

THE RATIONAL PEASANT IN CHINA

FLEXIBLE ADAPTATION, RISK DIVERSIFICATION, AND OPPORTUNITY

Lisa A. Keister and Victor G. Nee

ABSTRACT

A central component of economic development is the reallocation of household labor, typically from subsistence agriculture to non-farm employment. This occurred in the advanced market economies during the Industrial Revolution, contributing to increases in agrarian and industrial productivity and raising standards of living dramatically. A similar process began in China in the first decade of economic reform and has been central to the development of China's rural and urban economies. Despite its broad social implications, the process by which rural households allocate labor is not well understood. In this paper, we examine the strategies rural households used in the early stages of China's economic reform as they adapted to fundamental changes in the institutional structures of the nation's agrarian economy. Using a large, national sample, we explore the degree to which households diversified labor efforts across types of non-farm work. We find that peasant households allocated labor to non-farm work only after subsistence needs were met. We also observe that peasants generally responded to local and regional opportunities but that political capital, human capital, and cohort effects accounted for differences in household responses.

KEY WORDS • bounded rationality • household labor allocation
• markets • migration • rural industry

1. Introduction

The reallocation of rural household labor, typically from subsistence agriculture to non-farm work, is a critical component of economic development. Such reallocation began in the advanced market economies at the dawn of the Industrial Revolution, allowing rapid increases in manufacturing output from craft shops in the

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early stages of development and from mills and factories as development and industrialization progressed. Labor reallocation also facilitated the building of canals, highways, and eventually railroads. It continued in later-developing nations, such as Japan and South Korea, following the Second World War. Many of these later-developing economies took advantage of rural labor to enhance low-skill, labor-intensive industry that became the backbone of rapid industrial development (Nurkse 1959). Moreover, labor reallocation increased demand for consumer goods and agricultural machinery, which redirected income to the industrialized sector and facilitated further productivity increases, setting the stage for broad-based sustainable development (Rostow 1990).

Similar changes began to occur during the first decade of China's economic reform. Beginning in 1978, state-led experiments designed to improve allocative efficiency in industry set the stage for industrial development and created new opportunities for non-farm work. At the same time, institutional changes initiated by economic reform fundamentally changed the nature of agriculture. Until the 1970s, Chinese peasants were bound to their villages under collectivized agriculture. The state-imposed household registration system all but collapsed following decollectivization, allowing peasants to make independent decisions regarding labor allocation for the first time in decades. The result was a wholesale change in labor allocation within a relatively short time, with nearly 126 million agricultural laborers shifting into non-farm employment during the 1980s (Lin 1988; Schultz 1990). Chinese peasants began to pursue commercialized agrarian activities, local non-farm work, non-farm work out of the local area, and private entrepreneurship. As elsewhere, rural households' labor allocation decisions will have long-lasting effects on Chinese industrial growth, population movement, and widening social inequalities between subsistence farmers and those shifting into non-farm employment.

Despite the far-reaching implications of peasant household labor allocation during development, the factors that combine to produce these decisions are not well understood. In the past, researchers documenting cases of peasants who failed to reallocate labor to non-farm work have suggested that peasants are persistent subsistence farmers who produce to satisfy their own consumption needs because they are unable to calculate marginal returns to labor and other investments (Chayanov 1986 [1925]). In other words, according to this view peasants are not rational actors, and therefore

standard models of rationality cannot be extended to account for peasant behavior. In studies of China's peasants, researchers working in this tradition have concluded that under relentless population pressure, 'involutionary commercialization' developed, locking peasants into a six-century trajectory of growth without development (Huang 1990). More recent developments indicate that factors other than intrinsic characteristics of peasants accounted for China's failure to develop in the past (Myers 1970; Brandt 1989; Rawski 1989). Instead they support the view that peasants respond rationally to new opportunities by means of mixed strategies that enable them to diversify their income streams and thereby maximize earnings (Schultz 1964).

Our objective is to investigate empirically the factors that influenced household labor allocation decisions in rural China during the early stages of economic reform. Using data from a national sample of 7,950 households, we investigate the degree to which households diversified their labor allocations into activities other than subsistence farming, including commercialized agriculture, local non-farm work, non-farm work out of the local area, and entrepreneurial activities.¹ We show that Chinese peasants, as rational actors, adapt flexibly in diversifying risks to pursue new income streams in an emerging market economy.

2. From Substantivism to Involutionary Commercialization

Through his pioneering empirical examination of Russian peasants at the turn of the century, Chayanov (1986 [1925]) gave rise to the substantivist school in peasant studies (Polanyi 1957; Dalton 1969; Shanin 1972, 1986; Scott 1976). Chayanov's main thesis was that the peasant household economy constitutes a distinctive type of economic unit, fundamentally different in logic and organizing principles from other economic actors. The distinctive features of the peasant household include the use of unpaid family labor, as opposed to hired labor, and the production of goods for consumption rather than for profit. As a result, Chayanov argued that peasants are unable to calculate marginal returns to labor and other productive inputs. Efforts to understand the peasant household economy using conventional economic analysis are destined to yield inaccurate predictions because peasants respond to economic incentives differently than the capitalist firm on which standard models are based.

Subsequent scholarship extending Chayanov's ideas has shifted discussion of rural development toward an anti-market approach in which the state, as opposed to the market, is the source of transformative change. Substantivists overlook the beneficial effects of markets, while often overstating the harmful effects on local institutions, peasant well-being, and rural development (Polanyi 1957; Hobsbawm 1963; Wolf 1969; Scott 1975, 1976). Huang's (1985, 1990) analyses of the peasant household economies in North China and the Yangzi Delta region documented instances of seemingly perverse responses to market incentives by rural households. In the latter study, spanning the centuries from 1350 to 1988, Huang adapted Geertz's concept of 'agricultural involution' to the study of the Chinese peasant economy in the alluvial region near Shanghai. Rejecting both Adam Smith's and Karl Marx's ideas of the transformative effect of marketization on traditional agriculture, Huang argued that despite a high level of commercialization in the Yangzi Delta region, peasants remained at a subsistence level of livelihood. According to Huang, commercialization was driven by population pressure rather than by the emergence of capitalist firms. In particular, despite the production of cash crops and handicrafts for market sale, growth of the peasant household economy stagnated primarily because the peasants continued to work their land despite diminishing marginal returns. This led to what Huang identified as 'involutionary commercialization', a pattern of growth that failed to generate transformative change (i.e. modern economic development leading to sustained increases in labor productivity and per capita income). The argument and evidence for 'growth without development', however, have been contradicted by numerous studies that show market integration stimulating modern economic development in rural China (Myers 1970; Brandt 1989; Faure 1989; Rawski 1989) and sharply debated by Esherick (1991), Huang (1991), and Myers (1991).

This debate largely focused on China's precommunist period. Huang (1990) coined the term 'collectivist involution' to refer to patterns of continuing growth without development, specifically, the persistence of stagnation in marginal returns to labor under state-imposed collective agriculture. In that time, overall labor inputs increased, largely because of the mobilization of women's labor. Although this produced extensive growth in output,

marginal returns to labor input diminished sharply. According to Huang, involutory growth finally yielded to modern development during the 1980s. He attributed this 'dramatic development' after six centuries of involutory growth to the expansion of rural industry under collective ownership. Such industries, established during the Great Leap Forward, grew rapidly when state-owned enterprises in the Cultural Revolution began subcontracting some work or sold outdated equipment to commune-run workshops. In Huang's account of market reform, it is the socialist state, through collective-owned rural industry, and *not market development*, that ended six centuries of rural stagnation in China. The key to transformative change stemmed from the draining off of surplus labor power from agriculture by public-owned rural industry, which in turn created incentives for peasants to organize labor for agriculture more efficiently.² Critics argue that Huang failed to address the extent to which emergent markets contributed to sustaining rural industrial growth and to changes in household labor allocation. As Myers noted, 'the nature of the new economic patterns that altered involutory growth is never made clear' (1991: 612). Moreover, a sole reliance on state-driven rural industrialization, as the experiences of centrally planned economies have amply demonstrated, is a form of extensive growth, which, like collectivized agriculture, results over time in diminishing returns to labor inputs whether it is organized by central ministries or local governments.

Although rural township and village governments played a central role in overseeing – and even managing – rural industrial growth, this sector's rapid growth in the reform era took place outside the state-planned economy and was largely driven by markets, both domestic and international (Byrd and Lin 1990; Byrd 1991; Nee 1992). Our analysis addresses the question of the role of markets in altering involutory growth and bringing about transformative change in China's agricultural economy. We argue that *opportunities accompanying market development in combination with market-oriented industrial growth are inducing changes in household labor allocation and driving an extensive shift in labor out of subsistence agriculture into commercial agriculture and non-farm employment*. Our *opportunity structure* hypothesis emphasizes the combined effects of market development and industrial growth in creating new structures of opportunities.

3. Mixed Strategies and the Allocation of Labor

Contrary to the assumptions of the substantivists, we assume that the logic of choice employed by farming households in weighing the costs and benefits of alternative courses of action does not differ substantively from that of non-farm households and corporate actors (Schultz 1964; Popkin 1979; Becker 1981). Our behavioral assumption is consistent with the studies of economic historians showing that peasants apply their labor to agriculture only to the point where their marginal product value is equal to the wage they can obtain through non-farm employment (Brandt 1989; Myers 1991). We build on the view that peasants' decisions to continue farming or to allocate labor to non-farm work are based on calculations of risks and gains associated with perceived opportunities for improving the household's well-being.

However, the choice-set of peasants is more complex than implied by a simple calculation of the relative wage between farm and non-farm work. As substantivists have argued, peasants living close to the subsistence margin employ the 'safety-first' ethic in first ensuring that they have an adequate store of food. Only after subsistence is assured will peasants begin to produce cash crops, seek non-farm employment, or engage in independent commercial ventures. Scott (1976) demonstrated that this is a rational response to the ever-present threat of hunger and famine in traditional agriculture. In poor rural communities, the memory of prolonged hunger provides a powerful collective reminder of the importance of the safety-first principle. While this is certainly a powerful force underlying peasant behavior, substantivists may have overstated the effect of recurrent famines on curbing peasant response to institutional change and reducing their willingness to take risks (Scott 1976). Yang (1994) demonstrated that the memory of widespread famine following China's Great Leap Forward – among the worst famines in this century – was an important causal factor inspiring peasants in China to press from below for institutional changes in the organization of agriculture. Rather than passively depending on village-based welfare guarantees, peasants in the least-developed regions of China pushed for institutional reforms, paving the way for the dismantling of collectivized agriculture and the move to a greater reliance on markets, rather than politics, to regulate the supply and distribution of agricultural products.³ Yang's analysis suggests that peasants perceived subsistence guarantees provided

by community organizations established in the Maoist era to be costly, which accounts for the drive to dismantle agricultural collectives. We argue that this in turn released households that were better endowed with human capital and labor power to diversify into market-oriented economic activities.

Although we agree that concerns over subsistence lead peasants to employ a safety-first strategy, they also diversify their labor allocations to reduce risks associated with complete dependence on a single form of income and to take advantage of opportunities available in the local and regional economies. However, they do so incrementally, and they often hedge by employing mixed strategies intended to meet the household's survival needs while seeking to increase cash income through non-farm employment and the production of cash crops. In other words, in the face of market growth, peasant allocation of labor reflects a consistent pattern of risk aversion and a 'safety-first' ethic. Yet, *once basic needs were met, rural households responded flexibly and subtly to both local and regional opportunity structures that stem from market development and industrial growth – suggesting that peasants are not interminably locked into an involutory subsistence pattern.* To test our *flexible adaptation* hypothesis, we examine the farm household's strategy of local adaptation, which involved diversifying risks and optimizing the income returns from its stock of labor power and human capital.

The allocation of household labor which leads to movement out of subsistence farming frequently involves secondary non-farm jobs, usually seasonal work, before securing full-time non-farm employment; incremental investments in the production of cash crops for the marketplace; and commercial ventures involving only partial commitments of the household's labor power and economic capital. We hypothesize that *peasants diversify their risks by continuing to allocate some labor to subsistence agriculture until they are assured of the reliability of off-farm sources of income. By diversifying labor allocation and available capital, peasants spread their risks and optimize their chances for gain.* Our *diversified risk* hypothesis highlights peasant rationality in an institutional environment characterized by uncertainty stemming from rapid institutional change.

Although long-distance labor migration is increasing rapidly in China, as in other developing societies, most decisions to reallocate labor involve local opportunities. Peasant households allocate

labor to local non-farm employment, including industrial startups, existing firms, and non-industrial forms of employment. Likewise, peasants decide to engage in both large- and small-scale entrepreneurial activities. They begin to produce and market cash crops, and they start small businesses often related to agricultural pursuits but designed to increase income rather than to meet basic subsistence needs. If the household has sufficient funds or a high enough risk tolerance and access to appropriate resources, starting a more elaborate commercial enterprise may be feasible. In such a case, household labor is generally allocated to the new venture, at least in the early stages of its development. In many cases, peasants allocate labor to more than one of these activities simultaneously. Such 'mixed household strategies' are often aimed at low-risk income augmentation. In time, mixed labor allocation strategies are likely to involve the long-distance migration of (particularly young male) household members.

Local Origin of Labor Migration

Many studies of household labor allocation have focused on long-distance labor migration and thus have overlooked more preliminary, locally based decision processes. These studies rightfully pointed to long-distance migration as an important component of household economic behavior (Massey et al. 1993).⁴ In focusing only on decisions to migrate, however, they have overlooked the bulk of household labor allocation decisions – those that are *entirely local* in range (Hopcroft 1998). Even when a member of the household participates in long-distance labor migration, the external migration of the family often takes place in stages. In such a case, the labor migrant, over the course of repeated visits, gradually shifts permanent residence, with dependents and spouses migrating only in the final stages (Massey 1988). For the masses of rural poor, the departures from subsistence agriculture occur *incrementally*, involving household members who remain behind in subsistence agriculture and others who exit to local labor markets rather than to distant communities.

In China during the 1980s, local market-oriented economic development combined with broader regional patterns of development began to alter the opportunity structures encountered by peasants. By 1987, the rapid growth of rural industry had created nearly 87 million non-farm jobs (Oi 1999). Although rural industry

was predominantly owned and often managed by local governments, its growth was market-oriented. First, because rural industries fell outside the state-planned economy, local firms had to secure raw materials mostly through non-state sources and distribute finished products through market and quasi-market subcontracting arrangements with state-owned enterprises (Naughton 1995). Second, in the coastal provinces, an increasing proportion of industrial output was produced by privately owned firms. In the more laissez-faire southeastern provinces, private firms accounted for 19.4 percent of the industrial output in 1989, while 35.8 percent was produced by market-oriented collective firms. In the central coastal provinces of Jiangsu and Zhejiang, market-oriented collective firms dominated industrial production, with only 37.6 percent accounted for by state-owned enterprises. By contrast, in the inland provinces, 65.9 percent of industrial output was produced by state-owned enterprises in 1989 (Nee 1996). Where rural industrialization is more advanced, peasant opportunities to earn income outside of subsistence agriculture will be greater, and we will see increases in various types of non-traditional means of earning income.

Yet other aspects of the institutional environment will also affect peasants' household strategies. The perceived risk of exit from traditional farming is lower when opportunity structures are well developed, and peasants are able to assess the risks and gains of shifting to alternative means of livelihood. We agree with Scott (1976) that farmers are ambivalent about markets because they are anxious about unforeseen risks involved in leaving subsistence farming. However, with well-developed labor, production, and commodity markets, pathways to success in markets become part of the local folklore. Examples of notable successes and failures become widely known and discussed in rural communities. Those who depart earlier to seek gain in commercial agriculture, non-farm employment, and entrepreneurship return to serve as role models, furnish connections, and act as informal advisors to local youths. Such activities are critical to lowering the perceived risks and costs of departures from subsistence farming.⁵

The logic of the cumulative causation theory employed by Massey et al. (1994) to explain the rise of long-distance labor migration thus also applies to understanding local departures from subsistence agriculture in China. Their research has shown that households are sensitive to the risks and costs of long-distance

migration. Only when information about employment opportunities and access to these jobs are reliably available does large-scale migration commence. Likewise, we expect that where commercial agriculture has become well established locally, peasants who were formerly subsistence farmers will make the shift to the production of cash crops. Where labor markets offer opportunities for non-farm employment, especially locally, peasant households are likely to allocate labor power to capture this source of income. Finally, where production markets have secured a niche in the local economy, peasants will seek entrepreneurial opportunities to start small businesses.

Political and Human Capital

Within geographic areas, of course, there were still important variations in household response to local and regional opportunities. In postcommunist societies, especially in the early stages of economic reform, political and human capital differences across families likely accounted for much of this variation. In particular, cadres and others with political capital enjoyed many advantages prior to reform, and these advantages improved their willingness and ability to allocate labor to non-farm work in the early stages of reform. Human capital also accounts for variations in the degree to which peasants responded to local and regional opportunities. Human capital increases the ability to recognize and take advantage of new opportunities. Household heads with higher education, for example, would be more able to recognize opportunities for non-farm work, more likely to have contacts in industry, and more likely to possess skills that would be marketable in industry and enable entrepreneurship.

The role that political capital plays in conferring advantages in the stratification order of postcommunist societies has been the subject of considerable debate among scholars (Rona-Tas 1994; Bian and Logan 1996). We define political capital as a form of capital derived from political connections and positional power in the state apparatus. Yang (1994) argued that job scarcity and the scarcity of other necessities encouraged increasing reliance on cultivating connections with cadres during the Cultural Revolution and, particularly, during the first decade of economic transition. Economic actors often deliberately and strategically used their

connections to gain economic advantages (Bian 1997; Keister [forthcoming]). Others have demonstrated that economic reform and market development incrementally diminish the importance of political capital relative to human capital (Nee 1989) and at the very least result in decreased reliance on political connections, which was illegal and increasingly seen as distasteful, particularly in urban areas (Guthrie 1998). Despite these changes, political capital in 1989 still enjoyed many advantages stemming from the path-dependent and incremental nature of institutional change (Nee and Cao 1999).

In our analyses of household labor allocation during the early stages of economic reform, we expect that political capital increased the extent to which households diversified their labor allocations and allowed them to shift more labor to riskier types of employment. Not only did political connections open doors for job seekers in rural enterprises managed by local governments, but they also served as a conduit of information about job opportunities outside the village. In the allocation of labor to non-local non-farm work, cadres' influence likely spanned both political and social influence.

Cohort Effects

Research in the United States has demonstrated that dramatic events during the formative years can impact members of entire generations throughout their lives. In his work on the social and economic impact of the Great Depression, for example, Elder (1974) demonstrated that the Depression greatly affected the behavior of those who were adolescents and young adults during the 1930s. Emotional health, intellectual ability, and assertiveness in later life were all negatively related to economic hardship during the Depression. Similarly, risk aversion increased in those who grew up during that period. A comparable historical period in China was the famine caused by the Great Leap Forward and the Cultural Revolution. It is likely that those who were adolescents and young adults during the 1960s and 1970s in China were made more risk averse by their experiences growing up during the extreme turmoil of that era. They would likely be slower to leave subsistence farming and thus less likely to allocate labor to riskier types of work.

4. Data and Methods

To explore the process of labor allocation empirically, we used data from a multistage, multilevel nationwide survey of the socioeconomic conditions of households and rural communities in China, conducted during the fall and winter of 1989–90 by the Chinese Academy of Preventive Medicine (CAPM) using specially trained teams of public health field interviewers (see Chen et al. 1989). Sixty-five counties were selected non-randomly in an epidemiological study of cancer; however, within each county, two administrative townships (*xiang*) and, within the townships, two villages (*cun*) were selected randomly. The households used in this study were selected randomly from the village sample using household registration information held by village officials (Parpia 1994). The first phase of the survey, conducted in 1983, had focused on the collection of biological samples to study the relationship between nutrition and cancer. This second phase of the survey re-surveyed the original households and included an additional, multilevel socioeconomic questionnaire. The survey contains data at each level of aggregation, including 29 provinces, 138 townships, 138 villages, and 7,950 households. Surveyors collected household data from household members, and they collected provincial, township, and village data from those officials.

The process of labor reallocation is complex. To capture all aspects of the decision-making that combine to create this process, we model four separate outcomes and employ several key test variables. We evaluate four dependent variables: (1) the number of income sources the household had; (2) the sources of income earned outside of subsistence-level agriculture; (3) the amount of income the household earned; and (4) common combinations of rural household income sources. The first dependent variable, the number of income sources the household had, indicates the degree to which the household has diversified its labor allocations. To explore our expectation that peasants first satisfied basic needs and then responded to contextual incentives in stages, we need to understand the degree to which they have diversified their income sources. The greater the number of income sources, the greater the diversification. The second dependent variable provides more specific information on the actual sources from which households secured income, including local and non-local sources, to explore our ideas about the types of activities into

which peasants diversified. The third dependent variable indicates the degree to which households invested in each income source. Our expectations about peasant household behavior suggest different processes operated for different types of income, both in terms of the type of income the households earned and the degree to which they invested labor resources in a particular source of income. The fourth dependent variable captures the household strategy more completely with a single measure. The variable separates households into ideal-typical types based on a set of factors that combine to create the household strategy. We model the likelihood that a household is in one of these categories, to explore the sum of various components of the overall strategy. Together these variables allow us to explore the many facets of the labor allocation process.

The dependent variable for the first set of analyses was *the number of nonsubsistence agriculture income sources* the household had.⁶ We identified four sources of non-farm income, including income from agricultural output sold rather than consumed, income from non-farm work in the local area, income from non-farm work out of the local area, and income from independent entrepreneurial activities. We defined *commercial agricultural income* as agricultural income earned from selling produce in local markets, animal husbandry, fishing, and other agricultural activities engaged in for income rather than subsistence. We relied on the household's report as to whether any of its members are employed in activities off the farm, combined with their reports of the occupations of each member of the household. We excluded from our definition of non-farm labor any members of the household whose primary occupation was farming and who were engaged in non-farm work only as a seasonal job. Farmers traditionally have engaged in seasonal non-agricultural labor. It is the shift to full-time non-farm employment that opens the way for departures from subsistence farming. Table 1 includes descriptive statistics for the dependent variables.⁷ As the estimates in this table indicate, across all provinces the mean number of non-subsistence income types was 1.26.⁸

The second set of analyses used four separate dichotomous variables indicating whether the household had income from *commercial agriculture*, *local non-farm employment*, *non-local non-farm employment*, and *private entrepreneurship*. An alternative approach would be to model the strategies using multinomial

Table 1. Means and Standard Deviations for Dependent Variables

	<i>Coastal provinces</i>			
	<i>National</i>	<i>Redistributive</i>	<i>Corporatist</i>	
			<i>Laissez-faire</i>	
Number of non-farm income sources	1.26 (1.07)	1.70 (1.12)	1.94 (1.10)	1.64 (0.95)
Proportion with income from commercial agriculture	0.62 (0.49)	0.72 (0.45)	0.80 (0.40)	0.78 (0.41)
Local non-farm work	0.22 (0.42)	0.47 (0.50)	0.46 (0.50)	0.24 (0.43)
Non-local non-farm work	0.32 (0.47)	0.44 (0.50)	0.54 (0.50)	0.48 (0.50)
Entrepreneurship	0.09 (0.29)	0.08 (0.27)	0.14 (0.35)	0.15 (0.35)
Mean income from commercial agriculture	1,464 (1,470)	1,155 (1,219)	1,155 (1,013)	1,782 (1,906)
Local non-farm work	521 (1,654)	1,310 (1,940)	1,098 (1,650)	860 (3,225)
Non-local non-farm work	1,135 (3,970)	1,611 (3,515)	2,038 (6,299)	2,291 (4,997)
Entrepreneurship	189 (991)	161 (883)	268 (897)	494 (2,038)
Proportion of households that were subsistence farmers	0.28 (0.45)	0.18 (0.38)	0.12 (0.33)	0.10 (0.31)
Commercial farmers	0.28 (0.45)	0.23 (0.42)	0.21 (0.41)	0.30 (0.45)
Worker farmers	0.26 (0.44)	0.43 (0.50)	0.48 (0.50)	0.38 (0.49)
N	7,896	824	1,086	1,146

logistic regression. Such a strategy would imply, however, that the choices available to peasants were mutually exclusive. We argue that peasants could decide, within social and economic constraints, whether or not to pursue each alternative to subsistence agriculture. For this reason, we modeled the peasants' choices as a set of binary outcomes rather than as a single choice with greater than two mutually exclusive outcomes. The third set of analyses examined the *amount of income* peasant households were earning from each of these activities. The dependent variables were the natural log of total household income from each of these sources. In these analyses, we include only households that actually earned income of this type.

In the final set of analyses, we identified common types of households according to the allocation of their labor resources. We labeled the first *subsistence farmers*, because they earned no income from non-farm work. The second earned income from commercial agricultural activities but not from other non-subsistence work. We labeled these households *commercial farmers*. It was also common for rural households to earn money from both commercial agriculture and other non-farm work, whether local or non-local. We labeled these households *worker farmers*. As Table 1 shows, 28.8 percent of households were subsistence farmers, another 28.0 percent were commercial farmers, and 26.9 percent were worker farmers. The remaining 16.3 percent of households included those who earned income from various combinations of commercial agriculture, non-farm work, and entrepreneurship. We did not model these other categories because there was no other relatively common pattern of income earning.

We model each of our four outcome variables as functions of a unique set of individual, household, and community characteristics, using a series of multilevel poisson, logistic, and linear regression equations. It is appropriate to include a unique set of variables in each model because we propose that the set of factors that influence each of the outcomes is unique.⁹ Multilevel models are appropriate because they decompose the stochastic term into its household and contextual components. In order to test the propositions presented above, we estimate a series of multilevel logistic, poisson, and linear regression equations. Multilevel models allow researchers to test hypotheses regarding the effects of variables at one level of aggregation on outcomes at another level and also control for the non-random manner in which the townships were

sampled (Parpia 1994). The multilevel linear models are of the form (Aitkin and Longford 1986)

$$y_{ij} = \beta_0 + \beta x_{1ij} + \gamma x_{2ij}, \dots, + \alpha_x + \varepsilon_{ij},$$

where x_1 and x_2 are vectors of explanatory microlevel variables and α_x are vectors of explanatory variables at the macro (village or township in this case) level. The macrolevel variables capture the effects of context on the microlevel variables. We use hierarchical logistic and poisson models to examine the determinants of whether the household is a subsistence agricultural household, whether a non-subsistence agricultural household earns any of three types of income, and how many of these income types the household earns. The non-linear models are of the form

$$\mu = f(X\alpha + Z\beta),$$

where α is a vector of p unknown fixed-effects parameters with known model matrix X , β is a vector of unknown random-effects parameters with known model matrix Z , and the function f are evaluations of g^{-1} , where $g(\cdot)$ is a link function (Wolfinger 1993). The model assumes that $E(y|\mu) = \mu$ and

$$\text{cov}(y|\mu) = \Lambda\mu \equiv R\mu^{1/2} R R \mu^{1/2}.$$

R is a diagonal matrix, α and β are estimated from the mixed-model equations, and E and R are estimated using restricted maximum-likelihood (REML).

We use the SAS MIXED procedure to estimate the linear equations and the SAS GLIMMIX macro (which corrects for overdispersion) in estimating the logistic and poisson equations. In order to distinguish between the effects of industrialization and marketization, we use a series of nested models, first adding the indicator of industrialization to the models. We then specify the extent to which local market institutions have emerged in order to test the independent effect of market structures in causing the shift from subsistence agriculture.

To explore the effect of the safety-first ethic, we constructed a dichotomous variable indicating whether the household's *basic subsistence needs were met*. We coded this variable 1 if the household's total per capita food expenditures were more than 125 yuan per

month in the prior year and they reported having had adequate food resources. We used several variables to explore the effects of local opportunities on peasant household economic strategies. We examined the effect of local *industrialization* by including an indicator of industrial output per capita (divided by 100,000) in the township. Our regional indicators capture geographic variations that are common in China, but our measures indicate the source of regional variation rather than simply controlling for the variation. It is important to note that other factors may have also impacted the degree of security experienced by the household. Concerns about security in old age, for example, might have influenced labor allocation decisions. Because we cannot measure and control for all aspects of security, we consider our measure a proxy. At the same time, meeting basic subsistence food needs is arguably one of the most critical components of security, given the rather immediate deleterious effects that result when these needs are not met.

We also measured the extent to which local *production markets* had emerged using a variable indicating the number of firms in the township. This is consistent with White's (1981) concept of production markets. In our analysis, these were operationalized as local business groups in which firms communicated with each other, both to compete and to cooperate in gaining access to resources and securing larger market shares. As bounded production networks (Qian and Xu 1993), local firms work together against outside competitors, even while they compete locally for skilled workers, input material, and market share. The production market variable thus specifies the population of firms that create a market environment within the geographical boundaries of townships and villages. For example, the extent of the local labor market is limited if the locality has only a very few firms. Conversely, the presence of many firms in the township, whether owned by local government or by private entrepreneurs, stimulates the growth of the labor market. Because the distribution of the production market variable is skewed, we use the natural log of the number of private and collective firms in a township. We pool collective and private firms because they depend on marketization for survival; the greater the number of such firms, the greater the marketization in the region.

We also included an indicator of the level of *labor market* development in the local area, defined as the proportion of the village population working outside the village in non-farm jobs. We

constructed this variable from estimates provided by local governments of the total number of peasant workers in construction, factory work, and other workshops, as well as the self-employed, traveling craftworkers, and peddlers. This variable is not based on aggregation of non-farm workers from the household sample. In the early stages of reform, local labor markets increasingly linked peasants in villages to non-farm jobs in the township and county towns (Parish et al. 1995). The greater the extent of the local labor market, the more likely individual households had reliable information about the prospects for off-farm employment.

To capture the effects of regional, rather than local, phenomena on peasant opportunities and household strategy, we also included variables indicating the geographic region in which the household was located. Controlling for only the effects of local influences on peasant opportunities is inadequate in light of the huge internal labor migration in China. We examined the effects of four distinct regions: the inland and three separate types of coastal provinces – the more *laissez-faire* southeastern provinces (Fujian and Guangdong), the corporatist central provinces (Jiangsu and Zhejiang), and the more industrialized suburban area and northeastern provinces (Shanghai, Hebei, and Shandong). We follow Nee (1996) in using the term *laissez-faire* to refer to the relative degree of freedom economic actors had in these provinces and the term *corporatist* to capture the relative strong government role that was more common in these provinces. The regional groupings reflected variations in the change in the structure of property rights at the provincial level from 1987 to 1989. Regional groupings are useful as a classification scheme insofar as they allow us to measure provincial-level variation in the structure of hybrid mixed economies emerging in China. The distinctions we used were based on cluster analyses of provincial data on the relative industrial output of private, collective, and state-owned firms between 1987 and 1989 (Nee and Cao 1999). The larger the proportion of industrial output by private and collective firms, the more marketized the region. In the analyses, the less marketized inland provinces were the omitted category.

We focused on four types of non-subsistence income and explored different aspects of each (whether the household had the income type, how much they earned, what proportion of their total income was accounted for by that type, whether they earned that type exclusively) because the processes that accounted for labor allocation can

be best understood if the various subprocesses involved are decomposed and modeled separately. For this same reason, we modeled the different dependent variables slightly differently. Different local influences, for example, likely encouraged households to allocate labor to commercial agriculture and to non-farm work. In models involving allocation of labor to commercial agriculture, we included an indicator of the distance to the county market, an indicator of local opportunity to engage in farming for profit. We did not include this indicator in models involving other types of work because preliminary investigation confirmed our expectation that distance to market was not associated with them.

To measure the effects of *political capital* on labor allocation, we used a dichotomous variable indicating whether the household included a cadre. To investigate cohort effects, we included two separate dichotomous indicators of the household head's *birth cohort*: whether the household head was born between 1939 and 1948 or between 1949 and 1958. Those in the cohort born just prior to the 1949 revolution would have been age 18–37 during the Cultural Revolution (1966–76). Those born just after the 1949 revolution would have been age 8–27 during the Cultural Revolution. Both cohorts would have been affected by school closings, early career disruptions, and other dramatic events that may have increased their aversion to risk later in life. Because there were few very old people and because we are interested theoretically in these two time periods, we control only for these two cohorts. The education of the household head was indicated by three dummy variables indicating whether the head had completed *primary* school, *junior high*, or some form of *advanced* (high school or above) schooling. The omitted category for these variables was household heads who never attended school. These household-level variables controlled for the effects of human capital and access to resources, such as land and labor, on income. Our data do not contain information on the education levels of other household members; thus we cannot control for the effects of education other than that of the head. In all models, we controlled for the age and marital status of the household head, the number of people in the household, and whether the household head was female.¹⁰ In female-headed households, women often are responsible for the allocation of household labor. In models involving the allocation of labor to commercial agriculture, we also controlled for the amount of land assigned to the family (*mu* per capita).¹¹

Table 2. Means and Standard Deviations for Independent Variables

	<i>National</i>	<i>Northeastern</i>	<i>Corporatist</i>	<i>Laissez-faire</i>
Subsistence needs met	0.41 (0.49)	0.52 (0.50)	0.47 (0.49)	0.70 (0.46)
Industrialization	0.01 (0.03)	0.05 (0.07)	0.02 (0.03)	0.01 (0.02)
Production market development	3.01 (1.84)	3.51 (1.29)	3.79 (1.58)	4.43 (1.87)
Labor market development	0.08 (0.09)	0.13 (0.11)	0.14 (0.08)	0.14 (0.11)
Distance to local market	14.72 (14.00)	9.79 (7.66)	11.76 (7.00)	16.68 (10.41)
Current cadre in family	0.14 (0.35)	0.17 (0.38)	0.12 (0.32)	0.20 (0.39)
Born 1939-48	0.25 (0.43)	0.27 (0.45)	0.23 (0.42)	0.21 (0.41)
Born 1949-58	0.32 (0.47)	0.29 (0.46)	0.30 (0.46)	0.34 (0.47)
Primary	0.46 (0.50)	0.45 (0.49)	0.47 (0.50)	0.52 (0.50)
Junior	0.20 (0.40)	0.25 (0.43)	0.20 (0.40)	0.18 (0.38)
Advanced	0.05 (0.22)	0.05 (0.22)	0.05 (0.21)	0.07 (0.25)
Non-farm workers in village	204.89 (341.46)	227.17 (169.53)	249.20 (127.27)	550.18 (694.86)
Age	47.92 (10.05)	46.88 (10.50)	47.27 (10.71)	49.00 (9.67)
Married	0.91 (0.29)	0.92 (0.26)	0.91 (0.29)	0.91 (0.29)
<i>Mu</i> per capita	1.56 (3.83)	1.22 (1.29)	1.11 (0.68)	0.94 (1.57)
Non-farm workers in family	0.42 (0.79)	0.88 (1.08)	0.73 (0.96)	0.61 (0.92)
Family size	4.85 (1.80)	4.24 (1.51)	4.21 (1.56)	5.32 (1.85)
Female household head	0.18 (0.38)	0.18 (0.39)	0.17 (0.37)	0.21 (0.41)
N	7,896	824	1,086	1,146

Table 2 includes descriptive statistics for the independent variables, nationally and by region. The estimates indicate that there were substantial differences in some variables across regions. In the *laissez-faire* region, for example, there is much higher propensity

for the family's basic needs to be met and for villages to have non-farm workers. In the redistributive region of the north, markets were relatively close and the likelihood that there was a cadre in the household was relatively high.

Because the contextual variables were measured at the same level of aggregation, there was potential for a high level of inter-correlation among the independent variables which would prohibit precise analysis of the individual effects of these variables. In order to avoid this problem, we first checked the variables for high correlations (Greene 1993). Table 3 reports the Pearson correlation coefficients pairs of continuous independent variables. None of the correlations were particularly high. In addition to checking simple correlations, we systematically removed variables from the regression equations, concentrating on those with relatively high correlations in an effort to detect whether these small changes in the specification would produce unrealistically large changes in the parameter estimates (Greene 1993). Finally, we conducted additional diagnostics (primarily using descriptive statistics and looking at regional covariations in variables) in an effort to ascertain whether the regressors exhibited any signs of collinearity. All such tests suggested that the variables included in the regression equations reported below were not correlated to a degree that would affect the precision of the coefficient estimates reported here.

5. Findings

The degree to which households diversified their labor allocations was largely a function of the local and regional opportunity structure, but risk aversion, political connections, cohort effects, and human capital mediated this relationship in important ways. Table 4 presents estimates from nested multilevel poisson models of the number of non-farm income sources earned by the household. We present the results of nested models to demonstrate the robustness of the findings across specifications, particularly as the key test variables are added. These results suggest that there was a strong and consistent relationship between having subsistence needs met and the number of other sources of income the household had, providing strong support for our *flexible adaptation* hypothesis. In other words, when the household's basic need for a subsistence level of

food, in particular, was satisfied, the household was likely to begin earning income from other sources in the local and regional economy. The cohort effect also shows that the generation who experienced the Great Leap Forward famine and the Cultural Revolution were more risk averse, which is consistent with the substantivist position (Scott 1976). These findings provide some support for the safety-first notion. That is, the rational peasant responds to the continued threat of hunger and famine by assuring that basic needs, particularly those for food, are met. Only then

Table 4. Number of Non-farm Income Sources: Multilevel Poisson Models

	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>
Subsistence needs met	0.370***	0.3663***	0.352***
<i>Local and regional context</i>			
Industrialization		1.676*	1.566*
Production market development		0.042**	0.046**
Labor market development		1.193**	1.148**
Distance to local market		-0.004**	-0.004**
Corporatist coastal province		0.345***	0.350***
Laissez-faire coastal province		0.108*	0.090
<i>Political capital</i>			
Cadre in family			0.292***
Born 1939-48			-0.075*
Born 1949-58			-0.052*
<i>Education</i>			
Primary			0.061**
Junior			0.102***
Advanced			0.099**
<i>Control variables</i>			
Non-farm workers in village	0.004***	0.000	0.000
Age	0.012	0.013	0.011
Age ²	-0.000*	-0.000*	-0.000
Married	0.074*	0.072*	0.068*
<i>Mu</i> per capita	-0.000	0.000	0.000
Non-farm workers in family	0.258***	0.252***	0.249***
Family size	0.034***	0.035***	0.030***
Scaled Pearson χ^2	7737***	7741***	7570***
N	7,726	7,725	7,555

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

does the household begin to produce cash crops, seek non-farm employment, or engage in independent commercial ventures.

Yet household decision-making regarding labor allocation was clearly more complex than a simple safety-first argument suggests. The results provide support for the notion that peasants diversified their labor allocations in order to take advantage of local opportunities and to reduce risks associated with complete dependence on a single form of income (*diversified risk* hypothesis). The estimates indicate that more extensive local and regional market-based opportunities and higher levels of industrialization were positively associated with diversification. Households in central and south-eastern coastal provinces diversified more, and when we entered the individual and family indicators into the final model, the effects of industrialization and market development remained strong, providing evidence in support of our second hypothesis. There was no difference between the suburban and northern coastal provinces and the omitted inland provinces. This is likely the result of the preponderance of state-owned enterprises in these regions. The primary source of non-farm employment for peasants in the late 1980s was township and village enterprises. Regardless of the region, political capital and educational attainment further increased levels of diversification. As we anticipated, those who were children and young adults in the famine following the Great Leap Forward and during the Cultural Revolution diversified into non-subsistence work less than other households.

What affected the types of work to which households allocated their labor? In Table 5 we present the results of four multilevel models exploring this question. The first model indicates that, controlling for whether the household's subsistence needs were met, local and regional opportunities were still powerful indicators of the likelihood that the household allocated labor to commercial agriculture. Rural households were less likely to earn income from commercial agriculture the greater the distance to the local market, but they were more likely to sell farm products for profit in regions in which development had progressed more rapidly. Political capital played an important role in the household's ability to make the transition into commercial agriculture. This may indicate that households with cadre members were more likely to have received, during decollectivization, a higher grade of arable land well suited for commercial agriculture. It was the

peasants who lacked political connections who continued to eke a living by non-commercial means. The amount of land available to the household also influenced its allocation of labor. Households with more land were more likely to take advantage of the extra space and produce crops for profit.¹² These findings are similar to what Massey et al. (1994) report are determinants of labor migration in Mexico.

As expected, local and regional market development and industrialization proved to be powerful indicators of the ability of households to obtain non-farm work (*opportunity structure* hypothesis). Labor market development had significant net effects on the odds of obtaining non-farm employment, but unexpectedly, the extent of the local production market did not. However, in an analysis not reported here, when we did not control for the coastal provinces, the extent of the production market showed a significant effect. As seen in the significant positive effects of education and political connections, household characteristics were also important. Larger families – more likely to have surplus labor – were likewise consistently more likely to allocate labor to non-farm work. The non-local non-farm employment model in Table 5 indicates that many of the same factors also motivated shifts of labor out of the local area. Households not only responded to local labor demands, but also exported labor to nearby and distant cities. The likelihood of long-distance labor migration appears to be mediated by local economic development and marketization, as suggested by statistically significant effects of the local contextual variables. Significantly, local economies in which non-farm employment is well developed are the ones most likely to export labor to cities. The chances of finding non-local non-farm employment are greater in the coastal corporatist provinces where township and village enterprises dominate the provincial industrial economy. Human capital was important, but the availability of land and opportunities created by industrialization and market development were particularly significant.

Not surprisingly, the odds of households entering into private entrepreneurship are greater in the more marketized *laissez-faire* and corporatist coastal provinces. Industrialization does not predict the likelihood of households starting up small businesses, nor does the extent of the local labor market. Having a cadre in the household also does not appear to increase the chances of going into

Table 5. Non-farm Income Types: Multilevel Logistic Models

	Commercial Agriculture	Local Non-farm work	Non-local Non-farm work	Entrepreneurship
Subsistence needs met	2.496***	0.237***	0.266***	0.292***
<i>Local and regional context</i>				
Industrialization		11.403**	10.918***	-1.621
Production market development		0.070	0.095**	0.010**
Labor market development		3.712**	4.962***	1.510
Distance to local market	-0.017***			
Suburban and northeast coastal province	0.687***	1.204***	0.157	-0.233
Corparatist coastal province	1.393***	1.455***	0.978***	0.448*
Laissez-faire coastal province	0.430*	0.162	0.378	0.335*
<i>Political capital</i>				
cadre in family	2.115***	0.293***	0.478***	0.103
Born 1939-48		-0.239*	-0.452***	-0.275*
Born 1949-58		-0.182*	-0.256***	-0.058
<i>Education</i>				
Primary	0.009	0.295***	0.288***	0.389***
Junior	0.042	0.425***	0.566***	0.421***
Advanced	-0.131	0.708***	0.708***	0.453**
<i>Control variables</i>				
Age	0.045	0.049*	0.072**	-0.230
Age ²	-0.000	-0.000*	-0.000**	-0.000
Married	0.115	0.233*	0.358***	0.383**
Mu per capita	0.036**			
Family size	0.081***	0.134***	0.182***	0.107***
Female household head	-0.162	0.329***	0.558***	0.160
Scaled Pearson χ^2	7603***	7596***	7595***	7611***
N	7,578	7,576	7,575	7,575

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

private entrepreneurship. Instead our findings suggest that the level of concentration of firms in the local economy and the household head's stock of human capital contribute to the likelihood of private entrepreneurship.

Once a household is engaged in commercial agricultural, non-farm, or entrepreneurial work, what factors determine the *degree* to which the household invests in these lines of economic activity? The dependent variables as we explore this are the proportion of total household income accounted for by income from commercial agriculture, local non-farm work, non-local non-farm work, and entrepreneurship (see Table 6). We find that the distance to the local market was negatively related to the degree to which the household invested its labor in commercialized agriculture, while industrialization and coastal region increased the degree to which the households invested in non-farm work. We are puzzled that market development did not emerge as a statistically significant predictor of the percent of a household's income from cash crops and non-farm employment. This may indicate that rural industry mediates the effect of market development to a greater extent than is revealed in the analyses reported in Tables 4 and 5. Human capital, measured by education, affected only the degree to which the household allocated labor to non-local non-farm work, reflecting the greater opportunities for the better educated to leave the local area and obtain work.

Finally, examining patterns of labor allocation, we found that nearly 84 percent of all households fell into three types: those with no income from non-subsistence activities (28.8 percent), those with income from commercial agriculture only (28.0 percent), and those with income from commercial agriculture and non-farm (either local or non-local) work (26.9 percent). What factors affect the likelihood that a particular household will fall into one or another of these categories? As Table 7 shows, the extent of the development of market-oriented firms – private and collective – in the nearby township and the extent of the local labor market reduces the likelihood of remaining in subsistence agriculture, which was least likely in the most marketized, industrialized regions, lending additional support for our second hypothesis. Perhaps the most interesting findings are the negative relationship between the regional indicators and the likelihood that the household earned income only from commercialized agriculture. This supports the notion that different processes lead families to allocate labor to agriculture and non-farm

Table 6. Percent of Total Income Accounted for by Components: Multilevel Linear Models

	Commercial Agriculture	Local Non-farm work	Non-local Non-farm work	Entrepreneurship
Subsistence needs met	0.281***	0.170***	0.161***	0.352***
<i>Local and regional context</i>				
Industrialization		4.074**	2.460***	3.917**
Distance to local market	-0.024*			
Suburban and northeast coastal province		0.404**	0.355**	0.268
Corporatist coastal province		0.417***	0.368***	0.520***
Laissez-faire coastal province		0.470***	0.545***	0.536***
<i>Political capital</i>				
cadre in family	0.174***	0.118**	0.097**	0.012
Born 1939-48	0.091**	-0.135*	-0.190***	0.210*
Born 1949-58	0.088**	-0.130	-0.154***	0.030
<i>Education</i>				
Primary	0.034	0.055	0.090**	0.141
Junior	0.065	0.010	0.169***	0.155
Advanced	0.004	0.214*	0.255***	0.351*
<i>Control variables</i>				
Age	0.060***	0.042**	0.045***	0.022
Age ²	-0.000***	-0.000***	-0.000***	0.000
Married	0.133**	0.174**	0.096	0.146
Family size	0.011***	0.100*	0.080***	0.100***
Female household head	-0.96**	0.110*	0.096*	0.169*
Scaled Pearson χ^2	7603***	7596***	7595***	7611***
N	4,636	1,584	2,343	585

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

Table 7. Household Type: Multilevel Logistic Models

	Subsistence farming	Commercial farming	Commercial farming /non-farm employment
Subsistence needs met	-2.938***	1.479***	0.551***
<i>Local and regional context</i>			
Industrialization			8.703***
Production market development			0.095***
Labor market development			3.709***
Distance to local market	0.017***	-0.002*	0.535*
Suburban and northeast coastal province	-1.104***	-0.856***	1.068***
Corporatist coastal province	-1.520***	-0.946***	0.274
Laissez-faire coastal province	-0.947***	-0.591***	
<i>Political capital</i>			
Cadre in households	-2.908***	0.837***	0.586***
Born 1939-48	0.276**	0.215*	-0.284**
Born 1949-58	0.194*	0.120	-0.298**
<i>Education</i>			
Primary	-0.178**	-0.217**	0.154**
Junior	-0.379**	-0.322***	0.315***
Advanced	-0.404*	-0.674***	0.485***
<i>Control variables</i>			
Age	0.058	0.011	0.086***
Age ²	0.000	-0.000	-0.001***
Married	-0.219	-0.139	0.186*
Mu per capita	-0.007	0.051***	0.151***
Family size	-0.088***	-0.100***	0.323***
Female household head	-0.071	-0.433***	7599***
Scaled Pearson X ²	7612***	7597***	7,576
N	7,576	7,575	7,576

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

work. In earlier analyses (Table 5) of the likelihood that the family had *any* income from commercialized agriculture, the regional variables had a positive effect. This is because many of those families also had other non-farm income sources. When we examine the likelihood that the family had *only* commercialized agriculture income, we see that if local and regional opportunities were not well developed, the odds increased. As opportunities to earn income from non-farm work improved, peasants moved their labor to those activities. The results reported in Table 7 provide additional support for the view that peasant households were more likely to remain in subsistence agriculture in the less developed inland region where rural industrialization and labor markets have been slow to develop (Byrd and Lin 1990).

6. Conclusion

We have argued that peasant households do not respond perversely to markets nor are they, left to themselves, interminably locked into an involutory subsistence pattern. Following the implementation of economic reform, increased rural industrialization and the spread of markets have altered the opportunities facing peasants. As a result, peasants have begun to earn income from sources other than traditional agriculture. Far from being wary of markets, as suggested by the moral economists, peasants respond favorably to opportunities that are available for them in diverse market settings, from labor markets to markets that enable them to enter into private entrepreneurship and commercial farming.

Our analyses demonstrate that rural industrialization increases peasant opportunities. Huang (1990) emphasizes state-driven industrialization as the primary mechanism in the shift out of subsistence agriculture. We agree that local governments played a crucial role in the development of township and village enterprises; however, more marketized coastal regions experienced the most rapid growth of rural industry. As our findings document, market development and rural industrialization combined to provide the new opportunity structures that fueled the shift out of traditional agriculture (*opportunity structure* hypothesis). This is seen in the additive effects of human capital, industrialization, and marketization in increasing the likelihood of household labor allocation out of subsistence agriculture. In combination, this cluster of variables

conforms to the expectations of peasants responding rationally to market opportunities, as opposed to the narrowly constructed state-centered explanation that credits the socialist state for providing the only institutional mechanism of transformative change (Huang 1990).¹³

The broader implications of our study are that peasants are highly responsive to the structure of opportunity that they face. Where commercial agriculture has become widespread, peasants will take advantage of opportunities to increase their incomes using cash crops. Rural industry and labor markets increase opportunities for non-farm work, and the emergence of production markets increases opportunities in entrepreneurship. When opportunities exist outside of subsistence agriculture, peasants are quick to exploit new sources of income and to reduce their risk by diversifying labor power. They keep one foot firmly entrenched in subsistence agriculture, even while they shift out of sole reliance on farming. Such mixed strategies enable peasants to maintain their 'safety-first' ethic while augmenting their income streams from off-farm work (*flexible adaptation* hypothesis).

The results reported here contribute to understanding of the processes underlying peasant movement out of subsistence agriculture, in particular, as well as contributing to our understanding of large-scale human migration more generally. Broadly consistent with economic and sociological theories of migration, our findings fill a missing link between studies emphasizing the decision to embark on long-distance labor migrations and those concentrating on local adaptations to changing opportunity structures. Mixed strategies of departure from subsistence farming – most of which are local in range – enable peasants to optimize their stock of human capital and labor power while reducing the risks and costs of shifting out of traditional farming (*diversified risk* hypothesis). Households with more human capital, surplus labor power, and less land, who are not heavily invested in local commercial farming and enterprise, have a higher odds of seeking non-farm work both in local and regional labor markets. This is consistent with Massey et al.'s (1994) study of Mexican immigration to the United States. Our findings indicate that the household-level determinants of local and non-local labor migrations are very similar. Where we contribute new insight is by demonstrating through multivariate analyses the effects of local and regional contextual variables. The contextual variables, more than variation in household-level characteristics, predict the odds of

shifting out of subsistence agriculture because they specify the parameters shaping the opportunity structures of subsistence farmers.

Our findings show a closer coupling between local economic development and long-distance labor migration than previously understood. This may help to explain the paradox that richer coastal regions in China are more likely to give rise to overseas migration, as seen in the new immigration from Fujian and Guangdong provinces to North America. A similar pattern of overseas migration took place in England, according to Fischer (1989), who shows that the economically developed and populous southern regions gave rise to the early migration to North America. The odds of embarking on long-distance labor migration improve after a threshold is reached where locally many people find off-farm employment in labor and production markets. These conditions, in combination with past population growth and low per capita arable land, create conditions propitious to labor migration to distant cities (Goldstone 1998; Solinger 1999). Moreover, the commercialization of agriculture in more developed localities exacerbates the problem of surplus labor power in agriculture. As in large-scale immigration from central America to the United States, not the poorest households in a community, but the better educated households that have already begun the shift out of subsistence farming are likeliest to export labor. These households are more likely to have the connections and experiences that orient them towards seeking opportunities in distant places.

NOTES

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1. We refer to all individuals in the sample as peasants, intending to include all rural dwellers regardless of the relationship to agriculture. In referring to China in the early stages of transition, however, it is possible to assume that most of those sampled had considerable contact with agricultural work prior to reform.
2. Huang's account of the transformative changes in the 1980s was based on a case

study of a commune in the Yangzi Delta. Unfortunately, because Huayang commune is not representative of China, it is not clear whether the patterns that he observed there can be generalized. As Xie and Hannum (1996) note, 'studies of the consequences of economic reforms in China typically treat China as a homogenous entity and disregard enormous regional variations, even when data used are regional and unrepresentative of China as a whole. This practice, while sensible when Chinese data were scarce, should no longer be continued, as China is a vast country with spatially heterogenous economies' (p. 951). More fundamentally, Huang's methods prevented him from providing analyses other than descriptions of associations between rural industrialization and household behavior.

3. This does not necessarily contradict the 'safety-first' ethic because institutional investments made under collectivized agriculture after the Great Leap Forward may have provided the safety net that emboldened Chinese peasants to push for institutional innovation in the reform era (Parish and Whyte 1978); moreover, each household was assigned a proportionate share of the collectives' arable land (Parish 1985).
4. Massey et al. (1994), for example, studied 19 Mexican communities to document the process by which a small number of migrants leaving agriculture expands over time into a larger stream of migrants. Their analysis of the cumulative causation of migration shows that network ties linking sending and receiving communities lower the costs and risks of migration, and stimulate cultural change, thus increasing the desirability of finding work outside the rural community.
5. Peasants pushing to expand their reliance on markets and reduce dependence on the state is consistent with Bates's (1981) argument that markets provide an institutional mechanism that enables rural producers to bypass the state, which in developing economies, redistributes surplus from agriculture to the benefit of urban constituents.
6. While it is impossible from analyses such as these to determine the intended strategy of the household, we argue that the actual allocation of labor is a relatively strong indicator of this strategy. Indeed, because the actual allocation of labor has real consequences for household outcomes, it is perhaps more relevant than the household's intended strategy. Similarly, while we cannot draw conclusions about changes in patterns of labor allocation from these analyses, the degree to which households were similar even across regions prior to reform allows us to assume with a degree of confidence that sending labor to non-local areas is a change the household made since reform.
7. We included only three of the four subdivisions of the 'national' category in order to conserve space.
8. It is possible that the allocation of household labor by peasants changed following Deng Xiaoping's 1992 south China trip when he strongly endorsed market-oriented economic development. Because our data do not extend to the post-1992 period, we are unable to explore these changes empirically. It is likely that risk aversion decreased, although the decrease likely occurred gradually as peasants adapted to the new incentives.
9. We do not include the same set of independent variables in each model because different forces combine to produce each outcome. We present the 'best' model of each process (Greene 1993).

10. Controlling for number of adults had no substantive impact on the results.
11. Six *mu* is equivalent to an acre.
12. This variable also controls for the effects of the unique land allocation system that prevailed in China prior to reform and in the early stages of reform. It is possible that some farm families were allocating labor to both agriculture and non-farm employment in order to retain control and perhaps gain ownership of the land they farmed. Controlling for the number of *mu* the family farmed captures this possible effect as well.
13. Including interactions among key test variables did not improve model fit, nor did they alter the findings substantively.

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VICTOR NEE is Goldwin Smith Professor of Sociology at Cornell University. His research interests are economic sociology, market transition in China, and international migration.

ADDRESS: Sociology, Uris Hall, Cornell University, Ithaca, NY 14853 USA [email: vgn1@cornell.edu].

LISA KEISTER is Associate Professor of Sociology at the Ohio State University. She studies China's economic transition, particularly its impact on firms, and also does research on wealth inequality in the United States