removed from logit regression because they are very insignificant statistically. The variable “number of household workers” is only significant on local non-farm wage occupation and its sign on the coefficients of local non-farm wage job and migration are negative which is apparently wrong because a household with more workers would encourage its working members to work off farm. Therefore, its predicted probabilities are not calculated.

As discussed in the Section 2, the roles of the variables – “land per worker of household” and “ratio of a household per capita income to that of its village’s” are in doubt. Although rural household’s land can not be sold out, they can be leased out. A household with its workers working off farm could lease out its land, while a household whose workers can not manage to work off farm could rent land either from land-leasing households or its belonged village. During the Fieldwork Survey, some villages’ leaders reported that their villages’ community committees control some collective land to lease out to get revenue used for administrative expenses. Therefore, the amount of arable land per worker very possibly depends on whether a worker works off farm. So does the ratio of a household per capita income to that of its village’s. In a word, these two variables could be endogenous. Statistically these two variables’ all coefficients are very significant and in positive sign as anticipated. The predicted probabilities for rural workers to work off farm increase with the decrease of the arable land per worker. And the probabilities for them to engage in local non-farm self-employed and migration occupation grow with the rising of the ratio of household per capita income to its village’s. However, the probability of getting local non-farm wage occupation increase to the point of the ratio value 3 and then rapidly goes down with the rising of the ratio. The reason of this phenomenon

would be the means of rural workers' earning for local non-farm self-employment and migration occupations are much higher than that of local non-farm wage jobs.

After discussing the insignificant and doubtful household characteristics, a focus should be put on significant and undoubted household characteristics – household size and rate of dependent - both are demographic factors.

As for the household size, its coefficient on local non-farm wage job is significant at 8.9% and with an anticipated sign, for local non-farm self-employment it is not significant but also with an anticipated sign and its t ratio is bigger than one. However, the coefficient on migration is nearly zero, insignificant and with a negative sign that is unreasonable. The probabilities for the rural workers of interest to work off farm locally increase significantly with the enlargement of household size especially for the local non-farm wage jobs.

Concerning the variable – rate of dependent, its coefficient on local non-farm wage jobs is very small, insignificant statistically but with an anticipated sign. However, its coefficients for the other two off-farm occupations are very significant and in anticipated sign. The bigger the dependent rate or the more heavy the life burden, the higher the probabilities the rural workers engage in local non-farm self-employment or migration.

As a whole, it can be concluded that gender and marital status, and two household demographic characteristics - household size and dependent rate significantly affect the rural workers' choice of occupations as anticipated theoretically.

Location Effects. According to the Table 5, the villages 3 and 8 do not have any migration, so these two village dummy variables have to be omitted. After many rounds of trial, the village 7 was chosen as default village dummy variable. The village is famous for its cash crops in Xinmin County but from nearby big city and without convenient transportation, so its non-farm activities are very undeveloped.

Table 8 Simulated Employment Probabilities for the Household and Villages' Characteristics

	<i>F</i>	<i>NFE+F & NFE</i>	<i>NFB+F & NFB</i>	<i>M</i>
Household size				
2	91.2	4.2*	3.9#	0.77
3	88.1	6.2*	5.0#	0.72
4	84.0	8.9*	6.5#	0.68
5	78.6	12.7*	8.1#	0.62
6	71.8	17.7*	10.0#	0.55
7	63.8	23.8*	11.9#	0.48
8	54.7	31.1*	13.7#	0.40
Land per worker				
0	60.8	14.8***	20.9***	3.51***
1	65.5	13.8***	17.8***	2.84***
3	73.8	11.7***	12.6***	1.82***
5	80.6	9.6***	8.7***	1.13***
8	88.0	6.8***	4.7***	0.53***
12	93.8	4.1***	2.0***	0.18***
20	98.3	1.4***	0.3***	0.0***
Rate of dependants				
0	87.8	8.4	3.5***	0.37***
0.5	86.2	7.9	5.3***	0.61***
1	83.8	7.4	7.8***	1.00***
1.5	80.2	6.8	11.4***	1.61***
2	75.1	6.1	16.3***	2.55***
2.5	68.2	5.3	22.6***	3.90***
3	59.7	4.5	30.1***	5.76***
With township or village leader inside household				
Yes	84.3	13.8#	1.8#	0.09#
No	85.5	7.6	6.1	0.75
Ratio of household per capita income to that of its village				
-2	97.7	2.0***	0.26***	0.04***
-1	95.9	3.2***	0.76***	0.10***
0	92.4	5.1***	2.2***	0.27***
1	85.3	7.9***	6.1***	0.72***
2	71.7	11.0***	15.6***	1.7***
3	50.5	12.9***	33.1***	3.5***
4	27.8	11.8***	54.9***	5.5***
5	12.1	8.6***	72.4***	6.9***
6	4.6	5.4***	82.6***	7.4***
7	1.6	3.2***	87.8***	7.4***
8	0.6	1.8***	90.4***	7.3***
9	0.2	1.0***	91.8***	7.0***
Villages dummy variables				
V1	89.9	1.5#	3.8	4.7***
V2	69.5	17.5***	10.5***	2.4***
V4	75.5	6.6	15.9***	2.0***
V5	76.3	8.1#	15.2***	0.35#
V6	82.9	14.6***	1.1#	1.4**
V7	91.7	5.4	2.8	0.09
V9	54.7	17.4***	25.6***	2.2***

Source: calculated from the Fieldwork Survey.

Note:

*** = significant at 1%,

** = significant at 5%,

* = significant at 10%

= significant at t ratio is bigger than 1.00.

Of the sample's rich village group that are village numbers 2, 5, 4 and 9, village numbers 2 and 9's coefficients are all very significant and in positive sign as

anticipated. For village number 4, its coefficients on local non-farm self-employed occupation and migration are very significant and in positive sign as expected, but for local non-farm wage occupation. To village number 5, its coefficient is only very significant for local non-farm self-employed occupation, but for local non-farm wage occupation and migration their coefficients' t-ratios are bigger than one. From the Table 8, it can be found that only these four villages' coefficients on local non-farm self-employment are very significant. Moreover, only these four villages' predicted probabilities of its workers working on this occupation are very high. They are 10.5%, 15.2%, 15.9% and 25.9% for village numbers 2, 5, 4 and 9 respectively. Actually these four villages' local household non-farm activities are very developed comparing with the other five villages of the sample, and because of the developed household non-farm activities these four villages are rich.

As for the poor village 1, only its coefficient on migration are very significant and with a positive sign. For the poor village 2, its coefficient on local non-farm self-employment is very significant, and on migration is significant at 5%, both of them are in positive sign. The rich village 2, 9 and the poor village 6's probabilities for their workers to get local non-farm wage jobs are very big comparing with village number 7, they are 17.5%, 17.4% and 14.6% respectively. Surprisingly village number 1's probability for its workers to migrate is the biggest one. The three rich village 2, 4 and 9's counterpart probabilities in the range of 2.0% to 2.4%, and the poor village 6's probability is only 1.4%.

Comparing with all other factors discussed above, the location factor seems play the determined role for rural workers to work off farm. In this study, near to a big city (village numbers 2, 5 and 4), convenient transportation or near to highway (village 2, 4), located at township seat (village numbers 4 and 5), accumulated industrial advantages (village number 9), and village-owned collective non-farm enterprises (village number 6) are the key factors to determine the development level of non-farm activities.

5. Summary

Based on the rural household survey conducted in Xinmin County in 1998 and incorporating China's drastic market-oriented reforms and economic expansion in the 1990's, this paper got the following main findings:

- I. Political factors or non-market factors like being a party member or having a local government official at home do help the rural workers get local non-farm wage jobs. However, these factors discourage them to engage in local non-farm self-employment or migration occupations, the latter two off-farm occupation's earning is much higher than that of the former one.
- II. Education as a main human capital or market factor clearly helps the rural workers secure local non-farm employed occupation and migration but not local non-farm self-employment. In addition, the second important human capital - farm or non-farm skills significantly encourage the rural workers to work off-farm. In other words, the main human capital or market factors nearly play their full role in allocating rural workers' jobs.
- III. The main social factors – gender and marital status, and household demographic characteristics household size and dependent rate – significantly influence the rural workers' choice of occupations. Being male and single do encourage the rural workers to work off farm. The bigger the household size and the more heavy the living burden, the more likely the rural workers work off farm.
- IV. Comparing with all other factors, the location factors in terms of distance to big cities even township seats, transportation and communication, a village's accumulated industrial advantages and village-owned collective enterprises are far more influential for the rural workers to work off-farm.

Reference

Cook, Sarah (1996) *Surplus Workers and Productivity in Chinese Agriculture: Evidence from Household Survey Data*, Journal of Development Studies, Vol.35, No.3, pp.16-44.

Cook, Sarah (1998) *Who Gets What Jobs in China's Countryside? A Multinomial Logit Analysis*, Oxford Development Studies, Vol. 26, No. 2.

Fong, Shiaw-Chian (1999) *The Shareholding System in a Shandong Township: Practice and Impact*, Issues & Studies, Vol. 35, No. 4, pp. 33-54.

Hare, Denise; Zhao, Shukai (1996) *Workers Migration as a Rural Development Strategy: a View from the Migration Origin*, paper presented at the International Conference on the Flow of Rural Workers in China, Beijing, 25-27 of June.

Knight, John and Li, Shi, 1997, *Cumulative Causation and Inequality among Villages in China*, Oxford Development Studies, Vol. 25, No. 2.

Knight, John and Song, Lina, 1997, *Chinese Peasant Choices: Farming, Rural Industry or Migration*, Applied Economics Discussion Paper Series, no.188, January 1997, the Institute of Economics and Statistics, the University of Oxford.

Oi, Jean C. (1999) *Two Decades of Rural Reform in China: An Overview and Assessment*, China Quarterly, No. 159, May, pp. 616-628.

Parish, William L.; Zhe, Xiaoye and Li, Fang (1995) *Non-Farm Work and Marketization of the Chinese Countryside*, China Quarterly, No. 153, pp. 697-730.

Sato, Hiroshi (1998) *Income Generation and Access to Economic Opportunities in a Transitional Economy: a Comparative Analysis of Five Chinese Villages*, Hitotsubashi Journal of Economics, No. 39, pp. 127-144.

Song, Lina, (1997(1)) *Diversification of Household Production in Rural China: the Determinants and Outcomes*, Discussion Paper, Institute of Economics and Statistics, Oxford University.

Song, Lina, (1997(2)) *Is rural to urban migration of workers worthwhile in China? A Discussion Paper*, Institute of Economics and Statistics, Oxford University.

Wu, Harry X. (1994) *The Industrial Enterprise Workforce*, in Christopher Findlay, Andrew Watson and Harry X. Wu (eds), *Rural Enterprises in China*, pp. 117-147, London: Macmillan.

Wu, Quhui; Wang, Hanshang and Xu, Xinxin (1990) *Non-Economic Determinants of Workers' Incomes*, in William A. Byrd and Lin Qingsong (eds), *China's Rural Industry: Structure, Development and Reform*, pp. 323-37, New York: Oxford University Press.