

POCKETS OF POVERTY IN A FAST-GROWING ECONOMY:

Quantifying market shares in rural Southwest China

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University of Washington

THE HENRY M. JACKSON SCHOOL OF INTERNATIONAL STUDIES

Honors Program

May 7, 2004

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PART I

CONVERGING WITH THE MARKET ECONOMY IN RURAL CHINA

While China's economy experienced tremendous growth rates in the past two decades, the question of sustainability for farmers transitioning from subsistence production to modern agricultural cash crop production in developing regions of China is a problem yet to be treated satisfactorily in the literature of agricultural economics and China studies. Chinese policy makers and scholars of China studies have come to general consensus that development is best implemented in an integrated way, not leaving groups of people or regions underdeveloped.¹ Although literature on China's food security and its self-sufficiency in grain production has stirred commotion in the scholarly community (Brown 1995; Felloni et al. 1995), attention has yet to focus at the bottom end of farm production, small farmers who were left in the periphery with no ability to integrate into the market. While scholars dedicate their attention to Chinese village political reforms and the effectiveness of the political structure (Ash 1993, Whiting, 2000; Zhang), some choose to explore the liberalizing market (Lardy 1983; Oi 1995; Riskin 2001; Rozelle 2001; Walder 1995). Yet, little is discussed about farming activities at the local level. Through an examination of Baiwu Township in Southwest China, this thesis argues that the absence of specific preconditions to profit-oriented livelihoods hinders the ability to escape subsistence living and prevents marketization of agricultural productions, thus stagnating economic growth in poor rural communities in China.

¹ China's development has been marked by unequal rates of growth compared between the east and the west of the country, along with other socio-economic inequalities (which will be discussed later in the text), but this gap has come to attention of many. The dichotomy between east and west is both historical and policy-induced. The eastern and coastal regions of China have an extensive history of commercial trade and industrialization, while the Chinese tend to think of the West as undeveloped. David Goodman (2001) addresses the Chinese government's interests in the western region of China. Goodman argues that China's policy to "Open Up to the West [in China]" for three reasons: 1. to increase equality between the ethnic minorities inhabited in the west and the majority population, 2. to aid "nation-building" in terms of strengthening the state and cultural solidarity within the nation, and 3. colonization to assimilate the Han culture, to bring in the eastern modernization methods, and to extract natural resources for the industries of the Coastal region.

ONE FARMER'S STORY

Hxiele Muga² is a Yi ethnic minority small-scale farmer in Yangjuan village, Baiwu Township in Sichuan, China. In 1989, he and his wife decided to devote all of the family land to an apple orchard as their first try in growing a cash crop. Following examples of apple farmers in a neighboring town and watching them prosper, he was one of the first farmers in his village to march into the daring world of cash crops. Muga's village has always relied on subsistence farming; earning disposable income was a new experience for his community.

In his five acre orchard, Muga planted 1000 apple trees, but before he planted, he spent five years tending the land, removing large rocks and transforming swampy mud to arable soil. In 1989 he bought 1000 trees from a private grower. He could have acquired trees from the government nearly free of cost, but Muga was willing to pay a significantly higher price in order to avoid government records of his activity.³ He did not have the money to buy all the necessary supplies for growing an orchard, but the government gave low-interest or no-interest loans to the farmers in his village who wanted to grow apples. Muga submitted a loan request to the village leader, and got the money.

1992 was his first harvest⁴, and his total annual income from apple production was less than ten U.S. Dollars. For the following five years, his annual income nearly doubled every year until 1997, when the price of his apples suddenly dropped by more than 50%. Recognizing this as harbinger of trouble, Muga started coming up with creative ideas to keep his orchard profitable. The following year he decided to stop relying on sales to middlemen who came to his

² From here on all names of informants will be pseudonyms.

³ Although Muga did not explicitly share the reasons he chose to avoid government records, this shows a complex relationship between the farmers and the government, where the farmers need government help in access to credit and information dissemination, but at the same time the farmers do not feel comfortable trusting the government. This complex and nontransparent relationship acts as a barrier to successful development.

⁴ Without significant technological and genetic alteration, fruit trees usually have a lag time of three to four years of tending the trees before they start fruiting. Muga spent eight years working on the apple orchard before they produced any income for him.

village every year to buy from farmers and sold to consumers.⁵ Muga hired three trucks and six drivers and transported his apples to the closest medium-size city, Panzhihua, where he sold his apples directly to the consumers. That year, he lost over 2400 yuan,⁶ which amounts to nearly USD 300. After that costly attempt, Muga was never able to sell apples again. Middlemen stopped going to his village, there was no one to sell to and he could not go to the market to sell. In 2001, he cut down nearly all his trees to grow other crops that he and his family could eat. To date, Muga has yet to pay back his loan because he has gone bankrupt trying to sell apples. The government has not pressured him to pay back the loan, but Muga claims that the government periodically comes to collect taxes.⁷ The government's intentions with the loans and taxes are vague, but Muga is not concerned with the problem of loans and taxes.

Muga was not alone in this tragedy. Most farmers in his village were lured by the lucrative opportunities and eagerly accepted government assistance in turning their land of bread and butter into a land of cash. As poor minorities with little or no elementary education, these farmers did not think like economists—they experienced the forces of supply and demand, but they failed to predict diminishing returns and the limits of consumption. By 1997, the supply of apples saturated the consumer market—prices started dropping and buyers became more selective. This is what happens when the number of suppliers for a food product increases rapidly while population and consumption remain relatively stable. What went wrong and who is to blame for the plight of Muga and his fellow farmers? Middlemen merely responded to forces of the market, being sensible not to buy too many apples or low quality fruits when they

⁵ Crop sales in Baiwu county relied on intermediary merchants, the middlemen, who go into the villages every year to buy surplus crop from the farmers at a significantly lower price than the retail price. The middlemen paid a one-time fee for the product at a rate per volume. The middlemen decided who to buy from, determined the price, and they could also select and buy only apples of a certain quality. The price is usually determined by the size of the apple.

⁶ The yuan is the Chinese currency. USD 1 amounts to approximately 8.2 yuan.

⁷ In 1998, the government collected a “special production tax” (*techanshui*), which cost Muga 400 yuan.

knew the market could not absorb the excess. Muga did all he could to stay competitive, but his competitiveness and success were beyond his control—he did not have the tools or the money to grow high quality apples and the middlemen did not want to drive over miles of muddy road to reach his village when they could buy apples of equal or higher quality from a village closer to the market.

Why did the farmers in Yangjuan suffer from economic losses through surplus production in the attempt to accumulate wealth? To understand Muga's situation and the plight of small-scale farmers who live in the periphery and are traditionally engaged in subsistence agriculture, one must explore the political and economic setting of Chinese agriculture and the socio-economic problems that arose from political transformation. The following section will describe the historical development of agriculture since the birth of the People's Republic of China and the historical implications for rural development today.

CHINA'S MARKET TRANSITION: FROM STATE-PLANNED TO DECONTROLLED MARKET

During the reforms period beginning in the late 1970s, China initiated agricultural restructuring as part of its economic transition program through decollectivization and market liberalization. Reform policies primarily focused on staple production and were mainly carried out through the authority of the central state, although countryside farmers' active role in staple production should not be overlooked. During this period, grain production represented 70% to 85% of total agricultural productions, leading to an average increase of 8.5% in productivity from 1978 to 2000 (China Statistical Yearbook 2001). Grain productivity skyrocketed in the late 1970s and continued to improve throughout the early 1980s, until productivity turned towards slower growth in the 1990s (Ghatak and Seale 2001: 142). The following section will discuss

the historical background of the political setting of agriculture during the Maoist years (1949-78) and explain the reforms period in the early 1980s and its effect on rural development.

Political-Economic Setting During Socialist Era

Prior to the 1949 Revolution, agricultural land ownership took place through a feudal system where 70% to 80% of agricultural land was held by landlords, who only constituted 10% of the rural population (Fan and Pardey 1997: 121). Most farmers during the Republican era were either landless or rented land. After 1949, the government formally confiscated property from landowners and redistributed it to the peasant farmers; a few years later, in a multi-stage process in the 1950s, they collectivized the land, and it continued to be worked collectively until the late 1970s and early 1980s. Due to inefficiencies of the state and its central role in the structure of the agriculture sector, collectivization in the Socialist era caused a high degree of stagnation in the agriculture sector of the economy.

The Chinese government practiced stringent control on grain production because food security was the basis of the nation's economic development. Although the state adopted a "self-sufficiency policy" in grain (Lin 1997: 203), its major focus was to implement industrial-oriented policy. By creating a self-sufficient grain sector, China relied on the export of agricultural products to support the country's capacity to import capital goods for the industrial sector. In other words, China's capacity to import capital goods for industrialization depended on agricultural growth (Lin 1997: 203). To further illustrate the government's bias towards industrialization, William Parish, expert in Chinese rural development, reveals that the government prevented the rural sector from engaging in profitable commercial crops to avoid letting the rural villages drain government coffers (Parish 1985: 11). In other words, the government deprived the rural areas of government budget spending to concentrate funding in

the industrial sector. This suppressed the development of rural potentials.⁸ The government clamped down on the structure of grain production and distribution, using procurement prices⁹ to maintain low grain prices so the urban sector could afford cheap grain. This provided grounds for lower urban wages.

One problem with the structure of grain production and distribution had to do with procurement prices and the rationing system¹⁰ mandated by the state. Both of these processes were governmental operations and the state set the procurement price and the rate of distribution. As mercantilism suggests, governmental regulations of agricultural prices guarantee farmers' income. However, as farmers' welfare rose and production increased, market prices fell, and procurement prices continued to be fixed at a rate higher than market price (Zhang 1998; Enjiang 1997). With procurement prices coexisting with the rationing system, the government held an excess of grain and an agricultural budgetary deficit.

Through a work point system of compensation, agricultural production was structured by a system of agricultural management through the commune, brigade, and production team under the supervision of a team leader. The average size commune consisted of 5,000 households with 10,000 workers and 10,000 acres of sown land. By using the work point system, agricultural workers were allotted a certain number of work points according to their age and gender, and these work points converted to their access to a share of grain. The size of the share corresponded to the number of work points, so the higher the points, the greater share of grain

⁸ By artificially reallocating income from agricultural productions to the industrial sector during the Socialist era, the government created a biased market that consequently stained the future of development, as rural poverty continues to persist for decades. Refer to the section *Inequality in China* for more information.

⁹ In the quota system, the government buys a set amount (the quota) of the crop from peasant farmers at a price set by the government, the *procurement price*.

¹⁰ The rationing system was the rate of distribution of grain to urban residents in order to control the expansion of the permanent workforce. The permanent workforce in urban areas more or less represented the bulk of the population

received. Children and elders generally received fewer points than adults, while women received fewer points than men (Xiao 1998).

The inefficiency of central control also had ramifications on peasant labor mobilization in urban industrial developments. In the 1950s, with excess surplus of grain in government hands, rural residents began to move into industrial cities to find income-earning jobs. However by the mid 1960s, due to the residential registration system planned by the state, called the *hukou*,¹¹ non-urban residents were bound to rural land and could not move to cities to work in the industries. In the reform era when the government decided to change the *hukou* system and allow labor mobilization, peasants were still limited in job opportunities and were discriminated against in terms of wages because they were not permanent residents and hence faced more difficult circumstances than urban residents. The plight of rural farmers is the result of the inefficiencies of central planning. The government subsidized agriculture, created a surplus of grain so farmers had to move into cities, where again, because of state planning, they were subject to wage discrimination (Lardy 1983b: 13).

As economist Nicholas Lardy points out, poor governmental economic reform is responsible for many of the problems of agricultural development in China (1983a). The Maoist era was marked by heavy central economic planning and reform as a result of pressures to catch up with developed countries. The inefficiencies of this central economic planning caused rural farmers to pivot between rural poverty and frustration with institutional rigidity. Although gross output of grain may have increased through the Maoist years, social welfare for farmers actually

¹¹ The *hukou* is a residential registration system created by the government in 1958. This system tied citizens to their land, labeling peasants to rural land and urban people to industrial land. This ultimately prohibited mobilization of human capital and labour until the government allowed mobilization to occur, but mobilized workers could not gain the privilege of acquiring permanent residency nor could they acquire grain ration privileges. This was done in order to control the flow of contract and temporary workers into urban areas. The *hukou* system still exists today at a greater degree of flexibility, allowing greater mobility in labor supply.

decreased. Although agricultural production increased and accounted for greater social benefits for China as a nation, peasant income actually decreased (Parish 1985: 36). Lack of flexibility through government control of prices and quantities of production resulted in a highly inefficient market. Recognizing the inefficiencies of procurement pricing, in 1978 the government slowly began to decollectivize and gave farmers greater flexibility as to farm structuring. By 1979, agricultural output began to skyrocket.

Reforms Period: Flexibility in Farming Structure and Liberalizing the Market

As Fan and Pardey (1997) explain, agricultural reform beginning late 1978 occurred in two distinguishable phases (ibid.: 115-37). The first phase focused on decentralizing the system of production, which consisted of the establishment of the household responsibility system (HRS) and price adjustments. The second phase gave emphasis to liberalizing the market.

Phase One: Decollectivization and the HRS Reform. Decentralization and decollectivization took place through the creation of the household responsibility system, which, as the name suggests, diverted responsibility from the collective to individual households. Instead of using the work point system through the collective, each household became responsible for its share of grain output, while each household was supervised under a production team. This created greater incentives for productivity for each farmer by placing explicit responsibility on individual households. The HRS brought greater awareness to each individual's contribution towards output, compared to the collective system, where the quality of a farmer's work is much less apparent. The adoption of the HRS accounted for nearly 78% of the increase in agricultural productivity from 1978 to 1984 by diverting the incentive system away from collective management, while the other 22% of gains came from the increase in pricing (Lin 1997: 205).

According to Robert Ash (1993), the HRS used two main forms of household contracts mandated through production teams as a structure of production. The system of *baochan daohu* ('contracting output to the household') allocated a fixed amount of land to the household and specified a targeted level of output. The production team provided agricultural inputs (such as fertilizers) and distributed final income on a work point basis. The second contract system, *baogan daohu* ('contracting everything to the household'), used the same system of land allocation, but distributed animals and farming equipment to households. Once quota requirements and taxes have been paid, the remaining output is left to be disposed under the discretion of the household (Ash 1993: 16).

Price Adjustments. During the first phase of reform, price adjustment also lifted some of the economic burden from the farmers of the countryside. Quota systems were restructured to allow the practice of market pricing. Because the government's procurement pricing was low and restricted the growth of rural income, the creation and restructuring of the quota and above-quota system allowed farmers to sell at higher prices when they produced at quantities above the quota required by the government. With the above-quota system, the government required farmers to sell a set amount of grain to the state at a quota price, while an additional amount of grain was sold at a higher price, the above-quota price. If farmers had excess grain in addition to the set amount sold at above-quota price, they were free to sell in the open market, which usually had prices even higher than the above-quota price.

Already in 1961, the government had increased grain procurement prices by 25.3%, and made major price readjustments in 1966, 1979, 1985, and 1988 (Lin 1997: 206). The state also lowered input prices by 10-15% during 1979 and 1980. By 1984, the price level of grain was 135% of the original basic-quota price and almost equaled the market price (ibid.: 207). This

adjustment of the quota price further lifted the burden from farmers, and allowed room for additional agricultural advancement and productivity. Even so, Ash emphasizes that the state's monopolistic intervention with purchasing and marketing of agricultural products induced rigidity in the circulation of agricultural goods within the market (Ash 1993: 25).

Phase Two: Market Liberalization and Structural Adjustment. The second phase of reform can be divided into two sub-periods: near stagnation from 1984 to 1989, and rapid growth from 1989 to 1995. In 1985, the procurement system was changed from a mandatory to voluntary contract system, where sales quantities for key commodities were determined through mutual agreement between the individual farmer and the central state (Fan and Pardey 1997: 121). By 1993, 90% of all agricultural products were sold at market prices, and the grain rationing system that was practiced for 40 years was replaced by the market. Fundamentally, this shift from mandatory to voluntary procurement was triggered by the imbalance between aggregate supply and demand which grew from the previously supply-oriented government policy on grain. Since the government mandated grain supply in the countryside and rationed distribution in urban areas, this resulted in an overwhelming supply, supplemented with the imbalance of smaller demand (Ash 1993: 26). This imbalance was stabilized through readjustment by the state, or relaxation of the market. However, due to the instability of pricing (which used to be centrally controlled through procurement prices), the government continued through a series of readjustments, and by 1985, the grain sector faced a problem of labor drain from grain production to the productions of other commodities or into rural industrial enterprises, where earnings were generally higher (ibid.: 29). Therefore, the market relaxation policy initiative of 1985 triggered two effects: it increased farmers' opportunity to raise income, but created a dilemma for the grain sector of disinclination for farmers to engage in cereal production. In attempt to fix the grain problem,

subsidized agricultural inputs and financial concessions were provided under the name of ‘three-link’ (*sanguagou*) policy.¹²

However, as Lin argues, grain prices dropped in 1990 due to a record-high production of 446.2 million metric tons, which was a 10% growth from 1989. This level of production was sustained for two years, while rural market prices for grain declined by 19.9% in 1989 and again in 1991 by 19.4% (Lin 1997: 209). Grain prices stayed low in 1992. The drop in price inclined farmers to sell to the government, and in turn, the government raised urban ration prices in order to decrease financial burden on the central state. The government could not withstand the burden of providing high procurement prices and by 1993, procurement prices were decontrolled.

The second phase of the reforms is more or less described as a slow process of decontrolling agricultural production marked by the creation of the household responsibility system, and the slow relaxation of prices from a stringent procurement system to an above-quota system to a totally decontrolled market-determined pricing. Today, the grain prices are still subject to government regulations, but the majority of farm prices are determined by market forces (Riskin 2001: 126). The slow and lengthy transformation of the political-economic setting in China’s agriculture in the past two decades has left a structure that provides caveats for development in certain regions. Respectively, agricultural reforms in China have also created barriers for development in other aspects of rural production. The following section will evaluate the gains and tradeoffs taken place in China’s current pathway towards development.

¹² The ‘three-link’ policy specified that peasants who signed grain contracts, for every 50 kilograms of commercial grain sold under contract, receive three kilograms of chemical fertilizer and 1.5 kilograms of diesel oil at par value. Inputs were exchanged through coupons given to peasants, and the state paid 20% of the value of contracted grain in advance, and this sum is then deducted from the total payment upon delivery (Ash 1993: 30).

CHINA'S AGRICULTURAL DEVELOPMENT TODAY

Along with the liberalization of the previously centrally planned economy, the Chinese rural sector has undergone speedy transformation in the past two decades. In less than 20 years, rural production rose from 10% of the national gross industrial output in 1979 to almost 40% in 1996, leading an average annual increase of 20% in the 1980s (Oi 1995; Walder 1995). Despite the rapid increase in rural industrial production, observers have come to question the long-term sustainability of China's current agriculture sector. The shift to a free market system led to the emergence of larger private producers, leaving smaller farmers to compete in an agricultural industry that is becoming increasingly complex. With the emergence of modern agriculture and high technology that enables greater productivity and quality, big producers and small farmers battle for better access to technology and market.

China's shift towards a market economy has also led to greater monetary consciousness amongst individuals. The state provides less for social welfare as liberalization takes place. Services the state once provided—from food allocation to children's education—slowly shift to become responsibilities of individuals or the local government. As individuals and towns seek to make ends meet, money becomes the focus of development and individual success. People's incentives become profit-driven as they turn towards cash-oriented livelihoods. Local governments target policy towards improving the agricultural industry because cash income plays a significant role in rural social welfare (Bell 1994).

As policy makers in China urge farmers to engage in commercialization and surplus crop production, farmers of all scales face the consequence of glutting the market, resulting in the inability to translate goods into currency value, particularly in the case of non-storable products such as fresh fruits and vegetables. This inevitably has left household producers politically and

economically restricted. Similar economic development tragedies are commonly found in agricultural sectors across China (Chen and Brown 2001; Wen and Zhang 1993), though some regions have turned out better than others. Agriculture industry differs from most other industries in productivity and supply response due to its sensitivity to socio-economic changes, uncertainty of weather, high fixed costs, and reliance on intensive labor (Johnson 1996: 86-90). Moreover, farming fruits and other perennial crops involves a segment of time when the farmer receives no returns, namely between time of investment and the first year of harvest. While farmers and producers are bound by these constraints, consumers lack the flexibility to accommodate to the sensitivity of production due to the nature of food consumption.

The factor of labor mobility accounts significantly for the plight of China's farming industry. Food is overproduced and farmers are losing money, but some agricultural workers find it difficult to find employment in another sector of the economy. In a perfect market, rural labor should shift to other sectors of the economy in response to the demand for labor (Hare 2002; Zhao 1999). Yet in China, labor supply finds it difficult to shift from the agricultural sector to the industrial sector. As a result of China's rigid socio-political structure for labor migration, rural workers most often find themselves bound by immobility and stuck in stagnant economic growth.¹³ How sustainable is this economy in a country where over two-thirds of the population resides in rural regions (Tronquart 2001: 45) when perfect market mechanisms for

¹³ In his study of labor migration in rural China, Yaohui Zhao shows that incentives for rural residents to migrate for higher levels of income are mainly due to non-economic reasons (1999). Zhao mentions that the government maintains policies to control migration into cities in order to protect the interest of urban residents. Moreover, Zhao points out that the larger factors that cause reluctance to migrate: lack of safety during transportation and in destination cities, separation from families, and the denial of legal rights for rural residents to permanently reside in the city. Limited access to housing in cities poses real barriers to migration. Zhao has found that the decision to migrate is mostly driven by the availability of rural off-farm employment opportunities, and that people would most likely choose not to migrate if off-farm employment is available even if wages are slightly lower than that in urban areas. This is supported by studies that show that people do not migrate from areas where they can increase their incomes locally.

labor cannot be promised? What are the mechanisms that can improve this system so that the benefits of the liberalized economy can extend beyond the hands of the few?

Some scholars have tried to suggest remedies for the Chinese agricultural system today by better understanding its history and transformation (Ash 1993; Lardy 1983; Lin 1997; Parish 1985). Others have attempted to explain China's agriculture by describing the underlying political-economic pressures (Riskin et al. 2001), while some have focused on state planning and overseas investors (Hsiao and Shen 2003). In the search of solutions to these questions, the next section will explore recent changes in agricultural production and labor in China, namely the development of rural-urban and regional inequalities, and the significance of the emergence of these inequalities.

GROWING INEQUALITIES: THE OUTCOME OF LIBERALIZATION AS DEVELOPMENT STRATEGY

“Between 1988 and 1995, real per capita GDP in China increased at an annual rate of 8.1% per year—which amounts to an aggregate growth of 72% when compounded over seven years—according to official estimates” (Khan and Riskin 2001: 103). In contrast to this unprecedented growth rate, the income growth of places in rural china such as Baiwu Township was virtually nonexistent. Zhao Renwei discusses the increase of inequality in income distribution resulting from China's economic transition towards a liberal market (Riskin et al. 2001). Zhao points towards the effects of land ownership, labor mobility, gender gaps, and urban-rural gaps as partial causes to increasing income disparities in China. Riskin and Li depict China's poverty by carving demographics into categories: the urban poor, rural poor, regional poor, and non-regional poor.¹⁴ Beyond the urban-rural gap, income disparities further occur

¹⁴ Riskin and Li “[sought] to distinguish the poor population living within designated poor regions of China from that living in ‘normal’ regions, and to compare relevant characteristics of the two subpopulations” (Riskin et al 2001: 329). Poverty alleviation programs in China have often aimed towards poor counties and consequently excluded poor residents outside of these poor regions.

within rural regions due to the accessibility to off-farm employment, namely rural industries both state-owned TVEs and private (Zhang 2001: 223). “The increasing contribution of the rural nonagricultural sector to overall rural income inequality can largely be explained by uneven regional development of rural nonagricultural activities” (ibid.: 227). Zhang claims that nonagricultural activities have become the main cause of interregional income inequality. This means more wealth for those who have advantages in access to rural industrial employment, such as TVEs or private enterprises, while those continuing to engage in agricultural production lag behind with stagnant income. For Baiwu Township, which has no local industries, the residents’ only local means of income generation is to remain in agricultural activities. While the only way to increase profitability is through choice of crop and quality, opportunities to stimulate income growth are limited and income cannot reach the level of rural industrial workers. Baiwu is caught between a lack of investments to establish local enterprises¹⁵ and low opportunities for labor mobility.

Unequal income growth and distribution in rural areas also occur due to an imperfect labor market. Li Shi’s study (2001) of labor migration’s effects on income distribution shows that rural migration contributes to rural income growth, not only by raising labor productivity of migrant workers but also by enabling greater efficiency in allocation of the remaining, nonmigrating workers. Increasing rural household income through labor migration from rural to urban areas can narrow the urban-rural income gap (ibid.: 324). However, Li emphasizes that migration appears to increase income inequality in Sichuan due to a lack of mobility in low-income households. Alongside the emergence of economic reform, the issue of income growth

¹⁵ As discussed, farmers in Baiwu Township has little savings because they engaged in subsistence agriculture and their attempt to accumulate wealth has failed. The lack of savings translate to the inability to invest. Thus local efforts are incapable of establishing a growth-stimulating enterprise. Baiwu’s lack of attraction to external investors due to location and lack of infrastructure eliminates the possibility of establishing an enterprise to bring labor opportunities to the area.

is unclear, since the Chinese government, in *China's Agenda 21 White Paper* admits to the existence of “new poverty stemming from setbacks in market competition” (ibid.: 330). As in the case of the farmers in Yangjuan village, evidence demonstrates not only that new poverty has emerged¹⁶, but also that old poverty remains in the periphery due to setbacks in market competition as the urban-rural income gap continues to widen.

In the midst of increasing inequality, Riskin contrarily claims that land accessibility is a factor that has improved equality in rural areas of China (Riskin et al. 2001: 127). “[T]he evolution of land distribution in rural China since decollectivization has been one of the few positive aspects of rural income distribution” (ibid.: 108-109). Riskin’s study focuses on property rights and access to equal amount of land and underestimates the effects of other factors to land allocation, such as quality. In his analysis of distribution of per capita landholdings (ibid.: 108), adjustment for quality only accounts for irrigation, whereas unadjusted figures disregards irrigation. No other factors are taken into account, such as arability, climate, and locality in respect to infrastructure and accessible market. If rural regions gained from equality in access to land as Riskin claims, then the effects of this equality was not evenly distributed across regions, as seen in Baiwu’s comparison to other nearby townships.

The results stemming from liberal economic policies in China led to a new phenomenon relating to non-entrepreneurial workers who lack financial capital to engage in investment strategies: the emergence of three general tiers of rural income earnings closely related to locality, but not directly related.¹⁷ The first tier consists of the highest level of income earned by rural

¹⁶ “New poverty” is a term taken from *China's Agenda 21 White Paper*, describing the newly emerged poverty of the unlucky ones as a result of market liberalization and China’s development strategy. Under this definition, I use “old poverty” to describe those who have been poor before and during market liberalization, namely people living in peripheral regions where economic development had no effect on income.

¹⁷ For more information on regional poverty, refer to Riskin and Li’s “Chinese Rural Poverty Inside and Outside the Poor Regions” (Riskin et al. 2001).

residents who successfully migrate to urban areas for low-pay jobs. The second tier constitutes nonmigrant workers in rural areas employed in off-farm activities, namely township and village enterprises (TVE)¹⁸ or private enterprises. Incomes from TVEs and private enterprises are less lucrative than urban wages but extensively more fruitful compared to agricultural activities. The third tier represents the lowest level of rural income of those who engage in agricultural production. Although the three tiers of income do not exclusively pertain to their respective regions (urban, TVE- rich rural, agricultural-intensive rural), this description accurately depicts income trends in China respecting labor migration and market liberalization. Agricultural-intensive villages in the third tier struggle to elevate to the second tier as they rise out of subsistence into a market economy. While this phenomenon has not been substantially researched, it provides a structure in understanding the role of income in social development. To illustrate various aspects to China's social construction as a reaction to development, the following sections highlight the significance of inequality in stagnant economic growth in poor rural communities in Western China.

Food Security

While Vaclav Smil (1993) and Lester Brown (1995) both cast doubt on China's ecological sustainability and its ability to feed 1.3 billion mouths over the next few decades,¹⁹

¹⁸ Rural state-owned enterprises mainly points towards township and village enterprises (TVE), which emerged at the beginning of the reform period when the agricultural sector underwent decollectivization. "A TVE is in principle owned by all the residents in a township or village but controlled by the township or village government," namely local government leaders. (Zhu 2001)

¹⁹ Smil voices his doubts in the ability of China's ecology to internalize food sustainability. In congruence with environmental degradation, China's declining hope in sustainability is grounded in the ideas of increasing arable land loss, scarcity of water resources, the increasing use of chemical fertilizers and pesticides, and the dichotomy between agriculture and industrial sectors. While the use of chemicals advocates very unsustainable measure of increasing crop productivity, the creation of urban biowaste as a pure unrenewable output further exacerbates the problem of unsustainable fertilizer inputs, whereas rural biowastes are often reused as fertilizer inputs to the ecological system. In congruence to Smil's point, Lester Brown suggests that China's insecurity in food consumption and production will cause global instability. He argues that China's lack of self-sufficiency in food production will cause great fluctuation and rise in food prices, thus causing political unrest in undeveloped countries where the people cannot afford higher prices for staple foods.

Zhu Ling (2001) takes a different approach to China's food security. Zhu defines "food security" as the ability for people to attain adequate nutrients to maintain a healthy life and normal activity at all times (ibid.: 229). Rather than questioning whether China's population is doomed to starvation, Zhu searches for methods to improve means of food production. She explains the government's policy towards rural poverty and food security as such: 1) public programs to improve rural infrastructure and ecological environment and to invest in capital construction to increase farm productivity, 2) agricultural extension services to provide technology and knowledge transfer, and 3) credit programs to stimulate growth of nonagricultural sectors so as to provide off-farm employment opportunities (ibid.: 241). Through her study in *Food Security of Low-income Groups in Rural China* (Riskin et al. 2001), she argues that food security is to be achieved in low-income areas through "the establishment of a social security system appropriate to the market economy." Zhu recognizes that farmers must consolidate efforts through mutual assistance with the addition of government assistance in order to provide a mechanism that can absorb economic shocks and natural disasters (Zhu 2001: 243). The case of apple production in Yangjuan questions the effectiveness of this consolidation of efforts as an economic shock absorber, since the residents' economic bargaining power was cut off by the function of the middleman and their limited access to information and technology. It can be said that peripheral farmers such as those in Yangjuan do not enjoy the same economic freedoms that most others do and cannot exercise basic functions that economics assume.²⁰

Evaluating Effectiveness of Market Liberalization

As a part of the reform, the emergence of township and village enterprises (TVE) accounted for tremendous growth during the first 15 years of China's reform. Li and Rozelle

²⁰ Basic laws of economics assumes certain behaviors of actors of an economy, such as rational choices, the ability to consume, save, invest, and profit. Due to the imperfect and nontransparent market in Yangjuan, farmers were cut off from access to the market, thus disabling them from profiting, saving, and investing.

express that the Chinese government looks toward TVEs as boosters to the recovering economy in the coming years (Li and Rozelle 2000). Some researchers anticipate declining efficiency in rural industries and feel that these industries are not worth the costs to preserve their competitiveness (ibid.), yet some argue that township and village enterprises are fundamental to the development of rural industrialization, and through privatization, these enterprises can maintain competitiveness. Currently, the shift of these local, state-managed enterprises toward privatization appears to sustain productivity despite the structural change.

It is noteworthy that this process of privatization has also brought about increasing inequalities (Zhang 2001: 227). De Brauw et al (2000) show that market liberalization has only slightly stimulated growth in China's agricultural sector. The triumph of privatization may contradictorily result in further exacerbation of inequality in rural regions, as stagnant growth persists in the agricultural sector while rural enterprises thrive. While market liberalization fosters hope in privatization of local rural industries, the lack of focus on the agricultural sector suggest that rural China's next developmental leap forward will bring success only to those who are already doing moderately well, namely TVE- intensive regions, while leaving the agriculture-intensive regions, the poorest of the poor, standing idle and watching.

Limits of the Local Government

The role of the local government in agricultural activity stems from the political structure provided by the system of township and village enterprise. Hence, the participation of the local government in agricultural production can be best explained through the evolving organization of TVEs in China. Local leaders are often more effective in building new enterprises due to their ability to mobilize human capital and allocate land, but having a township leader as an entrepreneur is costly, since the nature of a local leader is not to run a business. Hence, having a

local leader managing operations of local enterprise can be increasingly inefficient as the enterprise grows. However, Chen and Rozelle (1999) recognize that

“[d]eveloping markets and competition from other regions, private enterprises, and joint venture firms, however, certainly has increased pressure on traditional forms of TVEs to search for ways to remain competitive. And, TVEs in the late 1980s appear to have responded to these pressures in ways that may be expected for those enjoying secure property rights — by adopting new technology, hiring labor from cheaper labor pools, and adopting other cost-saving measures. If the inefficiencies from having a leader run the day-to-day operations of the business are high, there may be one other important cost-saving measure that could be used to keep local enterprises competitive: reorganizing the form of the managerial contract between the community leader, who ‘owns’ the firm, and the individual manager, who runs it.”

With this in mind, how would one consider development in peripheral places that lack the existence of TVEs, regardless of whether TVEs are costly or beneficial? These places have no pressures for competition and cannot enjoy the same mechanisms to attain property rights, adopting new technology, access to cheaper labor pools, or alternatives to cost-saving measures, all of which are benefits that TVE- intensive regions would enjoy.

AGRICULTURE IN YANGJUAN VILLAGE

The marginalization of economic development through economic reforms in China is clearly demonstrated in the example of Yi minorities in Baiwu Township. Baiwu’s population is approximately 98% ethnic Yi minorities. Yangjuan village is one of 12 villages in the township.²¹ The commune party secretary first introduced apples to the area, which were grown in Yangjuan by the production team in 1977 during the collective period. In 1982, land was divided into households, and in 1989, government officials from the county started a large-scale promotion of apple production. By 1993, about half of the families in Yangjuan were growing

²¹ Personal interview with head of Baiwu Township. August 19, 2002.

apples, and the crop continued to gain popularity. Yangjuan farmers built confidence in the apple market as they witnessed other farmers prosper from apple production.²² Production continued to increase as farmers learned to take better care of their orchards, but prices were consistently dropping. Although farmers were slightly vexed by the falling prices, they coped with the problem by increasing production and finding ways to produce more at higher quality. Prices continued to drop until 1997²³, when middlemen failed to appear in Yangjuan, and farmers were unable to sell their crop regardless of low prices because the apple market was glutted. Apple sales at the marketplace continued to take place, but Yangjuan farmers no longer took part in those transactions. Many of the farmers stopped maintaining the trees, but kept the orchards in hope for the market to return to them. By 2000, some farmers lost hope and decided to cut the trees to grow corn or other staple crops that were of less value but had reliable markets and stable demands. Most farmers today have cut their trees.

NUOSU PEOPLE IN LIANGSHAN YI AUTONOMOUS PREFECTURE

Han people make up the majority of the Chinese population. The Yi ethnic minority group is one of 55 minority groups in China, and of the 7.5 million Yi, 2 million are Nuosu²⁴, a subgroup of Yi, who primarily live in an area known as the Liangshan Yi Autonomous Prefecture—autonomous in the sense that they receive certain political and economic privileges from the central government because they are a minority group. The Liangshan Yi Autonomous Prefecture is exempted from certain governmental regulations and given preferential advantages.

²² Personal interview. July 2, 2002.

²³ Some farmers claimed that middlemen failed to appear in 1997, some claimed it to be 1998.

²⁴ When the Chinese government categorized the 56 ethnicities in the 1950s, some ethnic groups were combined under a common name. Yi, for example, includes the ethnic Yi in Yunnan province who differ greatly from the Yi in Sichuan. Within Sichuan province, some Yi identify themselves as Yi, while the Yi of Liangshan identify themselves as Nuoso, and these people in fact differ in ethnicity, despite their legal ethnicity being identical.

For example, under China's one-child policy,²⁵ ethnic minorities have higher quotas for births—in the case of rural Yi in Liangshan, three children. However, there are some environmental regulations that the government mandates as a result of the region's geography. For example, after Liberation in 1949, the national government protected forests and forbid the burning for shifting cultivation. This consequently affected traditional sustainable pest control practices for cultivation of the Liangshan Yi. On the mountain slopes, the Nuosu people traditionally adopted sustainable agriculture²⁶ and a crop-rotation system, where fields would be left fallow for three years and cultivated for two years. This allows the land to restore nutrients on its own as native plants grow in the fallow land. This sort of agroforestry practice was used for land restoration prior to Liberation and the Green Revolution. The rotation system utilizes renewable capacity through nature, which alleviates the degree of labor intensity, while preserving forest biodiversity and preventing forest degradation. However, beginning with the Great Leap Forward in 1958 and extending through the Cultural Revolution of 1966-76 and the reform after 1978, signs of unsustainable practices emerged as bald mountains replaced forests and as government logging agencies came in and cut down forests for steel manufacture, construction,

²⁵ China's one-child policy started in 1979 as a response to the growing population. The one-child policy limits each Han urban family to have no more than one child. Han families living in rural regions may have two, and minority families are allowed to have more, depending on the geography.

²⁶ Traditional agriculture is a semi-domestic mode of production that differs from nature in the following characteristics: 1. it includes auxiliary energy from humans, 2. diversity of crop decreases, 3. artificial selection of plant and animal is involved, and 4. there is external control (external of human control of the agroecosystem). Small and medium size farms enable greater diversity, maximum conservation of materials, which ultimately leads to less pollution. The structure of the agroecosystem can engineer a better environment to enhance nutrients, soil and water retention, nitrogen fixation, and biomass for nutrient storage. A sustainable agroecosystem should be flexible to adaptation, and components of the ecosystem are interdependent. (For example of interdependence of ecological components, nitrogen fixation depends on microorganisms, which depends on canopy cropping, nutrients depends on time, temperature, water.) Flow of energy and cycling of sources should be aimed to be conserved through structural components. The energy input through humans controlled variable affects amount of energy output, which is decreased each time trophic levels increase. The agroecosystem is considered mature as time increases. Monocropping discourages maturity of the system due to constrained diversity. Low diversity levels encourage disease, predation, competition, and low production. Modern systems, also called immature systems, are unable to cycle nutrients (hence the use of fertilizers), unable to conserve soil, control pest, and constantly compete with weed (Altieri, 1989).

and timber sales to fund local governments (Yin et al. 2003). While raw materials were extracted to sustain a local government that underserved its people, logging posed a problem not only for sustainable agricultural practices, but also lessened the availability of fuel wood for cooking and warmth.

As a high altitude mountain farming society, Nuosu people in Baiwu grow buckwheat, potatoes, corn oats and turnips, while herding is second to crop production and the principal source of financial income for village families. Village households raise cattle, horses, sheep, goats, pigs, and chickens at a near subsistence level of production. Food is mainly grown for the purpose of personal consumption. A surplus may be extracted from a small portion of the harvest, which would then be sold, but most did not focus on surplus production until recently, and some farmers have yet to shift to surplus production.

DISCUSSION

The empirical case study to follow in Part II of this thesis will use Yangjuan Village as an example to show how the ability of farmers in peripheral regions to rise out of poverty largely depends on social and institutional factors as well as market forces. While the success of farmers in the periphery has little to do with individual factors, their ability to enter capitalist functions depends on strategic development policies of the local government, and the availability of certain public goods that the local government may or may not afford to provide. Moreover, the success of peripheral farmers to accumulate wealth depends on market demand and level of scarcity of the goods produced in peripheral regions.

In urban areas, local governments are economically able to remedy urban poverty. Residents of TVE- intensive regions experience gains in economic empowerment through the liberalizing market. While these regions enjoy caveats provided through the government or the

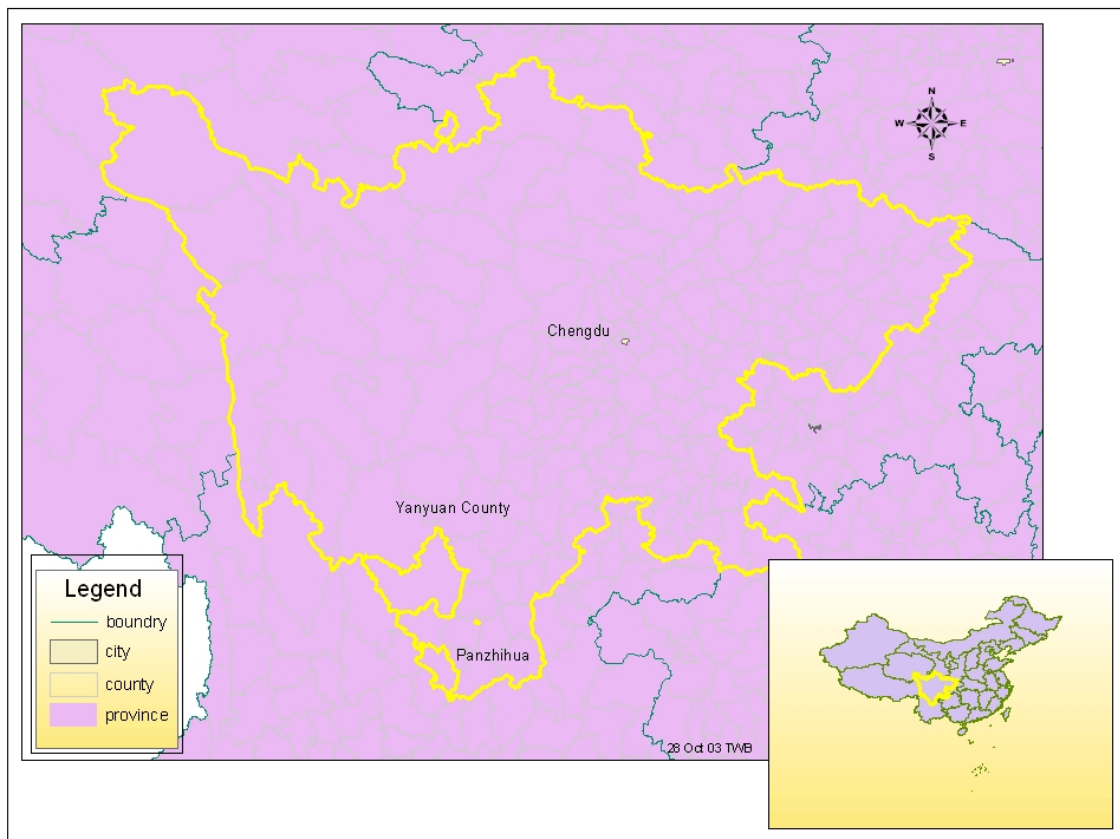
market, places like Yangjuan must find ways to latch onto China's speeding economy. However, to include oneself in this development process, a farmer must first be able to retain cash, to save money in order to invest in an activity beyond subsistence. This hyper-subsistence activity can be buying capital assets to assist in productions or migrating to regions of higher income employment. While farmers in Yangjuan such as Muga and his neighbors experienced negative income during their attempt to raise income through apple productions, these farmers continue to seek for sustainable strategies to accumulate wealth so to enable them to engage in hyper-subsistence activities.

PART II

RIISING OUT OF SUBSISTENCE:

EVALUATING LIVELIHOOD SUSTAINABILITY IN YANYUAN COUNTY

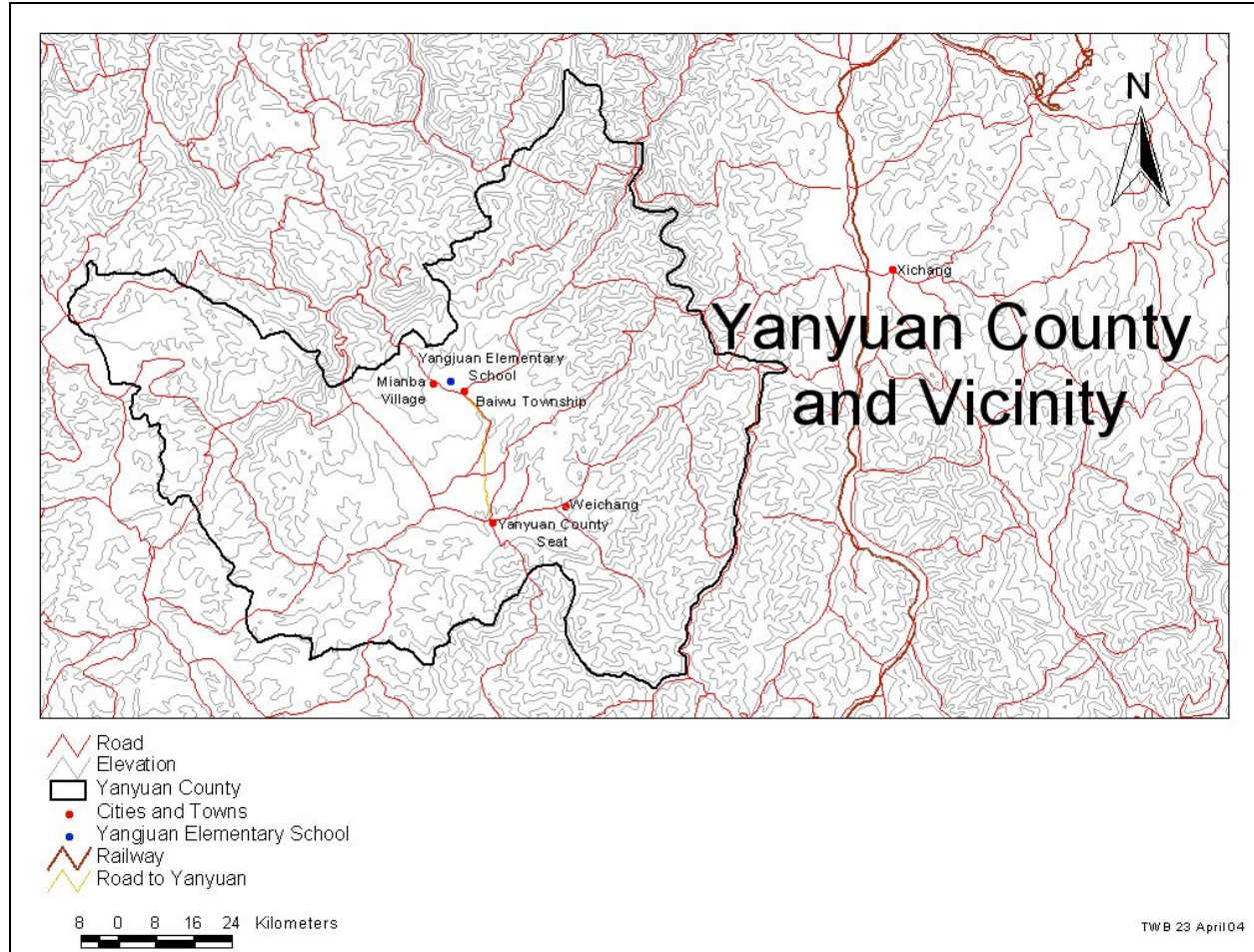
Sichuan Province



Map 1. Map of Sichuan Province
(Source: Worker-Braddock 2004)

When Terry Cannon (1990) expresses the complexity of regional differences and spatial inequality in China, he points out that Panzhihua (southern Sichuan, at the foothill of Liangshan Mountain) houses China's fifth largest iron and steel works as a benefit of a high concentration of industrial investments brought from the western development policy (*sanxian* policy) during the collective era, and implies that the western region enjoyed "excess' investment" relative to total national investment (ibid., 39) during the *sanxian* period. In perspective of many upper Liangshan communities, the prosperity of Panzhihua only highlights the economic plight of Yi farmers in Sichuan, and that "[t]he dispersal of enterprises and institutions under the *sanxian* policy had little at all to do with bringing about spatial equality" (ibid.). While Panzhihua is a Han-dominated city and now a strong industrial site at the southern foot of the Liangshan Mountain, directly up the mountain is an ethnically-dominant township which suffers extremely low per capita gross value of industrial and agricultural output (GVIAO). Since many montane ethnic townships are unable to receive investments to form small and medium enterprises (SME), they need alternative methods to integrate their material life to the market economy in order to sustain livelihoods.

YANYUAN COUNTY AND ITS COMMUNITIES



Map 2. Map of Yanyuan County
(Source: Worker-Braddock 2004)

Baiwu Township and Yangjuan Village

Yanyuan County has approximately 30 townships and is located towards the top of Sichuan's southwestern Liangshan Mountains. Yangjuan Village lies in the northern area of Yanyuan County. It is one of twelve villages in Baiwu Township, approximately four kilometers away from the town center. At approximately 2550 meters in elevation, Yangjuan sits at the bottom of a valley of limestone cliffs next to a river running from the north. North of the valley is Gangou *ladda*, a river plain slightly higher in elevation, approximately at 2600 meters. Compared to several other nearby villages situated higher above the valley, Yangjuan has the

advantage of growing more water-intensive crops. Higher up the mountain west of Yangjuan are yak pastures at approximately 3000-3500 meters in elevation. 32 kilometers south of Baiwu Township is the county seat.²⁷ The road from the County Seat to Baiwu is a hilly, windy, unpaved stretch of worn-down dirt road. The road from Baiwu to the County Seat usually takes an hour by automobile, but may vary according to road conditions and the driver's skill and experience. The road is worn with deep ruts and is poorly engineered, with several sharp turns in combination with steep hills, making it difficult for minibuses and trucks to pass certain sections of the road. From Yangjuan Village to Baiwu Town, one can walk for 45 minutes or drive for 15 to 20 minutes, depending on road conditions.



Figure 1. Road from Xichang to Yanyuan. The condition of this road resembles that of the road from Yangjuan to Yanyuan County Seat.

²⁷ The County Seat is locally referred to by the name of the county, “Yanyuan,” or sometimes as *Xiancheng*, meaning “the city of the county.”

As of 2002, Baiwu Township had a population of 17,660 people; 17,307 are registered as ethnic Yi, and 17,322 of the total population are farmers. Recorded area of total farmland in Baiwu is 51,900 mu²⁸ (approximately 8,615 acres). Yangjuan village has a total of 204 households with an approximate population of 850 (Worker-Braddock and Harrell 2003).

Weicheng Township

Approximately 15 kilometers east of the County Seat is the center of Weicheng Township, lying at 2540m in elevation. The road from the County Seat to Weicheng Town is a straight stretch, mostly paved with asphalt. Unlike the road to Baiwu, the road to Weicheng is much shorter, flat and straight, but like Baiwu Township, a narrower road leads through the center of town and continues deeper into other regions of the township.



Figure 2. Road from Yanyuan County Seat to Weicheng.

²⁸ One *mu* (亩) is equal to 0.166 acre, or 0.067 hectare.

Weicheng has a population of 20,000; 15,000 Han and 5,000 Yi. Weicheng currently has 184,000 mu (approximately 30,544 acres) dedicated to apple production, and of the 4863 households in the township, about 2000 are committed to long-term apple production.

Political Organization at Township Level

Local government leaders in China from the township level and below are locally elected, except for the party secretary, who is chosen by party leaders at higher levels. Townships are headed by a group of local officials, consisting of (from the most authoritative to the least) the Party secretary, the Township head, the Vice Township leader, and heads of various departments (i.e. education, forestry, militia, etc.). Village officials consist of the Party secretary Village head, the Vice Village leader, who oversee the leaders of production teams. Baiwu village is one of 12 villages within Baiwu Township, of which Yangjuan is a part. It has nine production teams, of which four make up the natural villages of Yangjuan, Pianshui, Gangou, and Zhuchang. Each production team has fifty-some households, headed by one or two leaders.

Market System for Agricultural Producers

While rural production in the early part of the reform era was dictated by the central government under the Household Responsibility System and the Procurement System, rural producers today have almost complete autonomy in determining their level of production and farm management. Rural households today act similar to small-scale firms, free to produce any crop at any rate of production, free to take financial risks at their own liability. While the production team leader is still locally elected, he has little to do with production management of the team other than to keep records of the number of households on the team and their approximate annual productions. As the procurement system phased out in the late 1980s and

farmers began selling directly to the market, the production of cash crop became increasing popular around this particular region in the late 1980s and into the early 1990s.

In addition to cash crops that are grown specifically for sale, farmers also sold surplus productions of staple crops. For all commodities sold to the market, farmers sell to intermediaries, the middlemen²⁹, who arrive at the village with a truck and any materials necessary for packaging the goods. Most farmers and middlemen do not have fixed relationships, and the middlemen can buy from different farmers every year, although the middlemen tend to return to the same villages. Middlemen choose producers according to the quality of the good and upon the success of the bargain on an agreed price. Most middlemen arrive with a fixed price for every grade of the crop. In the case of apples, middlemen test apples for taste and color of the producer's harvest to determine their clients, and then give a series of set prices for each range of size measured by the diameter. The highest price is given to apples that have a diameter of 7.6 centimeters and larger. Middlemen do similarly for other crops such as corn, potato, and the Sichuan peppercorn³⁰, but the grading system varies for each crop.

Cash Crop Opportunities and Government Aid

In Baiwu Township, farmers have recognized the help of the local government in promoting the growth of cash crop production during the fall of the procurement system and the rise of market sales of agricultural productions. While the Baiwu government targeted the apple industry as its specialization, the local government sold large amounts of apple saplings to farmers from the late 1980s through the mid 90s at subsidized prices, creating easy access to apple trees for anyone who wants to engage in growing apples as a cash crop. In addition, the government issued many small financial loans to farmers who could not afford the capital to start

²⁹ Locally referred to as *chuanchuar* (串串儿).

³⁰ *Huajiao* (花椒), a popular pepper with numbing effects, used locally in Sichuan style cooking.

a small apple orchard. Many of these loans were interest-free or were issued at low interest rates. Similar loans were issued in Weicheng Township.

In both townships, technique classes were offered by extension services to farmers to learn orchard management skills. In Baiwu, classes were offered less frequently and less extensively, and were not offered until 1997, which was the beginning of the fall of the apple market in the local area. Weicheng, on the other hand, seems to have seized the advantage of offering technique classes before the fall of the market.

Local History of Apple Production

The first apples in Yangjuan were grown under the collective regime in 1977, when the commune party secretary first introduced the crop to the production teams. In 1982, the land was divided into households and the orchard was split between households. In 1989, the Yanyuan county government administered a county-wide large-scale promotion of apple production.³¹ However, beginning in 1991, prices fell rapidly, until 1997 when middlemen failed to arrive during harvest season. By 2001, most farmers had cut down the majority of their apple trees, leaving only a few for personal consumption. In Weicheng, the first orchard was planted during the collective period in 1976, and the orchard was contracted to a private farmer in 1982. Large-scale household production in Weicheng began in 1986. Today, there are still many farmers in Weicheng with 1200-2000 trees, and at least one particular Nuosu village has several successful farmers. Prices for apples in Weicheng have also been falling,³² but Weicheng on average has maintained a steady increase in revenues from apple production. However, by 1999, some

³¹ Note that apple production requires a three to five year delay from the time of investment and time of production, because apple saplings require 3-5 years to mature and to produce fruit.

³² Prices for apples in Weicheng have been falling since 1992 at the latest, but the initial year of price decline is unknown because all interviewees began apple production before the initial year of price decline. reword

farmers of Weicheng began to experience pressure from the market to improve their method of growing and selling apples in order to maintain profit levels.

WHO ARE THE NUOSU IN YANGJUAN?

The ethnic Yi living in Yangjuan and Pianshui are primarily Nuosu, an ethnic subcategory of the Yi (Harrell 2001).³³ Nuosu originally lived in the Old Liangshan³⁴ area to the east of the Anning River (present day Xichang) until around 1700. In the mid-1700s many Nuosu clan branches began moving across the Anning River into the current area of Yanyuan Basin (Harrell, 2004). The Shama Qubi clan was one of them. About two-thirds of the Nuosu in Yangjuan belong to the Mgebbu clan, which is a subdivision of the Shama Qubi (Mgebbu 2003: 130). For this reason, the Yi sometimes call Yangjuan *Mgebbu Baga*, meaning “Mgebbu Village,” and the local Han people sometimes call it *Ma Jia Cun*, meaning “the Ma family village” (ibid.). Throughout the 19th Century, the Mgebbu lived scattered in the hills around Baiwu Valley, until 1916, when the first Mgebbu moved to the benchlands near Mianba, which is north of Yangjuan and slightly higher in elevation. Other Nuosu soon followed, and by 1950, Nuosu occupied much of the valley and the hills. In the Democratic Reforms (*renmin gaizao*)³⁵ in 1957, the *jumin dian*³⁶ policy relocated the Mgebbu and affinal relatives and slaves, and concentrated their residence in Yangjuan (Harrell 2004). The village of Yangjuan was formed as a resettlement for the Mgebbu clan and the serf and slave Mgajie and Gaxy, who had subordinate relations with the Mgebbu (Mgebbu 2003: 138).

While some Mgebbu held lordship over Han slaves in pre-Communist times, the traditional Nuosu social classification was abolished by the Democratic Reforms (ibid.).

³³ For further information on subcategorization of ethnicities in China, refer to Stevan Harrell’s “Civilizing Projects and the Reaction to Them” in *Cultural Encounters on China’s Ethnic Frontiers*, 1995.

³⁴ Also referred to as Da Liangshan (大凉山), or “greater Liangshan.”

³⁵ 人民改造

³⁶ 居民点, meaning “location for residency” or “places where people are gathered together.”

Yangjuan drew particular attention of the government and rebel factions because it was seen as a village that maintained class hierarchy. Because the Mgebbu and their relatives held considerable political power in relation to other ethnic groups in the area, they became a main target of the class struggles promoted by the Democratic Reforms and suffered more than most other village people. The Mgebbu, being one of the strongest clans of the local area, were subject to physical assault, self criticism, and political powerlessness. In 1963, in name of reforming the Nuosu people's class-oriented way of thinking, the people's commune expelled a considerable number of Mgebbu households from the cooperative and gave them exceedingly small pieces of unproductive land to make their living as subsistence farmers (ibid.: 139). Although not all Nuosu households experienced the same oppression as the Mgebbu's, Nuosu families in Yangjuan shared their sufferings from the animosity of the Han government, including the prohibition from exercising many traditional Nuosu customs.

MATERIAL LIFE OF A NUOSU

The main source of subsistence and surplus production for most Nuosu in Yangjuan is agriculture, with crops consisting of potatoes, barley, corn, yam, various vegetables and squash, cannabis for hemp oil as a source of lighting fluid, along with plum, walnut and apple trees. All are produced exclusively for household consumption except potatoes and corn, which are produced above subsistence level and are sold to middlemen. Villagers herd goats and sheep and raise horses, pigs, chicken and ducks. While nearby Han communities raise water buffalos to work the fields, Yi farmers sometimes employ their horses and cattle to till the land, but more often reserve the horses for traveling on mountain trails, tilling the fields with oxen. The number of animals owned is often a method of approximating the level of wealth of a household, since meat consumption is low and generally reserved for special occasions. Recently, the government

has employed a small number of farmers part-time to grow trees on their previously cultivated land as an attempt to restore forests that were destroyed during the Great Leap Forward and again during the Cultural Revolution and the early Reform period. The average family generally consists of five or six members, while each household farms approximately half an acre to five acres of arable land. Homes and fences are built from a mixture of straw and clay, which is extracted from the soil.



Figure 3. A passerby in Mianba, one of twelve villages in Baiwu Township. In many predominantly Yi villages, the horse cart is the most common way of transporting bulk materials from one place to another.

While most men no longer wear traditional Yi clothing in Yangjuan other than a wool cloak for warmth, Yi women often wear as daily clothing the traditional outfit of a long, colorful wavy skirt and an embroidered vest or jacket. It is no surprise to see a woman tending the fields in their outfits with a young child on her back in a cloth harness or a straw woven basket. Though it is common for women of all ages to wear the traditional clothing, many older women

dress only in traditional attire, while the younger generation in their twenties and younger have a tendency to wear westernized clothing as daily clothing, reserving the traditional attire for social events. Men and boys, on the other hand, dress in button up shirts or T-shirts and slacks with or without a jacket, which is observed to be the popular casual attire for men in China.



Figure 4. Villagers threshing buckwheat on the road during harvest season.

Although both men and women contribute to farm production, the division of farm labor is partially defined by gender. Men perform most of the managerial and administrative tasks, while women spend a higher number of labor-hours on the land. Managerial tasks include buying seeds and saplings, attending locally offered courses on farming techniques, and managing selling transactions with the middlemen. Women often till the land by hand or weed alone. Sometimes they are accompanied by their children, who may or may not be old enough to be able to help. Although it may vary between families, sometimes the whole family will

mobilize to work during the planting season of a given crop. Harvest season requires the most intense labor within a small timeframe, so most able bodies are likely to contribute. Sometimes families will receive a helping hand from a relative from a nearby village.

Young children help the mother in domestic tasks and usually begin working on the fields around age twelve, when their bodies are strong and mature enough to bear responsibilities beyond house chores. Children also have the opportunity to attend school since the recent establishment of a local elementary school in Yangjuan village. Although still subject to the financial limitations of the family, the Yangjuan Elementary School has provided basic education for the children at a much closer location than the town-wide elementary school (Baiwu), which is the next closest school 45 minutes to an hour away on foot.³⁷ Those who proceed beyond elementary school attend middle and high school in the Yanyuan County Seat, which is approximately one and one-half hours away by automobile, or in other cities around Liangshan or Sichuan. Most children who attend school in the county seat reside at the school dormitories during the week and return home over weekends. Because attending school at the county seat requires significantly higher costs in addition to increased tuition, most students do not proceed to middle and high school depending on the parents' economic means, and their judgment on the importance of the education and the ability of the individual child, and those who are sent to school are often under tremendous pressure to do well.

Today, most Nuosu children in Yangjuan only speak the ethnic language until they start going to school and need to mingle with children of the majority ethnic group who speak Sichuanese, a local dialect of the standard Mandarin, which is referred directly as the "Han Language" in Chinese. Classes are instructed in standard Mandarin. Children who do not

³⁷ In fact, recent student test scores in Yangjuan have been consistently higher than those of Baiwu, suggesting that the quality of education in Yangjuan is at least equal to Baiwu's, if not better.

receive schooling seem to learn Sichuanese at a similar age but may not speak the standard dialect, since Mandarin is usually a less casual form of speaking amongst children, often reserved for the classroom environment. Most adults speak both Nuosu and Sichuanese, but only a few understand Mandarin, since schooling during the time period of their youth was a luxury that only few families could afford. However, the use of Sichuanese is sufficient for daily communication and commercial negotiations outside the village.

METHODOLOGY

This project is supported by data collected through a series of interviews undertaken in the summer and fall of 2002 on the microeconomics of the production market of apples, accompanied by statistical information on provincial and national gross output of the apple market in China. 20 interviews were conducted with local farmers in Yangjuan and Weicheng in June and August, two with middlemen in Weicheng during harvest season (late August) at the site of transaction. Observations were noted at the Chengdu wholesale market³⁸ and interviews were conducted with three fruit wholesalers towards the end of the apple harvest season (late September). Surveys of retail market prices were conducted in Yanyuan County Seat, Changma, Chengdu, Guanghan (Sichuan), Kunming (Yunnan), Wuhan and Yichang (Hubei), and Urumqi and near Kashgar (Xinjiang). Statistics on provincial and national gross output of apples were gathered from Sichuan Statistical Yearbook (1990, 1998, 2000) and the Statistical Yearbook of China (1987, 1995-2001).

Interviewing Farmers

I interviewed a total of 18 farmers, with 10 in Yangjuan and Pianshui and eight in Weicheng. At these interviews, farmers elicited general accounts of their experiences with growing and selling apples, from the beginning of their career to the present day. Farmers

³⁸Wu kuai shi(五块石), literally meaning ‘five pieces of stone.’

provided familial background and farming history, their incentives to enter the apple market, and their relationship with the local government, buyers and other growers since their entrance to the apple market. They also provided approximate numerical figures on their annual household income³⁹ from apple sales, expenditures, market price at the intermediate level (price provided by middlemen), quantities produced, quantities sold, and any additional irregular but relevant information, usually of personal experience beyond the mainstream producers' account. A typical interview with a farmer involved the following questions:

- What is your name?
- How old are you?
- How many children do you have, and how old are they? (If children are married, then similar questions might be asked of their nuclear families.)
- How old is your wife?
- Who works on the field?
- How many *mu* of land do you cultivate, and how many *mu* is your orchard? (Farmers often provided extra background to the origins of the land.)
- How many apple trees do you have of each variety?
- What else do you grow?
- How many animals (livestock) do you own? (for Yangjuan farmers only)
- How did you decide to grow apples?
- When did you start growing apples?
- Where did you buy the saplings, and at what price?

³⁹ Since agricultural producing households act similar to individual firms in economic terms, total household income will be the same as total profits. Hence, the words “income” and “profit” will be used interchangeably.

- When was the first year your trees produced fruit? How much did you produce of each variety, and how much did you sell for? At what price?
- What were the prices for each variety and grade for the following years? How much did you produce and sell for each of those years?
- Did you spend additional money? (variable costs) On what, and how much?
- Did you use fertilizers and pesticides? What kind? How much did you buy, and how much did they cost?
- How did you learn to manage your orchard?
- Can you explain how transactions with middlemen occur?
- Why do you think the apple market crashed?
- Do you regret going into the apple market?
- If there was to be another opportunity to sell apples again, would you grow again?

Interviews were chosen by a method of convenience sampling, in which farmers were selected on the roadside or visited at home, and were asked if they could be interviewed, and the interviews were facilitated by an interpreter from Mandarin to Sichuanese and/or Nuosu. Most interviews were conducted with the husband, who is, by Nuosu traditions, the head of the household. When the entire family was present during the interview, the husband answered questions on behalf of his household, while the wife only interjected if she was summoned for details or corrections if the husband made a mistake. When I attempted with the wife only, she gave only vague information about their work with the orchard, and consistently avoided answering questions related to any numerical figures (including year and any accounting figures⁴⁰), with the exception of the current rate at which apples were being sold locally. Most

⁴⁰ Accounting numerical figures include price and quantity produced for any given year, expenditures, taxes, and revenue.

interviews occurred at the interviewee's home or on the side of the road, and sometimes the farmers would insist I visit his plot of land.

In Weicheng, five of the eight farmers interviewed were introduced by the township government leader, and three were picked by convenience. Only men were present at interviews. Most interviews in Weicheng were conducted in the presence of multiple interviewees, where each farmer was individually asked similar questions, but answers were possibly swayed by the presence of others.

It is important to note that it is not customary for the Nuosu to document issues and incidents related to daily life (Harrell 2001), including annual incomes and other accounting numerical figures. Therefore, most quantitative information acquired from Yangjuan farmers were derived from the interviewee's memory, which were sometimes of dubitable accuracy, and farmers often gave approximate figures with large ranges. To minimize errors in the data collection, questions were sometimes asked several times and phrased differently when the farmer showed signs of uncertainty in order to hone in on a smaller range. If the interviewee's answer remained uncertain, then he was asked to provide qualitative detail related to the question, so that estimated approximations could be created via the ethnographer's interpretation and analysis. Although Han farmers in Weicheng recorded their annual incomes and expenditures, the records were inaccessible at the time of interviews, and farmers also provided information only from memory.

Interviewing the Township Government

An interview with the head of the Weicheng township government was conducted in mid June with the accompaniment of ethnographers from University of Washington (Stevan Harrell) and the Sichuan Nationalities Research Institute (Li Xing Xing, Geng Jing, Luo Liangzhao). The

vice-leader and secretary of the Weicheng township government were also present. The head of the Weicheng government provided general demographic and geographic information on the township. He also provided his analysis for Weicheng's relative success in the apple industry, backed by a brief history of the apple industry in Weicheng, market infrastructure and market mechanisms, and a description of the local government's proactive support for the farmers.

The head of the Baiwu township government was interviewed in late August. The interview provided information on Baiwu Township's demography on land allocation, and an undetailed account of policies and measures, which the Baiwu government had taken to support the local apple industry. The head of Baiwu government also claimed that he was only recently installed in his current position, and that he was unclear about the details to the township. Demographic information received was confirmed by written records, but his account on past policy measures were at best approximate and vague, with some uncertainty of accuracy.

Meeting with the Middlemen

During harvest season in late August, middlemen were encountered briefly on the roadside of Weicheng. Meetings with the middlemen were coincidental, unplanned, and undocumented. Because middlemen only appear in the rural areas during harvest season, middlemen were reluctant to spare extra time for interviews, since harvest season is the busiest time of the year. However, ethnographic observations were documented to represent a snapshot of the transactions which make up the market infrastructure.

Interviewing Wholesalers

I interviewed three fruit wholesalers in September of 2002 at Wukuaishi,⁴¹ one of two major wholesale warehouses in Chengdu. The wholesalers provided information on the variety of apples they bought and sold, the prices, and place of origins. However, due to the lack of an

⁴¹五块石

interpreter at the time, some of the information given by the interviewees was lost in poor communication between their Sichuanese and my Mandarin. Basic information was collected, accompanied with noted variations in spelling and accuracy. Qualitative data collection on the details of the wholesaler's transactions (buying and selling) was attempted but unsuccessful.

Retail Surveys

A total of sixteen retailers were surveyed. In July of 2002, two fruit stands were surveyed in Kunming (Yunnan) and four street vendors were surveyed in Guanghan (Sichuan). In September, one fruit stand was surveyed in Wuhan (Hubei), and three fruit stands were interviewed in Yichang. In October, three street vendors were surveyed in Chengdu (Sichuan), and three street vendors were surveyed in Kashgar (Xinjiang). The following information was gathered from surveys:

- Prices and rates at which apples were sold (yuan⁴² per jin⁴³)
- Variety of apples
- Location of origin
- Average size of apples
- Quality of the apple

Information on location and quality were not consistently documented. Name of location was particularly difficult to attain in cases when the retailer spoke a local dialect or heavily accented Mandarin. Information on quality was gathered in two ways: either the retailer would verbally point out the positive attributes of his/her apples, or I would buy three or four (usually a kilogram) to test to the quality. Sometimes neither method were effective due to specific circumstances.

⁴² One yuan (or RMB) is approximately equal to one-eighth of a U.S. Dollar. The exchange rate of the Chinese RMB to the U.S. Dollar is 8.2:1.

⁴³ One *jin* (斤) is roughly equal to half a kilogram, which is slightly less than one pound.

A Documentation of Consumer Preference

A general account on consumer preferences was provided by Ms. Geng Jing, an ethnographer residing in Chengdu. She explained key attributes as variables in determining quality of the fruit. Ms. Geng also explained changes in the product in the consumer market in the recent years, namely the increase in available choices for consumers, and the sophistication in quality induced by technology beyond the key attributes.

RESULTS

Apple varieties and apple trees

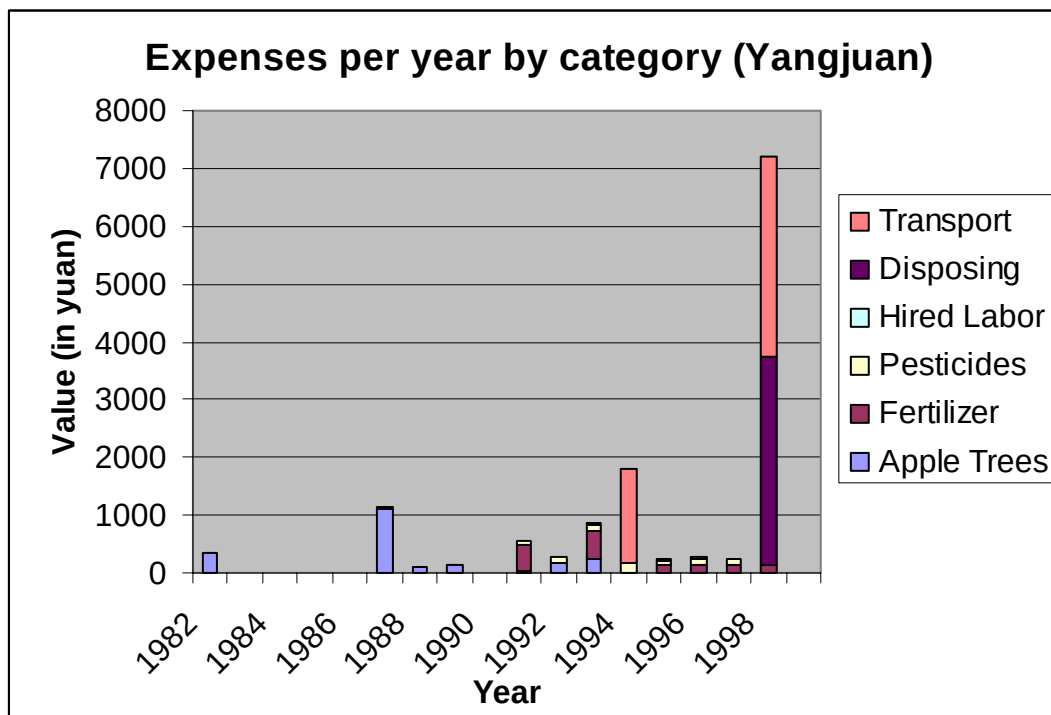
During the collective period, two varieties were grown in both townships, namely the *Jin shuai*⁴⁴ and *Hongyan shuai*.⁴⁵ While the *Jin shuai* continued to be bought and sold, the *Hong yuanshuai* gradually dropped out of the market in the 1980s, and most late-entry producers never experienced growing the *Hong yuanshuai*. Production of the Fuji apple⁴⁶ was introduced in the early 1990s by government subsidized sales of Fuji saplings. Apple tree saplings were available for purchase to farmers from the village government as well as from private sellers. *Jin shuai* saplings from the government were sold at a price range of 0.3 to 0.5 yuan per tree, and trees from private sellers were sold at 0.7 to 0.8 yuan per tree. Fuji saplings were sold at approximately 1.0 yuan per tree by the government and around 1.5 yuan per tree by private sellers. Price fluctuations for saplings are subject to time and location.

⁴⁴ 金帅, which directly translates to “the golden and good-looking.”

⁴⁵ 红元帅, directly translated as “red marshal.”

⁴⁶ 红富士, directly translated as “red Fuji.”

Farming inputs and expenses



Graph 1. Value of expenses by category per annum, average of all interviewed farmers in Yangjuan.

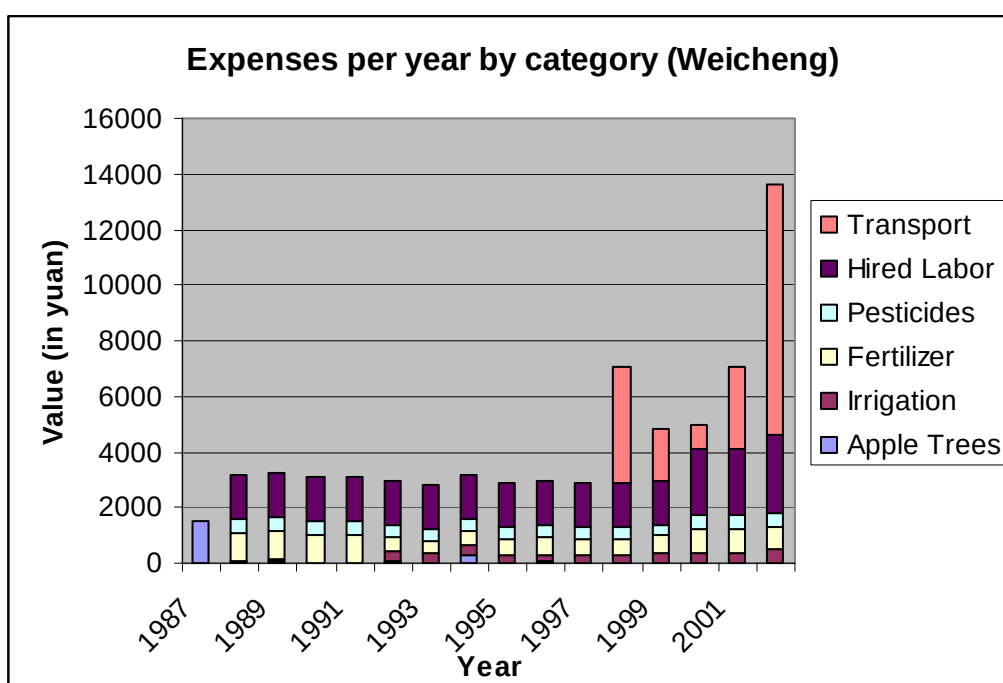
Graph 1 shows the average annual expense in Yangjuan. The purchase of apple trees is a one-time fixed cost for each farmer for every variety of apples grown, and the year of purchase depends on the period in which individual farmer chooses to plant. Most farmers in Yangjuan use a homemade fertilizer, *nongjia fei*,⁴⁷ which is a mixture of livestock manure, straw and other plant particles. The use of *nongjia fei* does not incur additional cost to the farmer. Three of ten interviewees reported using a store-bought fertilizer, *lin fei*⁴⁸ and *hua fei*,⁴⁹ but only them for one to four years. Eight out of out of ten farmers interviewed claimed to use pesticides, costing anywhere from 10 to 300 yuan per year. One farmer used hired labor on a normal basis, and all other farmers relied on self-employment within the household or borrowed labor from nearby

⁴⁷ 农家肥, directly translated as 'farming household's fertilizer.'

⁴⁸ 磷肥, or 'phosphate fertilizer.'

⁴⁹ 化肥, or 'chemical fertilizer.'

relatives. Although self-employment does not appear as to be a cost of production because labor does not have monetary value in this model, on-farm self-employment holds inherent opportunity costs. Labor serves as a factor in the farmer's cost-benefit analysis when determining whether to produce. Still, most farmers claimed that orchard maintenance requires low levels of labor, usually involving a few minutes each morning and a maximum of five full days of work in the spring. Three farmers transported apples directly to the market in Panzhihua and Xichang, and one farmer reported the need to pay a fee to dispose of the unsold apples, which were also the apples of the lowest grade. All of the farmers who experienced transporting claimed that the costs required labor exceeds the benefits and decided not to transport again.



Graph 2. Value of expenses by category per annum, average of all interviewed farmers in Weicheng.

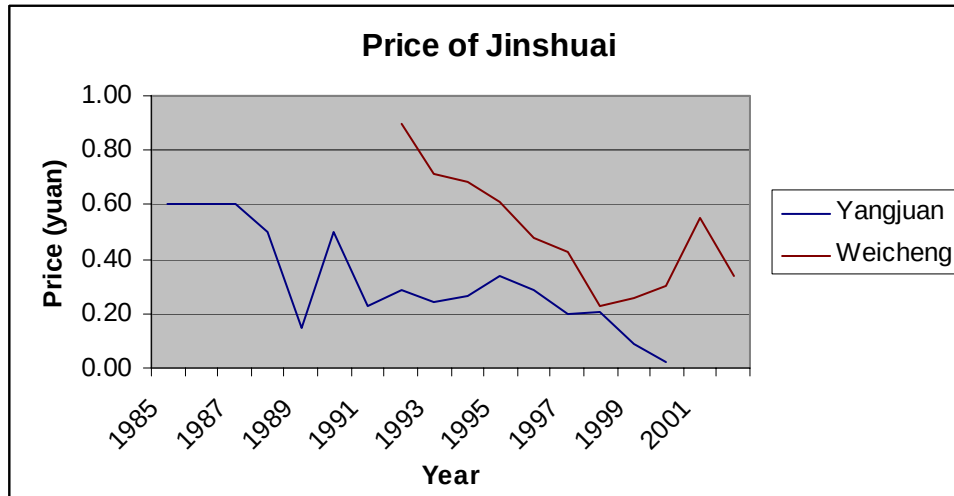
Graph 2 shows the average annual expense in Weicheng. Again, the purchasing of apple trees is a one-time fixed cost for each farmer for every variety. Whereas the source of irrigation water in Yangjuan is diverted from an unmonitored stream and is free of cost, four out of eight farmers in Weicheng access water from a reservoir and pay a fixed rate for the water pumped to

their fields. Water is received through a pump from the reservoir at 10 yuan per tanks (*tai*)⁵⁰ per hour. The farmers use on average three tanks of water each time they water their orchards, which equates to approximately 30 yuan, but since there is no information on the frequency of watering, the total cost of water per year is only an estimate. The cost of irrigation in Graph 2 shows the minimum possible cost per year given the available data, with an unknown cost ceiling. Three out of eight farmers interviewed reported the use of hired labor, and two transported their apples to a major market in Xichang or in Yunnan province. One farmer transported his apples in 1998 and 1999 and decided to only sell locally to middlemen thereafter. The other farmer has been transporting since 1999 and still transports his apples in order to sell at higher prices.

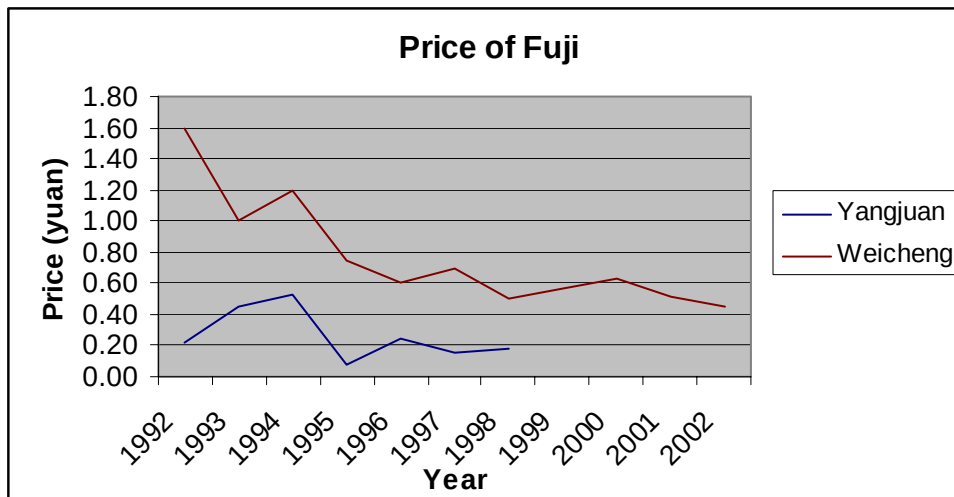
Pricing mechanism

Farmers are generally price-takers of whatever rate at which the middlemen are willing to buy. The factors contributing to the middlemen's determination of the prices are unknown. Although there is a range of prices each year within the local region, middlemen give a set of prices according to the quality of the yield, and within the set are different individual prices corresponding to the size of the apple. The highest price goes to apples with a diameter of 7.6 centimeters and greater, and middlemen can select to buy only apples of certain sizes and quality. Although farmers sell at multiple prices according to the product, they tended to disclose only the highest price they received from middlemen (i.e. the price of apples with 7.6 cm diameter and greater). Graphs 3 and 4 show the price trends in two varieties, Jinshuai and Fuji.

⁵⁰ 台



Graph 3. Comparing annual average prices of Jinshuai in Yangjuan and Weicheng.

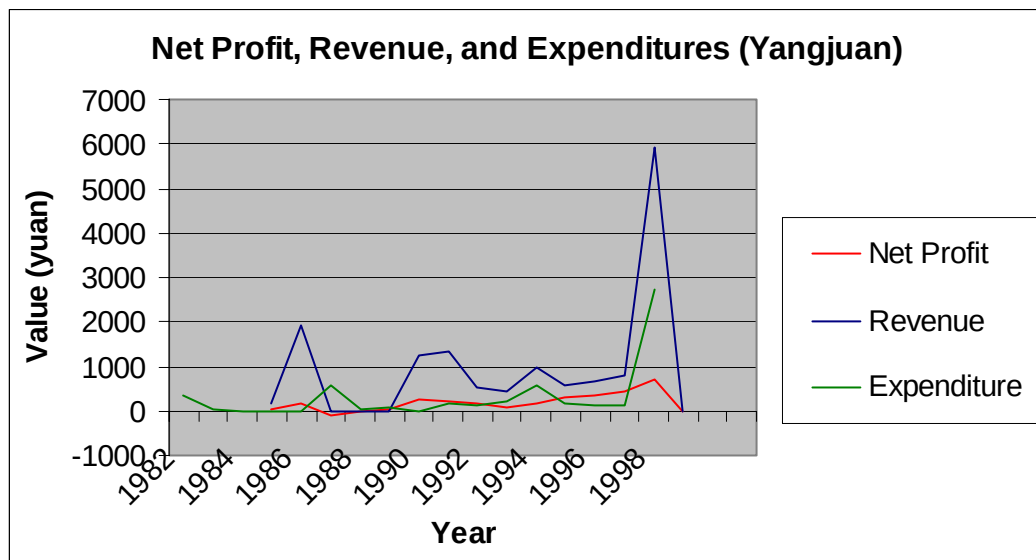


Graph 4. Comparing annual average prices of Fuji in Yangjuan and Weicheng.

In both the varieties, the fruits experienced steadily and continuously falling prices until 1998 in Weicheng, where the price of Jinshuai increased by 243% between 1998 and 2001. Prices in Weicheng were consistently greater than prices in Yangjuan by large degrees, with the exception of the price of Jinshuai in 1998, when the price of Jinshuai in Weicheng was only 0.02 yuan per jin greater than that of Yangjuan.

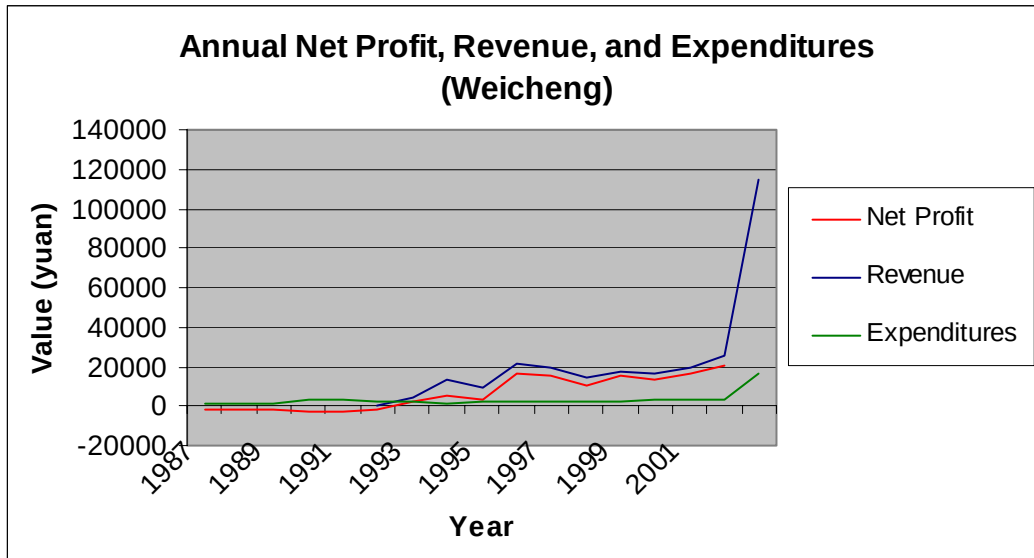
Farmers' profits

Farmers reported the revenues they received and/or the net volume they produced each year. If total revenue was not provided, then theoretical revenue is derived by multiplying the farmer's total volume produced each year with his given price of the corresponding year. If both revenue and volume was reported, then the reported revenue and theoretical revenue is compared to check for accuracy,⁵¹ although farmers rarely provided both their annual revenue and volume produced for the same year, but rather provided one or the other. Profit is then calculated by subtracting expenditures from revenues.



Graph 5. Net profit, revenue, and expenditure, average of all Yangjuan farmers.

⁵¹ As noted in the Methodology section, most of the quantitative knowledge are not retained in written records and are only extracted from the interviewee's memory, hence the level of accuracy can vary greatly between individual informants.



Graph 6. Net profit, revenue, and expenditure, average of all Weicheng farmers.

While Yangjuan's apple market fluctuated every year until the market crash, Weicheng's market maintained a steady rise in profit as well as expenditures. In Weicheng, nearly all farmers experienced a rise in profits, although the level of income may be at different magnitudes. In Yangjuan, all farmers experienced a similar fall in prices, but volume and quality of output vary greatly due to different approaches in orchard management. The sudden rise in expenditure, revenue, and profit in 1998 in Yangjuan is a reflection of two farmers transporting their apples to Xichang and Panzhihua, in which case they benefited from higher prices but also suffered from high costs and high labor intensiveness.

It is important to note that earned income and profits terminate when prices fell to the point where middlemen no longer visited Yangjuan to buy apples, in which case price is noted as zero, and revenue is zero in this model.⁵² The exact year in which middlemen failed to appear is not completely clear. Farmers claimed different years as the last year of appearance within the

⁵² Technically, the situation should not be interpreted as price=0 when middlemen fail to appear in Yangjuan, because price=0 implies that there is a price and apples can be sold. In the actual situation, there is no price, and farmers had to spend extra labor to dispose of the residual output. However, for the purpose of calculating profit, the failure of middlemen to appear counts as a price of zero to show that revenue is zero. Again, the price of labor under self-employment cannot be quantified by monetary terms and is left out of the calculation.

range of 1991 and 1998. Chart 1 shows the number of farmers claiming each year as the last year of middlemen appearance.

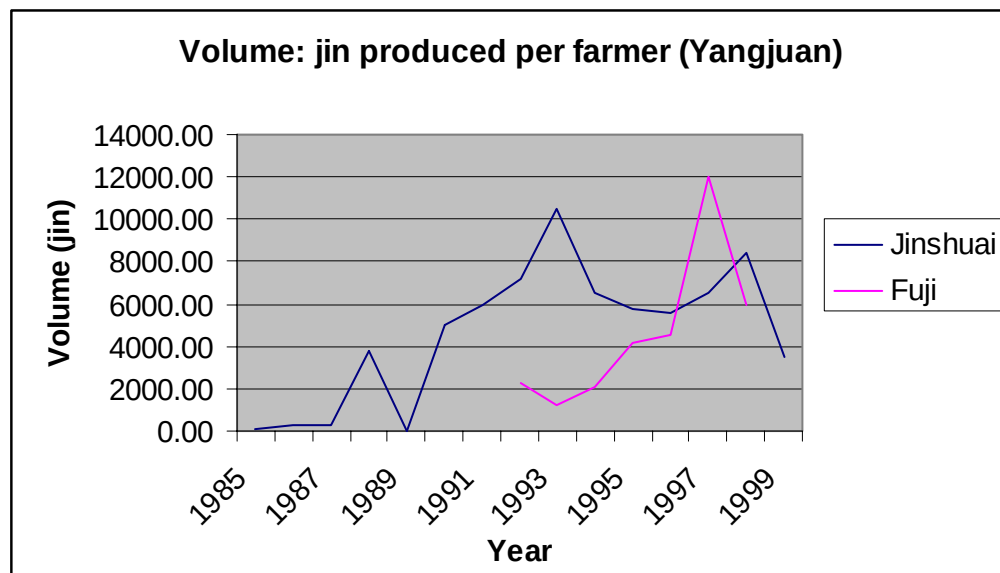
Year	Number of farmers who witnessed middlemen
1991	1
1995	1
1996	3
1997	2
1998	3
Total	10

Chart 1. The number of farmers reporting each year as the last year middlemen visited Yangjuan.

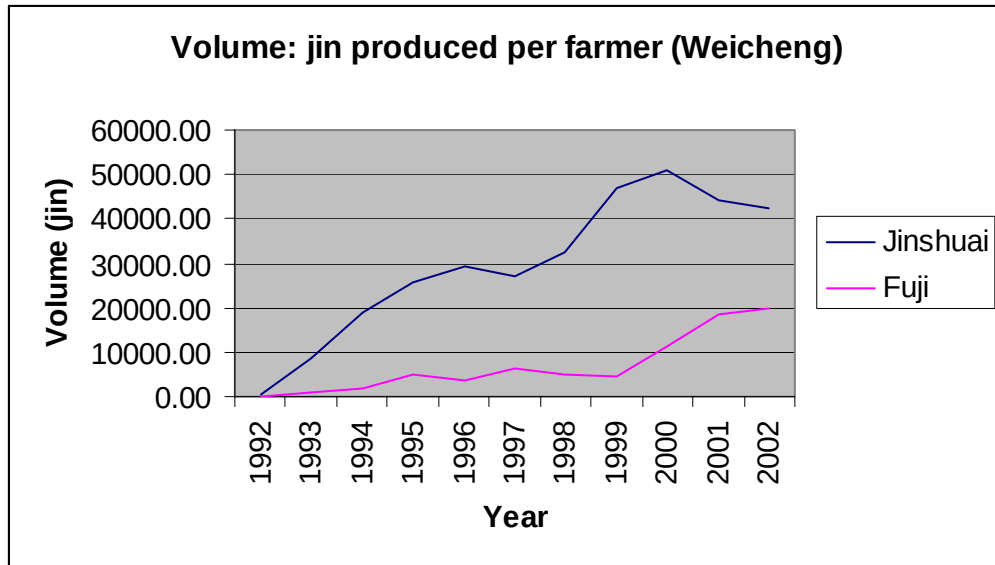
COMPARATIVE ANALYSIS: FACTORS INFLUENCING PRICE DIFFERENTIALS AND DECLINE

Market volume

The average volumes produced per year per farmer are illustrated in Graph 7 and Graph 8 for each location:

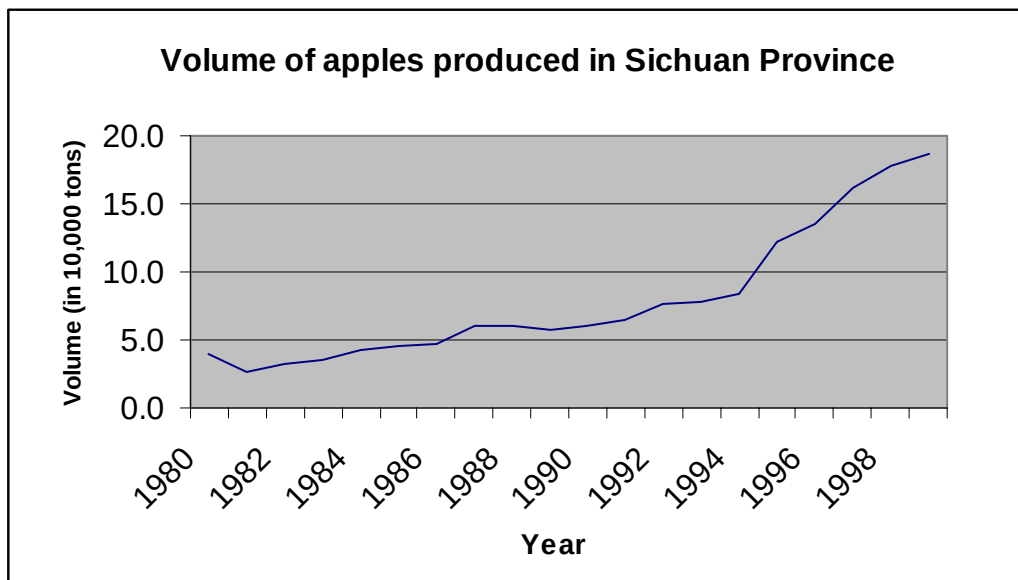


Graph 7. Average volume of apples produced each year per orchardist in Yangjuan, measured in jin.



Graph 8. Average volume of apples produced each year per orchardist in Weicheng, measured in jin.

Graph 9 shows the volume of apples produced in Sichuan province since 1980:

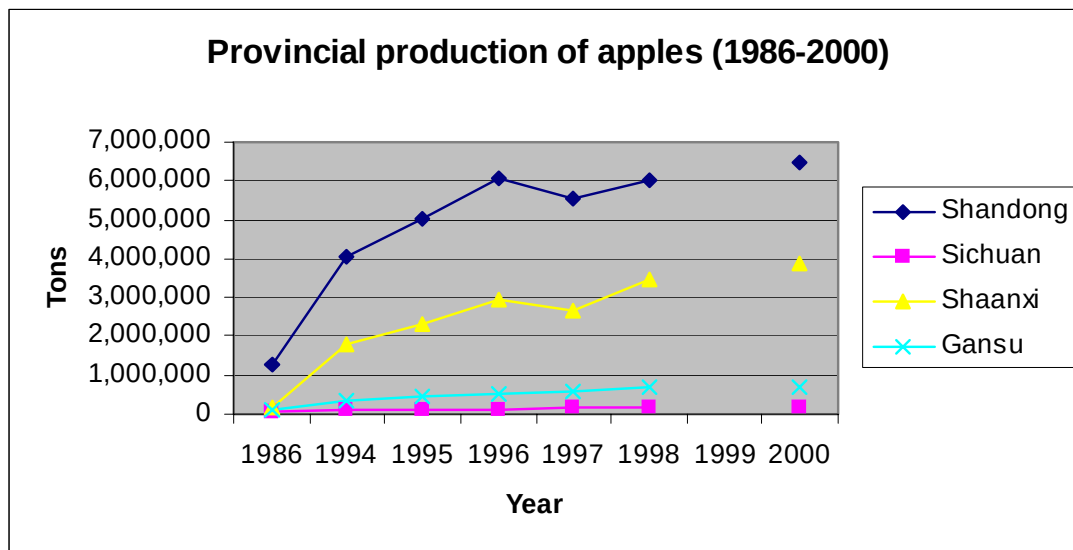


Graph 9. Total volume of apples produced each year in Sichuan province, measured in 10,000 tons.
(Source: Sichuan Statistical Yearbook 2000)

Although Yangjuan's production is volatile and the figures are probably influenced by farmers' erratic memories, its overall performance shows increasing volumes of production, while

Weicheng maintains a steady increase in production. This corresponds to the provincial total output of apples.

Graph 10 shows the volume of production of the four provinces which produced apples sold in Chengdu consumer markets, namely Shandong, Sichuan, Shaanxi, and Gansu.



Graph 10. Total volume of apples produced each year in Shandong, Sichuan, Shaanxi, and Gansu, measured in 10,000 tons. (Source: China Statistical Yearbook 2000)

Consume preferences

Consumer preference is essentially based on two key factors: taste and aesthetics. Consumers prefer apples to be sweet, juicy, pungent, and crispy. More importantly, consumers see apples before they are able to taste, therefore aesthetics usually plays a larger role in the determination of purchase. Higher quality apples tend to be redder, larger, and without blemishes. Some sellers offer sample slices of apples to consumers to prove the quality of taste in order to promote the quality of the apples.

Locally grown apples were only sold in Sichuan during harvest season and shortly after harvest season, approximately from late July until late September, and were selling at prices

from 0.4 yuan/jin for apples with a diameter of 4.5cm to 1.0 yuan/jin for apples 7.0cm or slightly smaller, with slight blemishes. From October until early November, apples sold in Chengdu were only products of Shaanxi, Shandong and Gansu, which sold at 1.5-2.0 yuan/jin for sizes around 8.0cm in diameter, and were generally less fresh, less juicy, and mushier.

Internationally imported apples were also found in markets outside of Sichuan. Washington State red delicious and New Zealand gala apples were found in Kunming selling at 7.5 yuan/jin and in Wuhan at 9.8 yuan/jin for apples near 7.0cm in diameter.

Role of local governments

The Baiwu government and Weicheng government utilized similar methods of involvement in promoting and supporting the apple industry within the respective townships, but Weicheng's government exerted greater presence than Baiwu's.

Baiwu:

In 1977 the commune party secretary (of Han ethnicity) introduced apples under the collective regime. At the time, Yangjuan had one orchard under one production team. Since the beginning of the Household Responsibility System, the township and county government has employed the following ways to encourage individual farmers to grow apples.

Loans. Farmers received low-interest or interest-free loans through a bank affiliated with the Department of Agriculture. Farmers attain a loan by submitting a request to the government,⁵³ and once the government approves, the Department of Agriculture issues the loan. However,

⁵³ It is unclear which level of government is indicated. Loan requests could possibly be submitted to the production team leader or the township leader, and approved at the township level or the county level. Farmers explicitly indicated that the loans are issued by the Department of Agriculture at the central level, and the bank responsible for these loans is directly affiliated with the Department of Agriculture. This leads me to believe that these loans are issued by the Yanyuan branch of the Agricultural Bank of China (ABC), one of China's biggest commercial banks. (All banks in China are government-owned.)

since farmers have been unable to generate positive income, the government has not requested repayment of the loans.

Subsidized trees. The Yanyuan County government sells apple saplings to farmers at subsidized prices. Reported prices for saplings varied from 0.1 yuan to 1.5 yuan per tree, depended on the variety and the year of purchase.

Maintenance techniques. The leader of the Yanyuan County Bureau of Agriculture and the Baiwu government taught basic knowledge for tree care. Most farmers learned to prune their trees in order to maximize sunlight to encourage the tree to grow more fruit. In 1997, the Baiwu government provided an extension agent for one year. A farmer explains: Extension agents went to other places nearby, but were never persuaded to come to Baiwu. In 1997 the extension agents came, but the equipment they suggested was too expensive for us to use. Experts from the county government came to Baiwu during the good years (mid 1990s), and people would go to attend the seminars, but most of us could not afford to practice the techniques they suggested because it cost too much.

Weicheng:

Active support for orchardists in Weicheng concentrates in three functions: maintaining transportation order, introducing new technology, and providing marketing opportunities.

Introducing techniques and varieties. Since the beginning of apple production on a large scale since the mid 1980s, farmers have taken advantage of training courses (*peixunban*)⁵⁴ offered by Yanyuan County's Bureau of Agriculture. The first training course was offered in 1983. When the courses were first offered in the 1980s they lasted several days and covered all the basic and necessary skills to maintain an orchard. By 1987, trainers started going directly to the farms. Now, the classes last one or two days, concentrating on developing new techniques and

⁵⁴ 培训班

introducing new varieties. An example of a new technique is *taodai*,⁵⁵ 'bagging,' in which a Fuji apple is wrapped in a paper bag a few weeks prior to harvest, and stays in the bag for about two weeks. These apples acquire a prominent red color compared to apples grown unbagged. Such apples can be sold at as much as 2 yuan each. According to the government officials, these apples are aesthetically appealing, but in fact not as flavorful as apples ripened in a more natural way. About 250 mu⁵⁶ of the orchards in Weicheng practice *taodai*.

Expanding farmers' market share. The Weicheng government is undergoing a pilot project to find innovative ways for farmers to bypass middlemen. The government has recently organized a place where farmers can assemble and sell together in a concentrated area, but it is premature to draw conclusions regarding the success of this endeavor. The government also provides interest-free loans specifically for farmers to cover startup costs, namely to buy apple trees. These loans are intended to be returned within five years.

Irregular taxation. Three farmers elaborated on their concerns regarding agriculturally related taxation in the township. They claim that heavy taxes have existed since the beginning of the apple industry. For each year it rains (which is almost every year), farmers pay a 'hail tax' to the government,⁵⁷ which usually runs at the rate of 4-5 yuan per mu of land.

FARMERS' STORIES

The following stories describe the experience of two farmers in Yangjuan and two in Weicheng. From Yangjuan, Hxielie Muga is known as the most prestigious ex-apple grower in the village, and Hxiesse Volie's story resembles the experience of many other orchardists interviewed. In Weicheng, Li Wenxian is the most successful apple producer amongst the farmers interviewed, and Zheng Fuguang situation resembles that of the average apple grower

⁵⁵ 套袋

⁵⁶ One *mu* (亩) is equal to 0.166 acre, or 0.067 hectare.

⁵⁷ Informant did not specify which government entity collected the hail tax.

who was interviewed. Time-associated information, such as age, is based on the time of interview in the summer of 2002.

Hxielie Muga (Yangjuan)

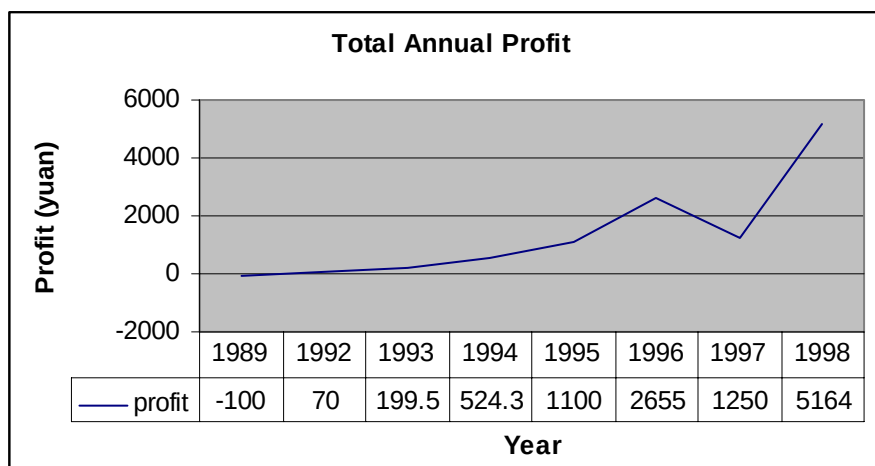
Muga, introduced briefly at the beginning of this thesis, decided to grow apples because he wanted to follow the Han people's way of getting rich. At age 52, he farms 20 mu of land in Yangjuan village. He has one son and three daughters, ages ranging from 12 to 30, and his wife is deceased. In 1985, he turned his 30 mu of land from a rock-filled swamp land into cultivated land. It took him four years to transform the land into an orchard, and in 1989, he planted 1000 trees: 800 Jinshuai and 200 Fuji. He bought the saplings at a government subsidized price of 0.1 yuan per tree, which is significantly lower than the price of privately sold trees at the price of 1.5 yuan per tree. To finance his apple orchard, he took an interest-free loan from the agriculture department. He also received some instruction in fruit tree management from the Yanyuan County Bureau of Agriculture. His first harvest was in 1992, and his rate of production, expenditures, and profits for each year are shown below:

REVENUES					
YEAR	Jinshuai Total Production (jin)	Fuji Total Production (jin)	Jinshuai Price (yuan/jin)	Fuji Price (yuan/jin)	Total Revenue (yuan)
1989	planted trees				
1992	100		0.7		70
1993	1900	100	0.38	0.5	772
1994	3000	165	0.25	0.45	824.25
1995	5500	2400	0.2		1100
1996		9000		0.3	2700
1997		12,000		0.12	1440
1998	14,000	6000	0.4	1.5	14600
1999	4000		0.08		0
2000	Terminate orchard management				
2001	cut trees				

Chart 2. Hxielie Muga's rate of production, prices received, and total revenue by year.

Year	EXPENSES (in yuan)						Total Expenses
	Trees	Fertilizer	Pesticides	Tax	Disposing	Transport	
1989	100						100
1992							
1993		472.5	100				572.5
1994			300				300
1995							
1996			45				45
1997			190				190
1998				400	3600	5436	9,436

Chart 3. Hxiele Muga's accumulative of all quantifiable expenses per year. Cost of self-employment not inclusive.



Graph 11. Muga's annual profits.

In 1994, Yangjuan experienced a frost, which damaged some of the crops. Muga claims that in 1996, many other places experienced a frost so that middlemen were inclined to buy more apples from Yangjuan than usual. In 1997, he could not sell apples that were 5cm in diameter or smaller, and wasted a large quantity of his yield. For that reason, he decided to transport his apples directly to the market in Panzhihua the following year.

In 1998, he rented three trucks and lived in Panzhihua for 27 days. The hotel cost 12 yuan a day. The trucks cost 1500 yuan per truck to rent, plus a six yuan per day tax, and each truck holds 10,000 jin. He hired 7 drivers, providing 4 meals which added to 400-500 yuan of expenses. He claims that total cost of the transporting cost him 5000 yuan. In Panzhihua, the

apples were sold at different prices. Muga sold 6000 jin at 1.5 yuan/jin for the highest grade. Second highest grade was sold at 0.4 yuan/jin and he sold 14,000 jin at that rate. For the rest, he had to pay 3600 yuan to dispose 7000 jin of the lowest quality, and the rate charged was 0.05 yuan/jin. I calculated that his total revenue for that year was 15,440 yuan, but his total profit was only 5564 yuan. Muga claimed that the process of transporting was too much trouble, and he chose not to repeat the process the following year.

In 1999, he sold 4,000 jin of the 30,000 jin he grew at 0.08 yuan/jin, but the middleman didn't pay him. He gave 20,000 jin of it to the community. In 2000, he stopped maintaining the trees, and in 2001, he cut down all but 35 apple trees.

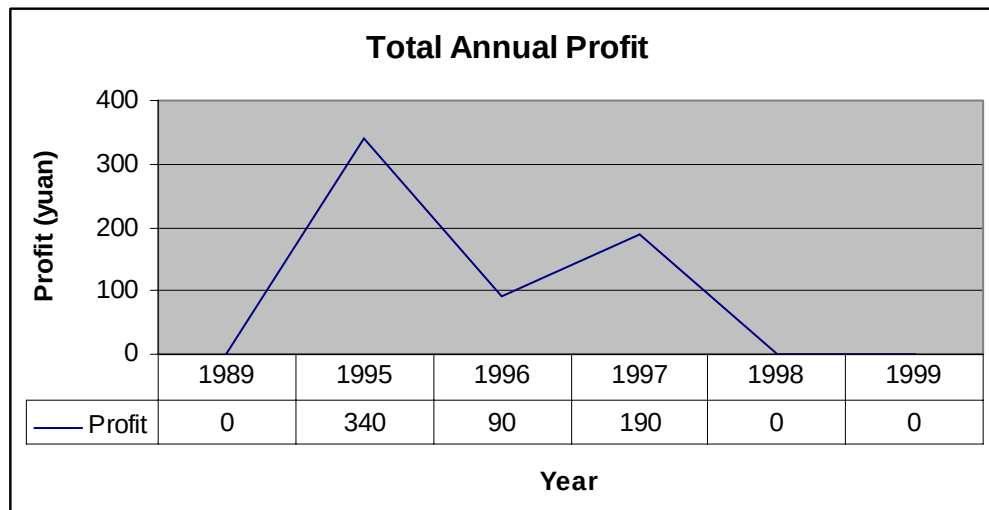
Hxiesse Volie (Yangjuan)

50 years old Hxiesse Volie started growing apples because he heard Hans made good money of it in Yanyuan. In 1989, he took a loan from the government and planted 150 Jinshuai trees in his 3 mu orchard. It cost him 70 yuan to buy the trees from the county nursery, and to this day, he still has not paid back his loan. He and his wife have three children: a 24 year-old son, a 20 year-old son, and a 15 year-old daughter, who is married⁵⁸ and currently in fourth grade. He and his wife were the primary workers on the field, until the death of his wife in 2000. They pruned the trees once a year, fertilized twice a year with a homemade mixture, *nongjia fei*, and sprayed the fruits with pesticides once they went ripe. He claimed that the overall expenses from the orchard cost him a little over 10 yuan a year. His first harvest was in 1995, and his rate of production, expenditures, and profits for each year are shown below:

⁵⁸ Nuosu often go through a marriage ceremony at an early age, but do not begin living together until several years later. Meanwhile, Volie's daughter continues to live at home with her family.

YEAR	JS Total Production (jin)	REVENUES	
		JS Price (yuan/jin)	Total Revenue (yuan)
1989	planted trees		
1995	700	0.5	350
1996	500	0.2	100
1997	1000	0.2	200
1998	no data		0
1999			0
2000			0
2001	cut trees	0.02	0
2002		0.02	0

Chart 4. Hxiesse Volie's rate of production, prices received, and total revenue by year.



Graph 12. Volie's total annual profit.

There were no apparent connections or relations between the middlemen and the farmers. When the middlemen came, the farmers usually sold to whoever came to them first. In 2001, Volie decided to cut his trees and grow hybrid corn instead. He earned less than 1000 yuan in his whole career of growing apples, but in 2002, he earned 1000 yuan just from selling the hybrid corn that has replaced apples as an attempted cash crop for many Yangjuan farmers. He complained that many of his apples had defects and had to dispose of them, despite the volume of his production. Volie believes that the tragedy of Yangjuan's apple industry is because the market is glutted with apples. He would be willing to grow apples again if the prices rise again.

Li Wenxian (Weicheng)

77 year-old Li Wenxian attained an elementary education and is the head of his village. He lives with his 44 year-old wife, a 20 year-old daughter, and a teenage son. As one of the most successful farmers in the township, he contracted the collective's apple orchard in 1988, which included the 500 Jinshuai and 200 Fuji trees existing in the orchard today. His figures are as follows:

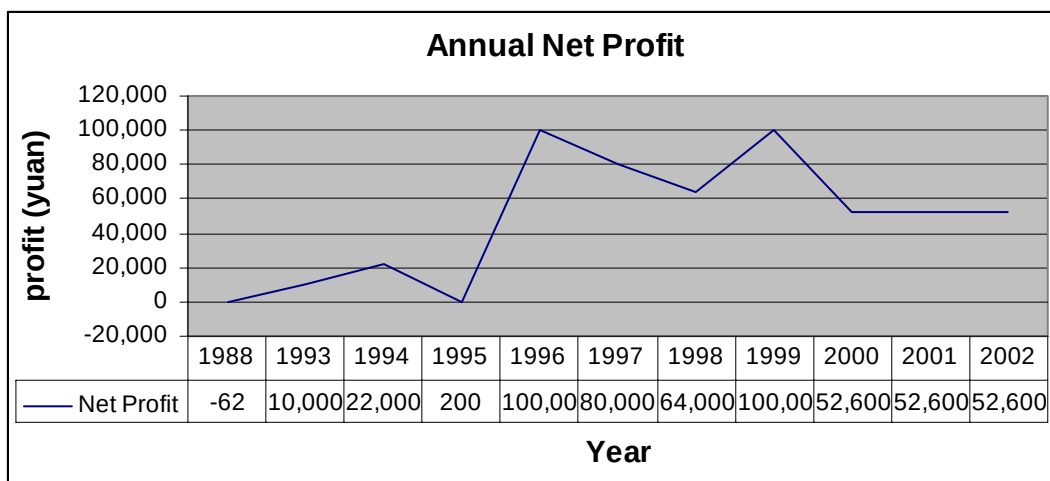
YEAR	REVENUES				
	JS Total Production (jin)	Fuji Total Production (jin)	JS Price (yuan/jin)	Fuji Price (yuan/jin)	Total Revenue (yuan)
1988	planted trees				
1993	20,000	no data	0.5	no data	10,000
1994	30,000		0.75		22,000
1995			0.8		200
1996	100,000		1		100,000
1997	80,000		1		80,000
1998	80,000		0.6		64,000*
1999	100,000		0.6		100,000
2000	100,000		0.61		61,000
2001	100,000		0.61		61,000
2002	100,000		0.61		61,000

Chart 5. Li Wenxian's yearly productions and annual profits.

*Note: A frost in 1998 damaged the crops and led to a reduction of yields.

YEAR	EXPENSES				
	Trees	Fertilizer	Pesticides	Labour	Total Expenses
1988	62				62
1993					0
1994					0
1995					0
1996					0
1997					0
1998					0
1999					0
2000		3400	1000	4000	8,400
2001		3400	1000	4000	8,400
2002		3400	1000	4000	8,400

Chart 6. Li Wenxian's annual expenditures.



Graph 13. Li's annual profits.

Since 2000, Li has spent a considerable amount on the management of his orchard. He raises seven or eight pigs a year and stores the manure in a large concrete pit and mixes it with chicken manure purchased from Xichang, which costs him 1400 yuan each year. On top of the manure, he spends 2000 yuan each year on chemical fertilizers and 1000 yuan on insecticides. He hires about 20 laborers to prune, weed, spread fertilizer, and to pick the apples during harvest season. The piece rate of picking is 0.015 yuan/jin. The labor is hired locally and supervised by the buyer.

In the past he has sold to a different middleman every year, usually to the first who offered him a reasonable price. However, in 2002, Li contracted his entire annual yield of 100,000 jin to a middleman from Guilin province at a rate of 0.61 yuan/jin.

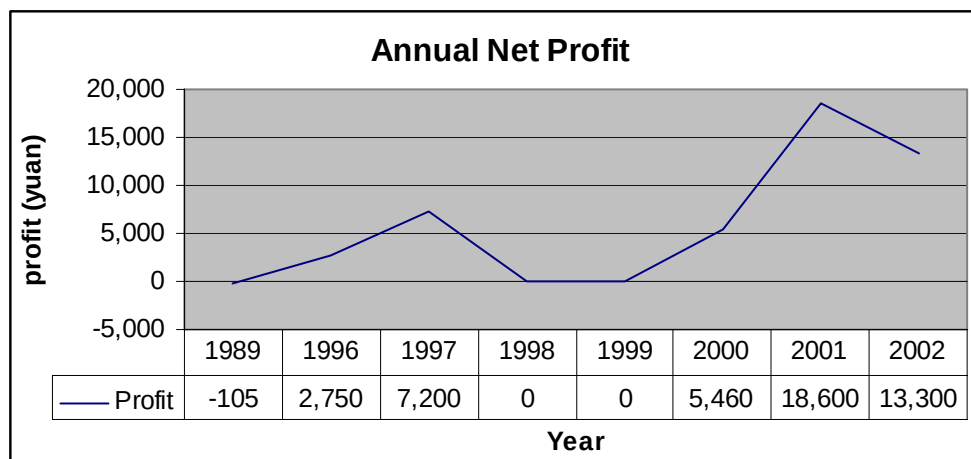
In addition to his orchard, Li also has 8 mu of dry land to grow corn and 3 mu of wet rice land. However, his yields from this are not sufficient for his family's consumption and needs to buys additional rice to eat.

Zheng Fuguang (Weicheng)

Zheng Fuguang is 47 years old this year, living with his 40 year-old wife and two teenage daughters. In 1989 he planted 200 Jinshuai trees and 300 Fuji trees in his 10-mu orchard and began the first year of production in 1995. Other than spending a total of 105 yuan on buying saplings, he did not spend additional money on maintaining his orchard, although he complained that a higher use of fertilizer required a greater use of water in order to grow bigger and healthier trees. On average, his apples have been increasing in size every year. His annual productions and profits are shown below:

YEAR	REVENUES				
	JS Total Production (jin)	Fuji Total Production (jin)	JS Price (yuan/jin)	Fuji Price (yuan/jin)	Total Revenue (yuan)
1989	planted trees				
1996		5000		0.55	2,750
1997		8000		0.9	7,200
1998	no data				
1999					
2000	6,000	12000	0.13	0.39	5,460
2001	20,000	30000	0.18	0.5	18,600
2002	14,000	30,000	0.2	0.35	13,300

Chart 7. Zheng Fuguang's yearly productions and total revenues.



Graph 14. Zheng's yearly profit.

PART III

BARRIERS TO MARKET INTEGRATION: TALE OF TWO TOWNSHIPS

In brief, Yangjuan's apple industry⁵⁹ faced falling prices and rising expenditures and was out-competed and dropped out of the market by the late 1990s (refer to Graph 5). Because Yangjuan farmers were price-takers rather than price-setters, their dropping out of the market was mainly determined by external factors rather than internal factors. Yangjuan stopped selling apples because middlemen stopped buying. The inexperience of those attempting to bypass the middlemen and directly access the market faced inefficiencies that prevented them from continuing to transporting their apples. The volatility of Yangjuan's profit margins and the farmers' heavy dependence on external factors suggest that Yangjuan's apple industry does not behave like a normal market and has not been successfully integrated in the formal economy.

For Weicheng, revenues rose starting in 1993, which was the same time revenues rose in Yangjuan. Expenditures remained stable until 2000, which most likely indicates that farmers started experiencing pressure from competition. While the apple industry in Weicheng was profitable, more farmers entered the market until quantity of production was at market equilibrium, in which case the change in prices made it no longer profitable for some farmers to produce, or profit became zero, at which point many farmers dropped out, while others adjusted to new market conditions and continued producing. Weicheng's rise in expenditures suggests the following explanation: once the industry hit equilibrium, a few of the farmers who were highly uncompetitive considered stopping apple productions, and those who had advantages stayed in the market and increased productions and quality. Weicheng's steady market trend corresponds to behaviors of a functional market. This indicates that the existence of public

⁵⁹ The term "industry" is used here to indicate the market in which each producer and consumer influences each other. If the producers and consumers have no effect on each other, then they are considered separate markets. Therefore, the apple industry in Yangjuan and Weicheng can be the same industry if the farmers share equal access to the market and share the same market forces, but if there are price differentials and difference in market access opportunities, then they are considered two separate markets or industries.

goods create favorable conditions for market integration and suggests compatibility between the local economy and the larger economy.

WINNERS AND LOSERS OF THE MARKET

Yangjuan lacks provision of certain public goods and lacks basic conditions to be a functional market within the larger economy. Many Yangjuan farmers complained that they are too far away (from consumers and from the buyers market). The roads connecting Yangjuan and the Yanyuan County Seat creates great disincentives for middlemen to access the village, as illustrated by the difference in the road conditions in figures 2 and 3. Middlemen are disinclined to reach the farmers not only because the bad roads are troublesome, but also because the bumpy roads bruise the apples, damaging the product. Hence, this increases the risk of lowering the value of the fruit and selling at a lower price once the fruit reaches the consumer market. In other words, Yangjuan is materially disconnected from the market.

Other reasons are less obvious. Yangjuan farmers and Weicheng farmers shared very different levels of access to capital because they had township governments with different levels of powers and ability. Inferring from the level of development⁶⁰ in the two townships in 2002, the two governments seem to have asymmetrical fiscal budget sizes, where Weicheng has a fiscal advantage compared to Yangjuan. Because Weicheng's local economy is significantly larger than Baiwu Township's economy, the Weicheng government is capable of collecting more taxes from its growing economy. The Baiwu government, on the other hand, cannot demand higher taxes from its already stagnant economy because most farmers earn enough to sustain livelihoods but with little more to spare. The size of the budget reflects the ability of the local

⁶⁰ Based on my observations, it is likely that Weicheng's township government is more economically empowered compared to Yangjuan's. Weicheng Township seemed to be more economically and technologically developed than Yangjuan, its architectural infrastructure slightly more advanced than Yangjuan. It is also worthy to note that Weicheng's Bureau of Agriculture employs four full-time extension agents, whereas Baiwu only received sporadic help from extension experts.

government to facilitate economic growth of the township in several ways. As in the case of Baiwu, the local economy cannot grow if the local government is restrained by a small budget, restricting its ability to improve infrastructure and transportation logistics. The government did not have the monetary means to hire cutting-edge extension service that are necessary for the farmers to stay competitive with other producers.

As a result of being fiscally advantaged, Weicheng's government is more responsive in facilitating technology transfer and providing extension service expertise. In this way, Weicheng's government provides the opportunities for farmers to integrate into the market economy. Through technology and knowledge transfer, the local government actively engages in closing the gap between the local apple industry and the larger market economy. Weicheng farmers' use of technologically enhanced irrigation and synthetically induced apple complexion suggests that technologically sophisticated methods of agriculture give Weicheng farmers the means to overcome geographic disadvantages. However, regardless of its technological capabilities, Weicheng's geographic disadvantages are of lesser degree than the disadvantages of Baiwu because Weicheng is significantly closer to the county seat, and Weicheng has greater access to water sources due to lower elevations. This does not suggest, however, that the availability of these technologies comes without a cost. The services provided by the local government are considered by and large to be public goods, and all citizens of the local community contribute to these goods regardless of their participation in utilization. For this reason, some of Weicheng's smaller apple producers complained that the technology required to grow apples made it a lot more expensive, and they complained about extra taxes, but the larger producers seemed to disregard the burden of these costs. Regardless of the high costs and complaints, most farmers expressed satisfaction in the local government, which leads me to

conclude that Weicheng's expensive yet responsive government served as a key factor in the integration of the local apple industry into the greater market economy, allowing local producers to sustain their access to the consumer market.

Overall, barriers to market integration can be summarized as the following five factors contributing to the shortcomings of Yangjuan's apple industry:

1. geographic remoteness
2. inability to sustain access to consumer market
3. poor quality control
4. lacking means for transport
5. insufficient access to extension services

These variables would have been ameliorated if Yangjuan's government and farmers had had sufficient initial capital and if the local government had the means and skills to employ the right strategies. Therefore, rudimentary variables that block market integration can be accurately pointed to two inhibiting factors:

1. the inability for farmers to accumulate capital
2. the incapability of the local government to act responsively to the needs of farmers

Yet, Yangjuan is deprived of financial capital due to the very geographic and economic factors that inhibited the farmers' efforts to succeed in the apple industry. It is clear, in this case, that Yangjuan's difficulty in generating income through the sales of apples is attributed to the insufficiency of co-dependent variables and their mutual responses, such that the deprivation of one factor leading to the deprivation of another factor.

THE 'POVERTY TRAP'

Yangjuan's stagnant growth can be attributed to development strategies that perpetuate a cyclical rendition. Yangjuan's inability to rise out of poverty is a case of a low-level equilibrium trap, or 'poverty trap,' in which development strategies employed by farmers or by the township government yield zero or negative outcomes. The absence of increasing returns in Yangjuan's internal economy prevents the village from rising out of its low level equilibrium. In Yangjuan's apple industry, the mode of production did not yield increasing returns because 1. price responds negatively to increasing quantity of supply, 2. Yangjuan farmers produced low quality apples due to the lack of access to technology and extension expertise, and 3. farmers were subject to high transaction costs. High transaction costs are incurred at various locations of the process of producing and selling:

1. *The lack of a contract between farmers and middlemen* creates inefficiencies in the transaction between farmers and middlemen because there is no systematic format, and each transaction must undergo a tedious and non-repetitive negotiation.
2. *Imperfect knowledge of the market* creates insecurities for farmers. Farmers cannot predict who the buyer will be (or whether there will be a buyer), and they cannot anticipate potential revenues in the future. Because they cannot predict the price of apples until middlemen arrive at the time of harvest, farmers hesitate to invest because they are susceptible to greater risks. Farmers' low propensity to invest consequently dampens their potential to become larger producers and their ability to stay competitive.
3. *Imperfect knowledge in pomology* causes farmers to grow poor quality apples, and thus lose competitiveness in the apple market. Yangjuan farmers were unable to

access extension service. As producers in other areas began to noticeably increase the quality of their apples, Yangjuan apples lost appeal to middlemen and dropped out of the market.

4. *Time lag* between the time of investment and the first year of production (approximately three to five years) incurs opportunity costs in the farmers' financial capital account as well as the opportunity cost of occupying the field instead of growing other crops that can yield in a shorter period of time.
5. *Transport costs*, as a few of the Yangjuan farmers discovered, were extremely high when they tried to transport their apples to large cities. Transport costs were high because they lacked knowledge in the business of transporting, and they lacked sufficient social capital outside the village. Social capital usually takes form in *guanxi*,⁶¹ or 'connection,' which enables those who engage in export activities to enjoy discounted rates as a result of these personal connections. Since Yangjuan farmers' social capital diminishes as they travel further from the village, they were subject to high costs when they transport.

Since Yangjuan's rate of returns depended on a set of external factors, strategies employed internally (within the village) have little effect on the rate of returns. Yangjuan's problem of insufficient capital accumulation in Yangjuan is a secondary component to the vicious cycle.

⁶¹ 关系

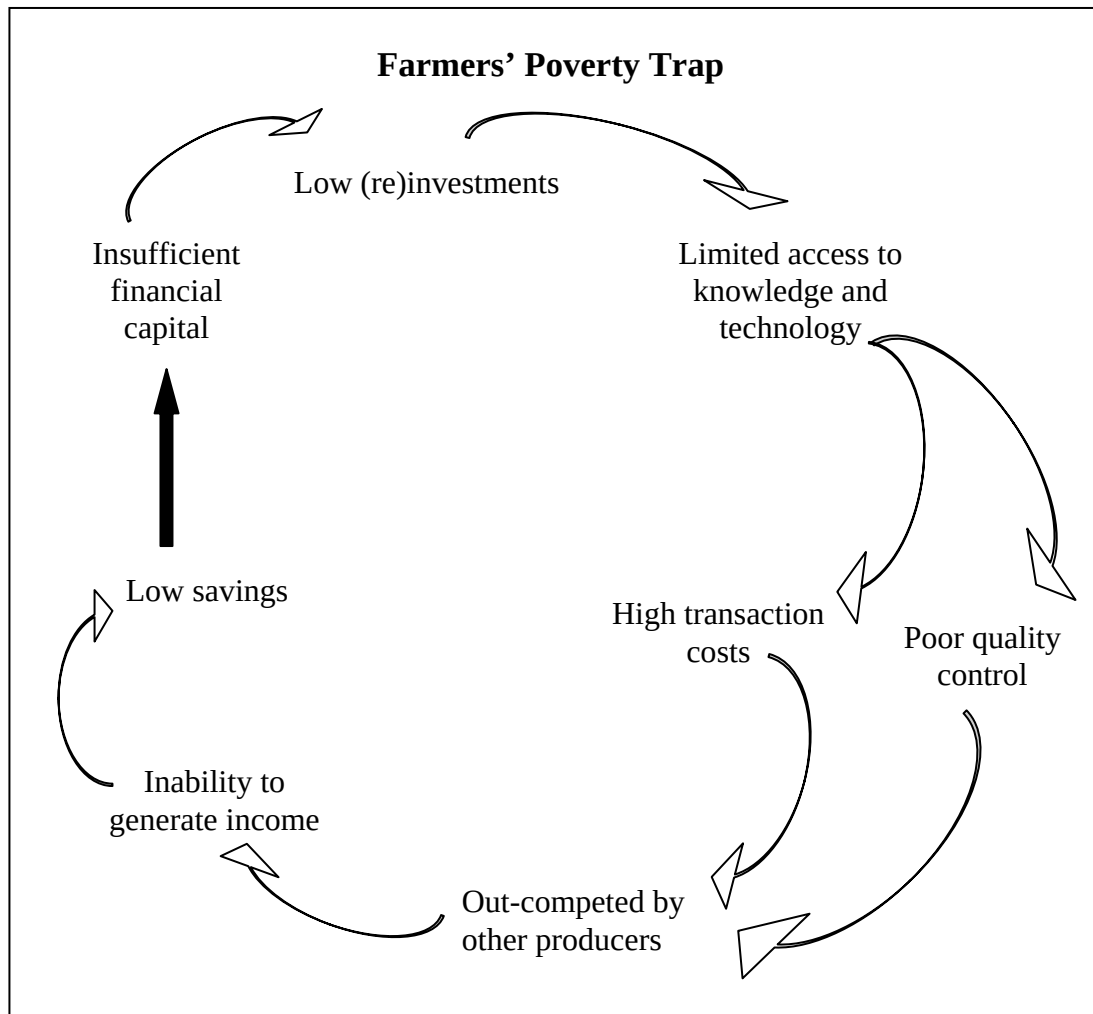


Diagram 1. Yangjuan's poverty trap in the apple industry.

Since Yangjuan farmers did not have sufficient capital at the initial time of investment, they entered the industry at high risk, bearing potential disadvantages when the market became more competitive as the industry grew. Since most farmers took government loans to finance the startup costs for their orchards, they did not have additional funding to stay aloft in technology- and knowledge-induced quality control and quality improvement. Their inability to produce higher quality apples caused them to fall out of the market as soon as the supply side became saturated with apple producers. The process of entering and leaving the market leaves the farmers not much better off, or perhaps even worse off, than they were initially. Likewise, with

little initial capital, farmers' next attempt to engage in a capital-reliant production will involve higher risks compared to the average competitor.

To escape the poverty trap would require Yangjuan to achieve a level of development-related capacity that enables cash crop production and sales to take place effectively. In part, achieving this capacity requires that Yangjuan successfully addresses barriers to market integration. Namely, these barriers would be remedied most likely when the Baiwu government begins to provide basic public goods for the villagers. When Yangjuan's development capacity reaches the threshold that triggers increasing rates of return, its likelihood to successfully integrate with the market economy will increase and become a positive-sum process. However, until Yangjuan reaches this threshold, it will continue to be subject to negative returns associated with the low-level equilibrium trap.

DEPENDENCY AS A POVERTY TRAP

Due to the nature of the governmental structure, the local government plays a role similar to that of an entrepreneur-- one that facilitates the possibilities of economic success (i.e. provide public goods such as technology, paved roads, and loans), while farmers maximize their opportunities within the parameters dictated by the service of the local government. Therefore, the magnitude of the government's capacity is a major component in determining the success of farmers. Before a town decides to specialize in a specific crop, the local governments need to be able to sacrifice a larger sum of capital in order to provide for farmers, ensuring competitiveness and the ability to out-compete rivals in a perfect competition market. Weicheng seized the advantage of offering technique courses before the fall of the market, while Baiwu did not offer technique courses until after the fall of the market, and even then the techniques were too costly

for Baiwu farmers. This allowed Weicheng farmers to sustain competition in the industry by initiating a cycle of positive feedbacks, while the Baiwu apple industry spiraled downward.

While farmers are dependent on the local government, the local government is dependent on the availability of funding. A township government can generally utilize three common sources of funding: 1. private investment, 2. support from the higher level government—provincial, prefecture, or central, and/or 3. tax revenues from local residents. In Yangjuan's case, taxing the farmers in a low income community can only yield a low level of revenues. Therefore the local government is largely dependent on outside sources. However, remote places such as Yangjuan and other Baiwu communities have difficulty attracting wealthy investors and appealing to the higher level government for financial support because the location does not meet the material and conditional needs to propagate potential investment returns.

The dependency on external monetary sources is reflected within the cyclical causality present in the poverty trap: Yangjuan's low level of development hinders its ability to attract funding, yet it is dependent on external funding.

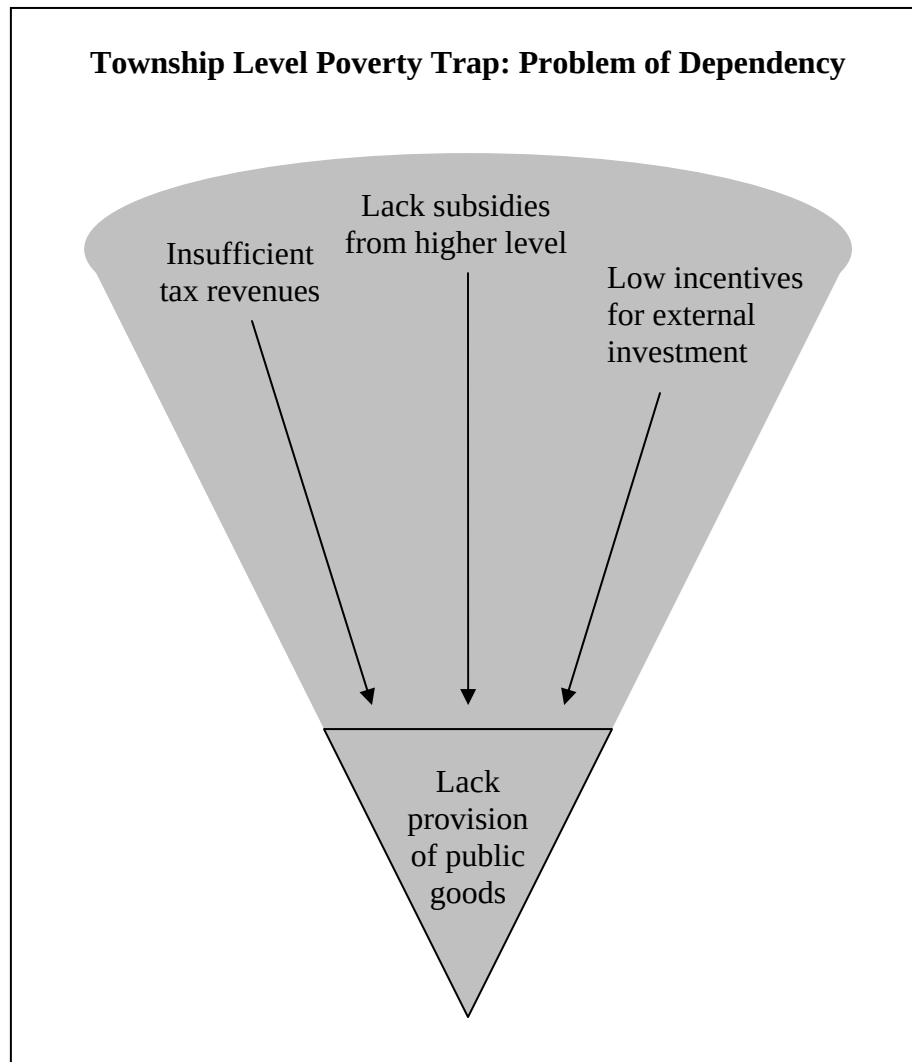


Diagram 2. Baiwu Township's poverty trap: the local government's functional capacity spirals down to a single equilibrium—the inability to provide public goods for farmers.

Because Yangjuan is remote and has poor roads, investors have little incentive to invest in a place with limited potential gains. Higher level governments are disinclined to subsidize Baiwu when support for another township is more likely to yield positive outcomes. This leaves Yangjuan with no external sources of capital. As the village relies on its negligible amounts of internally generated revenues, the farmers expose one of their largest weaknesses as they join the competitive market.

IMMOBILITY: THE ULTIMATE TRAP

As indicated by perfect competition, the farmers are price-takers in the market, and middlemen serve solely as intermediate agents, but are also price-takers of the market. Although both are price-takers, this situation can be viewed as a patron-client relationship, where the farmers are bound to their sunk costs and middlemen have the option to choose their clients. Farmers are also land-bound because a significant portion of their asset takes place in the form of natural capital, which is place-based and non-tradable. Additionally, farmers are subject to political and social rigidities in their labor mobility due to the *hukou* system (refer to p.8) and the legacy of ethnic tensions between the Nuosu and the Han.⁶² In short, Yangjuan farmers are sandwiched between poor market structure and political deadlock.

Yangjuan's apple industry is a test of the village's flexibility and adaptability to the economy, and the beginning and the ending of the apple industry demonstrates structural rigidities that not only prevent farmers to prosper from exploiting their natural capital and labor, but these rigidities ultimately expose the farmers to vulnerabilities. These farmers straddle a thin line on the verge of social and economic disaster. In encountering the apple market, Yangjuan faced risks that could have indebted them to the government, and could have potentially deteriorated the quality of their farmland if the farmers adopted unsustainable cultivation practices. These precise rigidities ultimately confine Yangjuan farmers to the poverty trap, because they are socially and politically strapped a specific geographic location with a government (local and higher level) that does not sufficiently represent the farmers because it is not subject to accountability. The higher level government creates market imperfections by disabling fluid labor mobility by adamantly holds the *hukou* system in place. Yet, the higher

⁶² Mgebbu (2003) explicitly notes in his coda that ethnic differences between the Nuosu society and the Han society are still very distant. He also emphasizes repeatedly in "My Own Story" (ibid.: 140-144) the fear of Nuosu for the Han people, particularly expressed in children's stories.

government fails to act to alleviate the problem of poverty in peripheral villages. Furthermore, the local government has no incentives to improve the economic conditions of the township because villagers lack the authority to pressure the local government to respond to its accountability.

CONCLUSION: MARKET INTEGRATION REVISITED

The study of uneven economic growth between privileged and unprivileged townships within Yanyuan County illustrates a roadmap of selective development in China's fast-growing economy and highlights new inequalities in developing regions. As a consequence of speedy development in the peripheral southwest region, the mosaic development carves poverty pockets in rural regions, creating deeper contrasts between the developed and undeveloped, and exacerbating the differences between those who are politically and geographically privileged and those who are not. As the development frontier expands deeper into rural areas, it is obvious that those who remain in the poverty pockets the longest are left with fewer strategic options, making development increasingly difficult through time. While Weicheng was able to capitalize on the opportunity to join the apple market, it decreased the number of market entry-points available to Yangjuan. Hence, Yangjuan is forced to move on to other crops as secondary attempts to market integration. Since the fall of the apple market, farmers have planted hybrid corn as a cash crop as a replacement for the income generated by the sales of apples. Some farmers consider raising sheep and goats as a main source of income (Harrell 2004). Despite their full awareness of the risks that are similar to that of the apple attempt, farmers are forced by their economic circumstances to forge on to new crops, new innovations, and new and unexplored risks. Hybrid corn requires cultivation techniques that strip the soil of its nutrients and depreciate the land as a natural asset. Likewise, herding surplus sheep and goat may have implications on the ecological

sustainability of the local hills and forests. Yangjuan's case illustrates the reduction of development options available to poverty pockets, and these pockets are penalized by experiencing a higher ratio of errors versus the number of attempts towards market integration. To exacerbate the penalty, the longer farmers remain in poverty, the more likely they are to risk deteriorating their assets in order to succeed.

In a sense, the market acts similar to a storm that sweeps in and out of Yangjuan. The apple market enters and creates dynamic movement in the local economy, but when the market leaves and the farmers are unable to catch up, it leaves a disastrous trace. It is ultimately the farmers' and the local government's responsibility to buffer their vulnerabilities against the impact of these storm-like economic waves. Until Yangjuan finds proper mechanisms to integrate itself with the larger economy, being a poverty pocket will most likely involve a continuance of various waves of markets entering and exiting the village.

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