The inequality of livelihoods in two neighbouring rural villages in Shaanxi Province, China

Per Knutsson
Doctoral student
Human Ecology Section
Department for regional studies of the human condition
Göteborg University
Box 700, SE-405 30 Göteborg, Sweden
per. knutsson@he.gu.se

Abstract

The economic reforms introduced since the 1970s have undoubtedly brought prosperity to China. From 1978 to 2001, the yearly national average GDP growth rate/capita exceeded 9 %. While this impressive economic performance has been widely acknowledged and much admired, it is at the same time evident that the fruits of economic growth have been unequally distributed across and within regions, provinces, counties, villages, and households. Income inequality in rural China is of particular interest considering the relatively recent shift from collective to household based agricultural production. Within the conceptual framework of a sustainable livelihoods approach, this paper analyzes the income and consumption portfolios of 22 households in two neighboring rural villages in Shaanxi Province, China. The results of the study indicate an inequality of access to high return sources of income according to a) the distance and/or access to major roads and market centers, b) financial capital available for investments, and c) gender. The study further points at important differences between households in how income is allocated to different sets of capitals. While the allocation of poor households' income is almost exclusively related to human and natural capital, middle income households tend to spread their allocation to human, physical, and financial capital, while rich households' allocation in contrast is focused on physical and social capital.

Introduction

Income inequality in rural China is of particular interest given the relatively recent shift from collective to household based agricultural production. Through the introduction of the *Household Responsibility System* in 1978, land is now contracted to individual households that are free to sell their surplus produce and allocate labor to different farm- and non-farm activities (Lin, 1997; Benjamin and Brandt, 1999; Nee and Sijin, 1990).This and other reforms introduced since the 1970s have undoubtedly brought prosperity to China. From 1978 to 2001, the national yearly GDP growth rate/capita exceeded 9 % (BAO et al. 2002, WB 2002). While this impressive economic performance has been widely acknowledged, it is at the same time evident that the fruits of economic growth have been unequally distributed across and within regions, provinces, counties, villages, and households (c.f. Démurger et al., 2002; Hu, 2002; Peng, 1999; Bao et al., 2002; Benjamin and Brandt, 1999; Nee and Sijin, 1990; Beaver et al., 1995; Entwisle et al., 1995; Hare, 1999). Through an analysis of income and expenditure portfolios of 22 households in two rural villages in Shaanxi province, China, this paper addresses the inequality of rural livelihoods at catchment-, inter-village, inter-household-, and intra-household level. The paper adopts a *sustainable livelihoods* framework in the dissemination of data, in order to relate the inequality of livelihoods, not only to income and expenditure, but also the access to and investment in different capitals.

The Sustainable Livelihoods Approach

The relatively recent introduction of sustainable livelihoods into the rural development arena as simultaneously a concept, theoretical framework and development approach, can be seen as a systematic attempt to handle the complexity of the multi-level, multi-sectored, and multi-disciplinary nature of rural development as a whole and it's increasingly non-agricultural character (Bryceson, 1999).

Figure 1 shows a common conceptual framework of the Sustainable Livelihoods Approach (SLA). The vulnerability context in the framework refers to the fact that different contexts make livelihoods more or less vulnerable. In my analysis, I give a brief description of the context in which the livelihoods of the population in the study area are embedded. In order to make their livelihoods, people draw on livelihood assets, or capitals (Scoones, 1998; Boyd & Turton, 2000). Capitals are, together with livelihood strategies the analytical focal point of my study. Policies, institutions and transforming processes and structures at macro- or micro-level determine how and to what extent people can build up stocks of capital and through different livelihood strategies enhance their livelihoods. In my analysis I emphasize important macro-policies that have had a strong impact on the vulnerability context, as well as on livelihood capitals and assets. Livelihood strategies are the range and combination of activities and choices that people make or undertake in order to achieve their livelihood goals (ibid.). There are three broad clusters of livelihood strategies that are commonly pursued in combination: agricultural intensification, extensification; livelihood diversification, and migration (Scoones, 1998). Different strategies imply different combinations of capital management. Livelihood outcomes at the far right of Figure 1 are the end results of different combinations of livelihood strategies. However, in my analysis I confine myself to indirect and partial discussions of livelihood outcomes rather than a formal assessment.

The Case Study - vulnerability context and macro-polices

The study area consists of two villages, Danangou and Leipingta, which are situated in Ansai County in the northern part of Shaanxi province, approximately 70 kilometres north of the city Yan'an (Figure 2). The two villages belong to Danangou watershed that covers an area of 3.5 km^2 on an altitude ranging between 1000-1350 m.a.s.l. Danangou is situated close to the main road connecting Ansai town to the north, but separated from it by a river east of the village. The nearest bridge across the river is approximately 2 kilometres south of Danangou. Leipingta is situated 2 kilometres northwest of Danangou and is subsequently further away from the main road and Ansai town. The two villages are connected trough a small dirt road.

Land use and climate

Due to the fragile environment in the Loess Plateau; effects of erosive soils and heavy agricultural utilisation, research and policies related to agriculture, erosion and livelihood production has been emphasised in the region (Fu et al., 2000; Goubin, 1999). Conversion of cropland to forest and grassland was initiated on large scale in the province in 1999. 34 counties in Shaanxi (including Ansai) were designated pilot counties for the new Cropland Conversion Program (CCP). One of the central features of the implementation of the CCP is the compensation system. Individual farmers convert cropland by planting trees and grass and are compensated through grain, cash and seedling subsidies. Since households participating in the program receive grain subsidies, more of the household labour force can be allocated to non-farm activities. The land use in the area has been classified as slope farmland, terrace land orchard, bush land, woodland, traffic land residential land and sparse wild grassland

(Chen et al., 2001). Only a small patches of natural vegetation remains. The main crops cultivated are millet, potato, corn, sunflower and beans.

Comparing the available slope farmland/person in Danangou watershed 2002 and 1982 show a decrease by 85%, while the available non-slope farmland/person had increased by 41 % (Hageback and Sundberg, 2002). A comparison of the main crop planted in 1982 and 2002 shows a transition from mainly planting millet to a diversification of crops. The major reason for this transition was concluded to be economic, e.g. compared to the 1980s; the farmers today have a possibility to grow cash crops and subsequently increase their income (ibid).

The area of the Loess Plateau is located between the monsoon and the non-monsoon zones, which makes that area sensitive to climate change and variation. IPCC has reported that this part of China is likely to experience a warming of 3°C and increase of precipitation with 7 % by year 2050 (IPCC, 2001). For the area of the Loess Plateau, where the rainfall is low already, an increase in temperature would decrease soil moisture and lead to a severe water-stress condition (Oswald et al. 2004). In Ansai the rainfall has decreased 14% (2.6 mm/year) during 1970-2000, while the temperature has increased almost 1°C over the same period (Figure 3) (Hageback et al., 2004). In both villages, farmers' perception of climatic variability corresponds with the climatic data records. They think it has become warmer, especially during winter (Knutsson et al., 2003; Ostwald et al., 2004).

The socio-economic context

Ranked according to GDP per capita, Shaanxi was China's third poorest province in 1998. In 1996, only five provinces had a higher incidence of poverty than Shaanxi (Démurger et al., 2002). The northern region of Shaanbei, in which the study area is located, is the poorest region in Shaanxi province, with low agricultural production and sparse population. However, the rural population in Shaanxi have since the early 1980s been confronted with far reaching macro-policies. Starting in 1978, the Household Responsibility System contracted land to every peasant household in China on the basis of family size and farmers were given the right to till the contracted land for 15 years. This system replaced the collective agricultural production in so called production teams of the 1960s and 70s. The Household Responsibility System is a kind of tenant-farming system where collective ownership of land is combined with private ownership of capital, household user-rights of land, and the right to dispose of its residual income (Peng, 1999). In 1993, a new policy was adopted that allows land contracts to be extended for another 30 years when existing 15 year contracts expire (Albersen, 2002; Xiwen, 2002). In the study area, the Household Responsibility System was introduced in 1982.

To facilitate reform in the agricultural as well as light industry sectors, China also began to reform its centralized and rigid commerce. More autonomy was granted to wholesale, and retail and food services were transferred or leased to communities or individuals. The agricultural price system was reformed and prices were adjusted up. Additionally, in 1979 the well known *open-door policy* was initiated, including the opening up of geographical regions to foreign investments and decentralization of foreign trade. From being a closed economy in the 1970s, by 1995 China had become the world's 11th largest trading country (Galbraith and Lu, 2000). The average annual growth rate of GDP per capita in Shaanxi Province was 7,8 % between 1979 and 1998, while the agricultural share of GDP decreased from 42,2 % in 1978 to 20,9 % in 1998 (Démurger et al., 1999).

Hageback and Sundberg (2002) reports that in 2002, 79 % of the households in Danangou watershed received income from non farm work. Of these, 18 % started as early as 1982 while 41 % started after 1997. The results from a household economy survey conducted by Bergqvist and Corméry in 2003, covering 70 households in six villages in Ansai county (including Danangou and Leipingta), shows an average total income of 14 433 yuan, of which 75 % (10 855 yuan) is non-farm income and 25 % (3578 yuan) farm income[1].

Analysis of livelihood strategies and capital

In this analysis, the relationship between capitals and strategies are primarily seen as embedded in a vulnerability context, which in turn is influenced by macro-policies. The collected data is analyzed in terms of (a) land use (which in livelihood terminology primarily refers to management of natural capital, but which also can constitute a livelihood strategy in the form of either agricultural intensification or extensification. This analysis is important in order to understand how access to natural capital affects, or is affected by, access to livelihood strategies); (b) household income and expenses portfolios (which can be interpreted both in terms of general livelihood strategies and the more detailed management of different types of capital). The inequality of livelihoods is assessed through (a) inter-village comparison; (b) inter-household comparison based on income levels; and (c) intra-household comparison through strategic gender comparison.

Method and data

Primary data was collected in April 2003 through structured interviews from 22 households in the Danangou watershed. A *household* is defined as a group of persons that share total income and costs. *Income* in the analysis is defined as the total flow of cash, including loan and cash gifts, but exclusive of the estimated value of crops produced for consumption or items given as presents to the household. The reason for excluding the value of crops and items is simply to confine the analysis to real rather than rough estimates. With imperfect crop- and labour markets, the value of crops for consumption cannot simply be estimated to be the same as market prices. Furthermore, since income is related to costs in the analysis, the value of crops for consumption as income is indirectly compensated by the level of expenditure on food. *Expenditure* is defined as the total flow of cash expenditures, excluding the value of household labour. The reason for this definition is the same argument as for income, to obtain as accurate information as possible.

Seven of the interviews were conducted with males, six with females, and nine with both a male and a female representative of the household. 10 of the interviews covered households from Leipingta and 12 from Danangou, reflecting the total number of households in village 1 (22) and village 2 (28). The total sample covers 44% of the total number of households in the two villages. The selection of households was strategic with the aim of having a reasonable representation of income levels, and was guided by local knowledge from a key informant. The items covered by interviews were selected and formulated partially based on a structure adapted from Ellis (2001), partly on knowledge gained from earlier experience of a Chinese research assistant and partly the local knowledge from a key informant.

Six households with a gross income below 6000 yuan for 2002 were defined as poor (four from Leipingta and two from Danangou), 11 households with a gross income between 9000 and 20000 yuan were defined as middle income households (four from Leipingta and 7 from Danangou), and 5 households with a gross income exceeding 23000 were defined as rich (two from Leipingta and three from Danangou). The sample is representative of income levels for each village according to county statistics for the year 2000, as the ratio of middle income

households is higher in Danangou, and that the ratio of poor households are higher in Leipingta. However, there is an overrepresentation of poor and rich households in the total sample compared to county statistics. This might of course constitute a weakness in the sample, but it might also reflect changing patterns in the two villages.

An important methodological problem with a small sample of only 22 households is that extreme values of land use, income, or expenditures accounted for by one single household clearly affect the picture generated for the whole sample. In some cases, extreme values have been excluded from the sample, while in others they have remained. When this choice has been called for, it is clearly noted.

The inter-household comparison of the analysis is confined to a few strategic indicators of gender inequality. The reason for this limitation is that the survey primarily covers household land use and economy, and I didn't want to burden the already comprehensive interviews with an additional account of differences according to age and gender.

An obvious weakness with the analysis is that the data only covers the year 2002. This means that I cannot say anything about whether the patterns observed in the sample are regular or temporary. The reason for limiting the survey to only 2002 is that accurate, detailed and comprehensive information about household land use, income, and expenses through interviews, can only be obtained for the most recent period of time. However, it is my ambition to continue to monitor household land use every year until 2008.

Results from the land use analysis

Village comparison

Table 1 shows a comparison of land use between Leipingta and Danangou[2]. Since one of the households in Leipingta uses a land area that is almost 100 times the average land area use by other households in Leipingta, this household has been excluded from the land use analysis. The first thing to be noted from the comparison is that the total amount of land per household is higher in Leipingta than in Danangou. Second, even though both villages share the feature that less than half of the land was used for crop production, there is a dramatic difference between the villages. In Leipingta, almost 70 % of the household land is planted with trees, either as part or outside the CCP. In Danangou on the other hand, more than 50 % of the household land was not even planted, while 27 % was planted with trees as part of the CCP. It should also be noted that the share of vegetables is higher in Danangou. This is important since (as we will see later) the sale of vegetables makes up 42 % of the total farm income in the sample.

There is a structural difference in access to agricultural land between the two villages. Danangou is situated close to a river and have access to flatland close to the river. The flatland is mostly planted with vegetables for sale and potatoes for personal consumption. On the other hand, the available slope land is often steep and far away from the village. In Leipingta, there is more terraced land close to the houses but less access to water resources for irrigation. In SLA terminology, the structural differences of land use between the two villages indicate differences in access to natural capital and subsequently, access to livelihood strategies. These differences are important in order to understand not only the observed differences in land-use between the two villages, but also differences in terms of income from crops, vegetables and fruit, as we will see later.

Inter-household comparison based on income levels

Figure 4 shows only small differences between rich, middle income, and poor households with regard to land that is actually used for agriculture[3]. This might be a reflection of the egalitarian distribution of farmland in rural China, which has limited the importance of household farmland as an endowment determining inequality (Benjamin & Brandt 1999). However, the fact that poor households have less land planted with potatoes and vegetables, even though the difference is small, is important since these are the two most important cash crops in the area. This is particularly true regarding vegetables, where even a small piece of land in the form of a green house generate significant returns. There is however a clear difference between poor households compared to rich and middle income households with regard to land left unplanted. The poor households in the sample do not leave any land unplanted. This means that it is the rich and middle income households in Danangou that account for all land left unplanted, which indicate a difference in livelihood strategies.

Results from the analysis of income and expenditure portfolios

According to my sample, the average total income for 2002 was 13 897 yuan[4], of which 80,2% was non-farm income. Four very different income sources (self employment, temporary labour, remittances and loan) make up 69% of total income. Of these, self employment is the most important source of income (39, 6 %), which is confirmed by Bergqvist and Corméry's sample, where self employment constitutes 39, 7% of total household income. The two most important expenses are house investments (e.g. physical investments in a house) and housing expenses (e.g. more daily food and clothing expenses). Worth noting is that 52 % of the transport expenses are related to vehicles that are used to earn income. 26 % of all household members in the sample are self employed in some kind of transport business. Expenses related to different kinds of loan are relatively significant (9, 1%). Furthermore, almost 40% of the cultural expenses are directly related to one single marriage in Leipingta.

Village comparison of income portfolios

Despite the fact that Leipingta is situated only about two kilometres away from Danangou, the comparison of income sources indicates important differences (Table 2). The most striking difference is in self employment, which makes up 28% of the total income in Leipingta and almost 48% in Danangou. Second, while the total farm income in Leipingta account for 35 % of total income, the percentage for Danangou is less than 10% (of which 8,5 % comes from vegetables). It should however be noted that almost all of the income from fruit in Leipingta is related to the single household that was excluded from the land use analysis earlier. If we exclude the sale of fruit from the analysis of income sources, total farm income in Leipingta still accounts for almost 24 % of the total income.

Using the SLA to disseminate these results, the differences in self-employment and farm income clearly reflect differences in access to vital capitals. Danangou, being situated close to the main road (physical capital), has closer access to the main economic centre, Ansai town, and is also more accessible for people outside the two villages (social capital). This physical difference between the two villages has apparently generated differences in livelihood strategies, which are not only visible in income from self-employment and agricultural production, but also in terms of loan structure and remittances. The level of income from remittances (especially from migrated household members) is substantially higher in Danangou, indicating a higher degree of social capital, which is used in order to obtain financial capital. Furthermore, even if loans per household are relatively similar in both villages the loan category hides an important difference. While all loans in Danangou in 2002

were given by members of the extended family, nearly 70% of the loans in Leipingta were given by private money lenders with high discount rates. The difference in loan structure indicates, like the higher level of income from remittances, that households in Danangou have greater access to networks of extended families, or social capital, which can be used in order to obtain financial capital. Secondly, when households in Leipingta take loans they put themselves in greater risk than households in Danangou, who have the security of borrowing money from family members. Through the lack of social capital, households in Leipingta are more financially vulnerable than Danangou households.

Village comparison of expenditure portfolios

There are also important differences between the two villages in terms of expenditures (Table 3), which at least partly confirm the structural differences accounted for above. In Leipingta, it should be noted that both remittances and labour are solely related to the household that was excluded from the land use analysis earlier. Furthermore, a substantial part of the cultural expenses are from one wedding. However, since weddings are generally considered to be an important expenditure for a household, and has to be saved for long in advance, the share of cultural expenses to total expenses in Leipingta might be representative even for other years. As much as 31 % of the total expenditures are made up by house investments in Danangou. This source only accounts for 2,2 % in Leipingta. Why is that? Based on the structural differences between the two villages, I argue that the investment in modern houses (physical capital) actually is an investment in social capital. For example, two households in Danangou invested more than 10000 yuan each in tile decorations on the existing house walls. These decorations do not make living more comfortable, but increases social status. Social status is of course important for intra village relations, which is confirmed by the striking differences in the appearances and modernity of houses even in Leipingta, but even more so in social and economic relations with people outside the village. This is confirmed by the fact that even a relatively poor household in Danangou took a loan in order to build a more modern house.

Education expenses per household are more than for times higher in Danangou than in Leipingta. This difference is explained by the fact that several households in Danangou have sent their sons to expensive schools outside Ansai County, while none of the households in Leipingta did so. This further reinforces the pattern of structural differences between the two villages. The aim of investment in education outside Ansai County, which the parents have to pay for themselves, is to increase the likelihood for the sons to find employment outside the village and even outside Ansai county. It is an investment in human capital that will further enhance the opportunities that exist outside the realm of the village.

A detailed comparison of transport expenses show that while the cost per household is higher in Danangou, the share of directly productive investments in vehicles, as income generating activities, is higher in Leipingta. A substantial part of transport expenses in Danangou is related either to vehicles not used for income generation, for example motorcycles that are used to transport household members, or in a few cases, the cost of labour migration to urban centres in Southeast China. Motorcycles increase the appearance of social and economic status, while a tractor does not. Furthermore, migration is obviously a strategy to explore income opportunities far away from village life.

The difference in farm income accounted for earlier is confirmed by a comparison of housing and agricultural expenses. The higher share of agricultural expenses in Leipingta corresponds to a higher share of farm income. The higher share of housing expenses in Danangou, where food makes up 24 %, reflects the fact that less food is produced there. Without the food

subsidies given by the CCP, the difference would probably be even greater. Lastly, there is a clear difference between the two villages in terms of medical expenses. However, I have not found anything to explain this difference. Lastly, it should be noted that total expenditure is higher than total income in the sample. This deficit is however covered by savings from 2001.

Inter-household comparison of income portfolios based on income levels

The first thing to notice from the inter-household comparison in table 4 is of course the inequality of income levels. The total mean income of middle income households is almost three times higher than that of poor households, and the total mean income of rich households is more than seven times higher than that of poor households. There are a number of characteristics of this inequality that need to be commented upon. First and foremost, we should notice that the share of non-farm labour is less than 17 % among poor households, while farm income account for almost 50%. This should be compared to middle income households where the corresponding figures are 62,4 % and 13,6 %. The corresponding figures for rich households are 48,8 % and 24,6 %. Perhaps even more importantly, we should also notice that while the majority of non-farm income in rich and middle income households comes from self-employment, poor households do not have any income from self-employment. This result indicates that poor households are excluded from self-employment opportunities, or in SLA terminology, a particular livelihood strategy. A reasonable explanation for this inequality is that poor households lack the necessary financial capital to invest in self-employment activities. However, it is somewhat surprising that the share of non-farm labour to total income is not consistent with level of income. A contributing reason for this is simply that the major income source of one of the rich households is sale of fruit. By taking over less attractive agricultural land, this household has managed to obtain economy of scale in the production of apples and is the only example (except vegetables in greenhouses) agricultural extensification as a livelihood strategy. Turning our attention to farm income, there is an obvious relationship between income levels and the level of income from sale of vegetables. However, I have not been able to assess whether this relationship is explained by access to suitable land or investment in necessary water resources.

Inter-household comparison of expenditure portfolios based on income levels

Having the results from the village comparison of expenditure in mind, as well as knowing the overrepresentation of Leipingta households in the poor category and Danangou households in the middle income category, we can conclude that while the difference between the three categories in education, house investments, and medical expenses also reflects the structural difference between the two villages, differences in housing, transport, culture, and loan are more directly related to income levels (Table 5). It is clear that you need financial capital in order to invest in education or houses. At the same time we know from the inter-village comparison that the level of investment in education and houses only accounted for 6 % of the total expenditures in Leipingta, while the corresponding percentage for poor households below account for 11 %. When it comes to medical expenses the picture is somewhat more complicated. I therefore conclude that the majority of medical expenses are carried by poor and middle income households in Leipingta. House investments are also related to village belonging and income level. The majority of house investments are related to rich, but also to a lesser extent to middle income households in Danangou.

Housing expenditures are interesting since they are clearly related to income levels rather than village specifics. It is clear that the category housing expenses hide important differences. In the poor category, housing refers primarily to basic need of food and clothes, while in the rich category it refers predominantly to household machines, furniture, TV, mobile telephones and

more expensive clothes. Cultural expenses are also clearly related to income levels. While the importance of cultural expenses in relation to total expenses is very similar across poor and middle income households, it is significantly higher among rich households. Combining the results from the analysis of income sources with the present analysis of expenditures, we can conclude that a clear mark of poor households is the relatively high reliance on farm income and subsequent high share of agricultural expenses to total expenses. Another mark of poor households is that more than 57 % of the total expenses are related to basic needs in the form of housing and medical expenses. Another important aspect is directly productive investments. If we simply assume that education, transport, agriculture, and external labour constitute directly productive investments, they account for 27 % among poor households, 42,5 % among middle income households, and 27,6 % among rich households.

Finally, it should be noted that negative balance of income and expenditure accounted for in the village comparison, is solely attributed to rich households.

Intra-household comparison of income based on gender

Results from analysis of Bergqvist and Corméry's sample indicate three important gender differences that complement findings from my sample. First, comparing the contribution to agricultural production in terms of labour input of 97 men and 90 women, women's share was 64 %. Second, comparing primary occupation of men and women in the same sample shows that while 47 % of the men stated agriculture as primary occupation, followed by migration (21 %) and local self employment (15 %), 75 % of the women stated agriculture as primary occupation, followed by migration (16 %). Only 3 of the 90 women were self employed as a primary occupation. Third, comparing the mean income in yuan per workday of men and women in the different categories of primary occupation, men earn substantially more in each category than women. For example, while men earn an average of 16,4 yuan/workday in agriculture, women only earn 10,4 yuan. While men earn 34,1 yuan/workday in migration, women only earn 12,4 yuan. The primary occupation with the highest return per workday among men was self employment (42,8 yuan/workday), which most of the men and almost 97 % of the women were not represented in.

My sample shows two important indicators of gender inequality, which both confirms the pattern found in Bergqvist and Corméry's sample, that women to a large extent are excluded from the income-generating activities with the highest returns. First, looking at the total sample, only between 1 and 2 % of the total non-farm labour income is generated by women, and they do not contribute anything to income from self-employment, which is the most important source of income in both villages. The few women that do contribute to non-farm labour income do so primarily as temporary labourers. Second, remittances from women only account for 15 % of total income from remittances.

With regard to income from non-farm labour, there is no conclusive difference between the two villages in the sample, primarily because so few women contribute to this income category. However, there is a difference with regard to remittances. As mentioned earlier, the level of remittances is substantially higher in Danangou and Leipingta. Knowing that women tend to be excluded from high return income sources, it is not surpising that the share of remittances from women is higher in Leipingta (28,9 %) than in Danangou (14 %).

Looking at the same two indicators of gender inequality as above, but now based on household income levels, it should be noted that the highest share of women's contribution to non-farm labour income is among poor households (7 %). This is simply because poor

households are excluded from income generated by self employment. The same pattern is visible with regard to remittances. Poor households have the highest share of remittances from women (39 %), followed by middle income households (33 %) and lastly rich households (0%).

The pattern of gender inequality accounted for here is supported by studies on gender inequality in other parts of China (Entwistle et al., 1995; Beaver et al., 1995; Hare, 1999; Benjamin and Brandt, 1999). The development and expansion of business (self employment) in China's rural areas is led by men, while women become increasingly specialized in agricultural production. In SLA terminology, this means that there is a gender inequality of access to particular livelihood strategies. Additionally, women in the study area, as in China in general, tend to earn substantially lower wages than men when they succeed in entering the non-farm labour market.

Concluding discussion

Following the guiding questions for working group 18, I wish to end this paper with the following concluding discussion:

- The introduction of economic reforms, the Household Responsibility System, and the Cropland Conversion Programme has clearly changed the availability of livelihood strategies in the two neighbouring villages Danangou and Leipingta. This development has implications for the building and combination of different capitals. It is often claimed that the aim of diversification or rural household income is to spread risks, to decrease vulnerability. However, since diversification demands investments in different sets of capital than before, it is hard to conclude from my analysis whether diversification actually decreases vulnerability or not. What my analysis definitely indicates, is that the availability of livelihood strategies differs between the two neighbouring villages, between households, and between men and women. This means that vulnerability and adaptive capacities differ, even in a very local context.

- In order to adopt new livelihood strategies, rural households have to be connected to the changing conditions of the outside world. The greater accessibility to the main road by households in Danangou in relation to households in Leipingta has implications for the structural inequality of access to capital. For example, through the lack of social capital, households in Leipingta are more financially vulnerable than Danangou households. My analysis also indicates a gender inequality in access to livelihood strategies, where men are more connected to the outside world than women.

- The difference between income groups in productive investments indicates three different strategies based on income levels. While poor households are forced to limit productive investments in order to cover basic needs, middle income households are free to invest more productively, while rich households seem to invest in activities that are only indirectly productive, such as luxury household items, modern housing and culture. In SLA terminology: poor households are struggling to make ends meet and what is left after covering basic needs is invested in human and natural capital, while middle income families to a larger extent are investing to increase financial capital, and rich households invest in activities and items that increase social capital.

- The analysis shows that even though SLA is useful as a conceptual framework, more work is needed in order to transform SLA from a conceptual to an analytical framework. Particular attention has to be given to (1) the relationship between access to livelihood strategies and access to and composition of different capitals. (2) A more detailed definition and categorization of livelihood strategies. The present differentiation between agricultural intensification, agricultural extensification, diversification, and migration hides as much as it reveals. (3) The transfer mechanisms between different capitals. Given a local context, level of income, gender etc., which capital/capitals are most valued? How do we assess and compare values of different capitals? Which capitals can be turned into other capitals? What limitations are there in transfers between capitals?

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Figure 1): the sustainable livelihoods framework, adopted from www.ceciasia.org/utthan/sla.htm

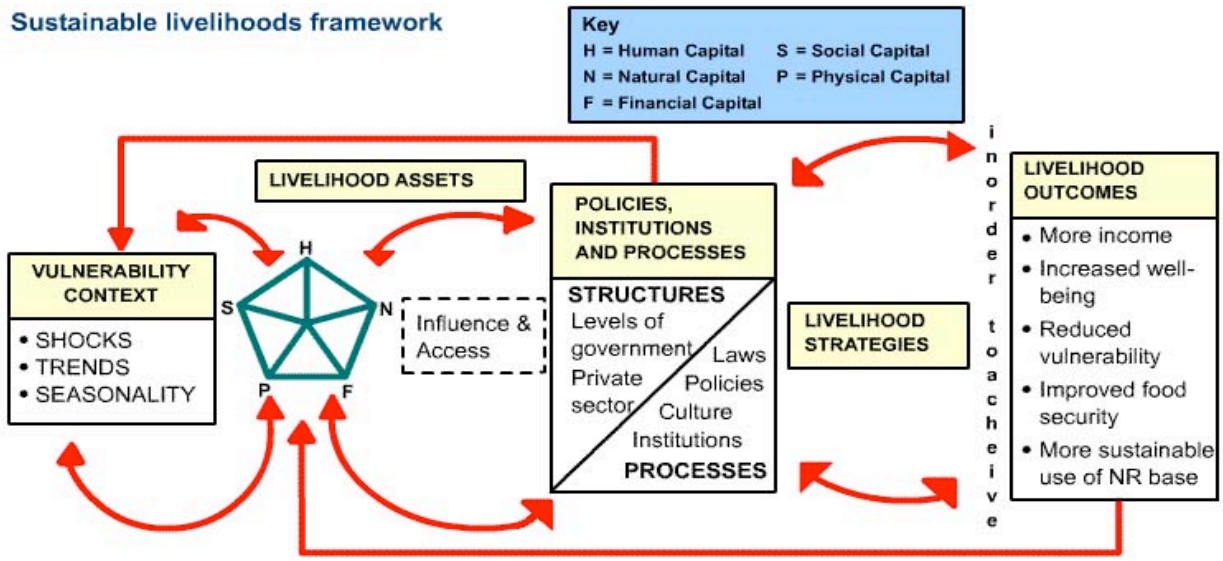


Figure 2: a) The area of Shaanxi Province and the Loess Plateau. b) Shaanxi Province with county seat Town Ansai indicated. Adopted from Ostwald et al. 2004.

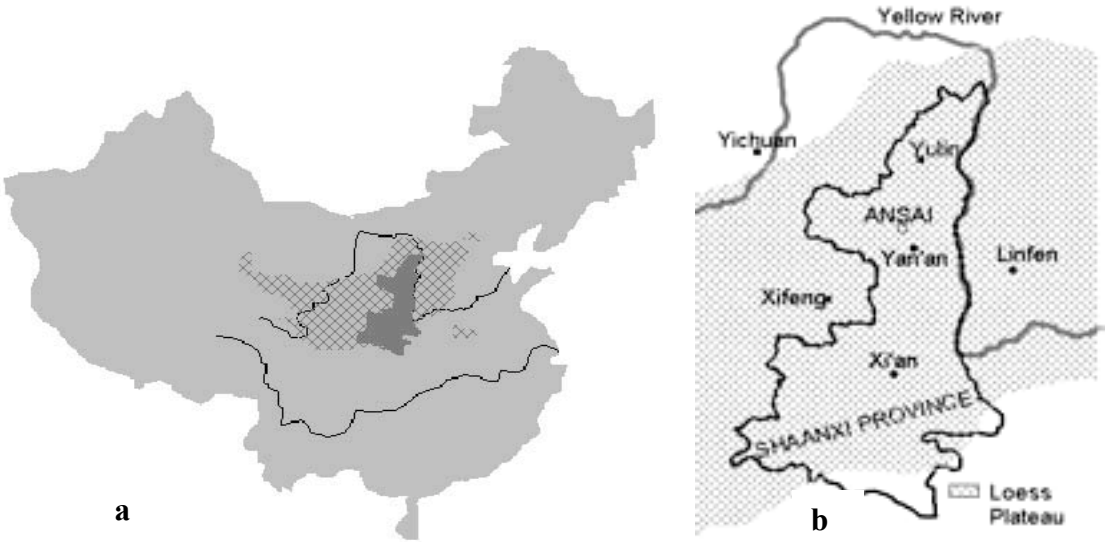


Figure 3): Ansai Precipitation and Temperature 1971 – 2001. Adopted from Knutsson et al. 2003.

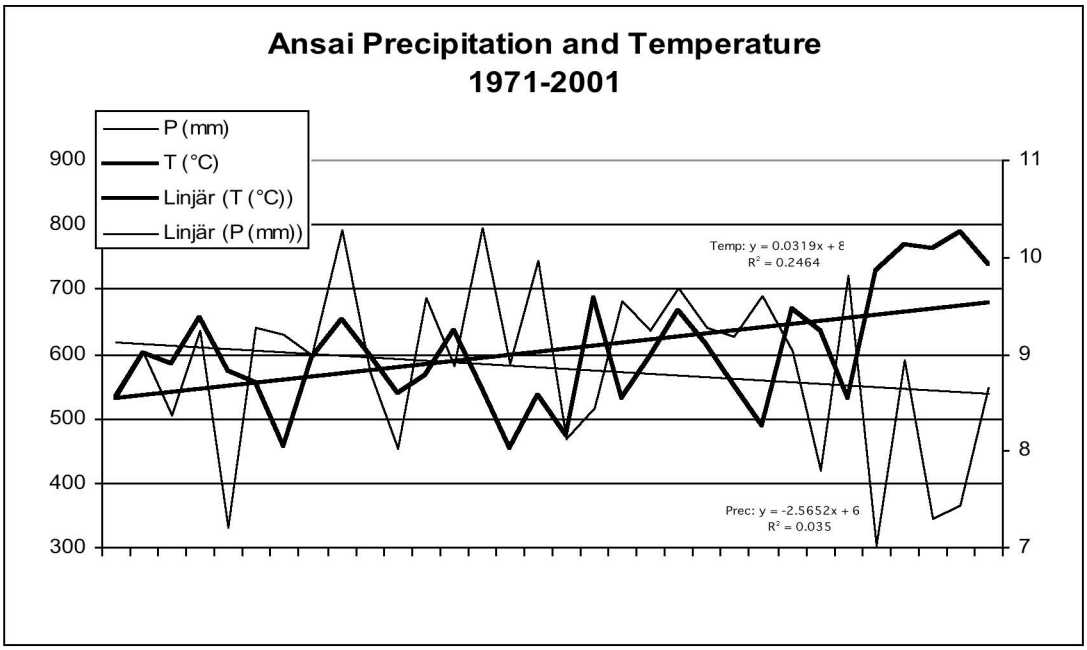
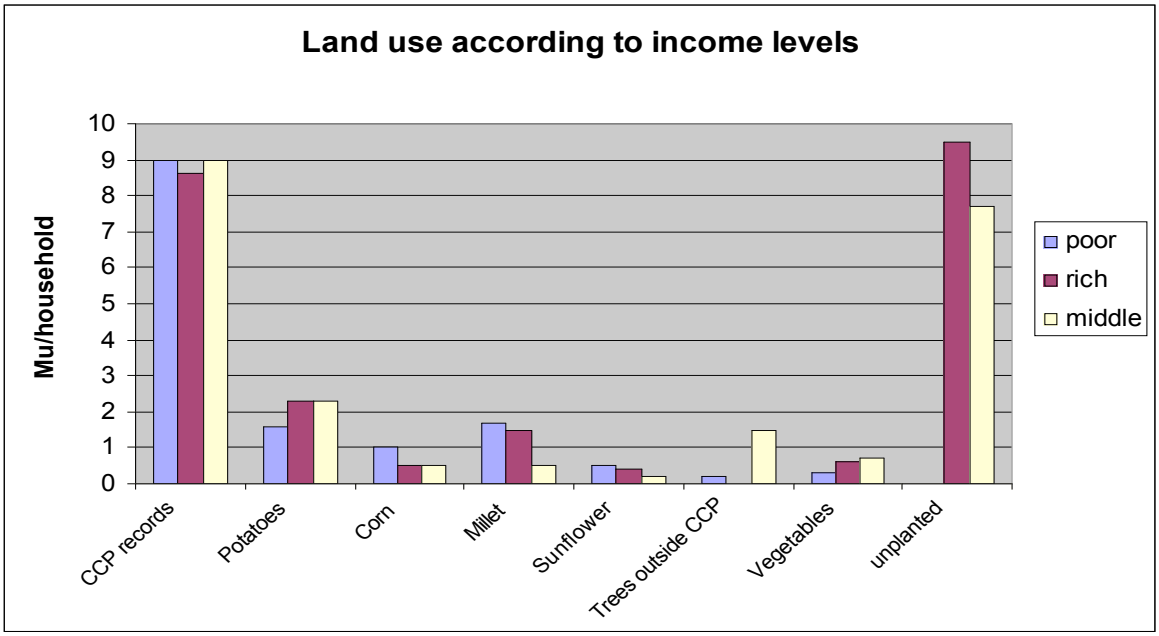


Figure 4): Land use in Mu/household according to income levels



(Total number of households: 21)

Table 1): Village comparison of land use in mu/household and %

Land use	Leipingta		Danangou	
	MU/HH	%	MU/HH	%
Land converted as part of the Cropland Conversion Programme	14	61,4	5,2	27,1
Potato	2,9	12,7	1,5	7,8
Corn	1,4	6,1	0	0
Millet	0,8	3,5	1,3	6,8
Bean	0,8	3,5	0	0
Sunflower	0,8	3,5	0	0
Trees planted outside the Cropland Conversion Programme	1,8	7,9	0,2	1
Vegetables	0,3	1,3	0,7	3,6
Land left unplanted	0	0	10,3	53,6
TOTAL	**22,8**	**100**	**19,2**	**100**

(Total number of households: 21)

Table 2): Village comparison of income portfolios in Yuan per household and percent.

Income sources	Village 1		Village 2	
	Yuan/HH	%	Yuan/HH	%
Temporary labour	1195	8,6	1575	9,2
Regular labour	1020	7,3	566,7	3,3
Self employment	3900	27,9	8158	47,6
Total non-farm labour	**6115**	**43,8**	**10299,7**	**60,1**
Crops	1051,2	7,5	91,7	0,5
Vegetables	1220	8,7	1441,7	8,4
Fruit	2050	14,7	0	0
Livestock	407,1	2,9	92,5	0,5
Payment from CCP	150	1,1	13,3	0,1
Total farm income	**4878,3**	**34,9**	**1639,2**	**9,5**
Remittances	268	1,9	2335,2	13,6
Income from loan	0	0	666,7	3,9
Loan	1970	14,1	1666,7	9,7
Cultural income	655	4,7	416,7	2,4
Rental income	78	0,6	125	0,7
Total other non-farm income	**2971**	**21,3**	**5210,3**	**30,3**
TOTAL	**13964,3**	**100**	**17149,2**	**100**

(Total number of households: 22)

Table 3): Village comparison of expenditure portfolios in Yuan/household and %.

Sources of expenditure	Village 1		Village 2	
	Yuan/HH	%	Yuan/HH	%
Educational expenses	640	3,9	2657,5	14,4
House investments	370	2,2	5708,3	30,9
Housing expenses	2518,8	15,3	3744	20,3
Transport expenses	1880	11,4	2515,9	13,7
Medical expenses	1322	8,0	401	2,2
Cultural expenses	2520,4	15,3	1305	7,1
Remittances	2000	12,2	83,3	0,5
Agricultural expenses	1407,9	8,6	586	3,2
Expenses from loan	1790	10,9	1423,3	7,7
Labour	2000	12,2	0	0,0
TOTAL	**16449,1**	**100,0**	**18424,3**	**100,0**

(Total number of households:22)

Table 4): Inter-household comparison of income portfolios based on income levels in Yuan/household and %.

Income sources	Poor (Nr: 6)		Middle (Nr: 11)		Rich (Nr: 5)	
	Yuan/HH	%	Yuan/HH	%	Yuan/HH	%
Temporary labour	591,7	12,5	1390,9	9,9	2400	7,0
Regular labour	200	4,2	527,3	3,8	2000	5,8
Self employment	0	0,0	6809,1	48,7	12400	36,0
Total non-farm labour	**791,7**	**16,7**	**8727,3**	**62,4**	**16800**	**48,8**
Crops	1753,3	37,1	332	2,4	1254	3,6
Vegetables	216,7	4,6	1300	9,3	2780	8,1
Fruit	33,3	0,7	27,3	0,2	4000	11,6
Livestock	227,5	4,8	196,9	1,4	330	1,0
Payment from CCP	113,3	2,4	38,2	0,3	112	0,3
Total farm income	**2344,1**	**49,6**	**1894,4**	**13,6**	**8476**	**24,6**
Remittances	467	9,9	1427,3	10,2	2440	7,1
Income from loan	333,3	7,0	181,8	1,3	800	2,3
Loan	700	14,8	1227,3	8,8	4400	12,8
Cultural income	8,3	0,2	363,6	2,6	1500	4,4
Rental income	83,3	1,8	161,8	1,2	0	0,0
Total other non-farm income	**1591,9**	**33,7**	**3361,8**	**24,1**	**9140**	**26,6**
TOTAL	**4727,7**	**100,0**	**13983,5**	**100,0**	**34416**	**100,0**

(Total number of households: 22)

Table 5): Inter-household comparison of expenditure portfolios in Yuan/household and %.

Sources of expenditure	Poor (Nr: 6)		Middle (Nr: 11)		Rich (Nr: 5)	
	Yuan/HH	%	Yuan/HH	%	Yuan/HH	%
Educational expenses	233,3	6,7	2010,9	14,9	2954	6,8
House investments	166,7	4,8	1090,9	8,1	11840	27,4
Housing expenses	1012,6	29,2	2187,1	16,2	7996,2	18,5
Transport expenses	45	1,3	3015,7	22,4	3110	7,2
Medical expenses	985,3	28,5	920	6,8	400	0,9
Cultural expenses	215	6,2	921,3	6,8	5888	13,6
Remittances	0	0,0	0	0,0	4200	9,7
Agricultural expenses	656,4	19,0	689,4	5,2	1918	4,4
Expenses from loan	150	4,3	2643,6	19,6	1000	2,3
Labour	0	0,0	0	0,0	4000	9,2
TOTAL	**3464,3**	**100,0**	**13478,9**	**100,0**	**43306,2**	**100,0**

(Total number of households: 22)

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[1] 1 USD = 8,3 Yuan (2004-05-12)
[2] 1 MU = 0,0667 hectare
[3] Again, the extreme values of one household in village 1 have been removed from the sample
[4] I have excluded loans as a source of income during 2002 to enable comparison with Bergqvist & Coméry's results