Migration and Poverty Alleviation in Rural China:

Impact of WTO Accession

A Proposal

Submitted to

Modelling and Policy Impact Analysis (MPIA) Research Network under

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1. Current Situation and Identification of Questions

Following a broad program of rural economic reforms beginning in the late 1970s, great efforts have been made by the Chinese Government to alleviate rural poverty and to reduce the widening income gaps between the more developed coastal areas and the less developed inland areas. Various means of poverty alleviation have been attempted with remarkable achievements in reducing poverty. Based on the government’s rural poverty line (about $0.66 per day), official estimates indicate that poverty incidence in rural China has declined from 33.1% in 1978 to 3.4% by 2000 (NSB, 2001). In spite of such a significant decline in rural poverty over the past two decades in terms of poverty incidence, the absolute number of population remaining under poverty is still quite large. And the marginal return to poverty reduction is diminishing. According to a report jointly issued by the Leading Group for Poverty Reduction (LGPR), UNDP and the World Bank, about 11.5% or some 106 million rural people still remained in poverty based on the $1 per day per capita criteria (LGPR, UNDP and the World Bank, 2000). Of these remaining poor, they are largely concentrated in remote areas, especially the less-developed vast western regions.

In late 2001, China acceded to the WTO after 15 years of negotiation. To fulfill the legal obligations China has committed in its WTO Protocol of Accession, some substantial economic policy reforms will be introduced in the next few years. And it has been quite obvious that such reforms necessarily involve structural adjustments. While the economy as a whole may gain from those adjustments, losses can occur for some groups of people. Of particular concern is that farm incomes may fall, exacerbating rural-
urban, inter-regional and within region income disparities and possibly adding to rural poverty (Anderson et. al., 2002).

Income growth has been recognized as one of the important contributors to poverty reduction. Since the late 1970’s, the sources of income growth among rural households have been diversified from farm to off-farm activities. The share of farm household income from non-farm sources has risen steadily, from 17% in 1980 up to 47% in 1999. Rural industrialization plays a very important part in absorbing rural labor force. The share of rural labor force involved in non-agricultural sector has increased from 7% in 1978 to 35% in 1999. Rural labor mobility may play a dual role: increasing rural incomes and lowering inequality. It is reasonable to say that future sources of income growth in rural households may rest mainly with structural changes in the agricultural sector and development in non-agricultural sector, especially with off-farm income generated by migration.

There are many issues needing to be addressed in the coming phase of reforms under WTO Protocol. However, some of the central questions that concern us most are: how the macro-economic policy shifts affect rural households, especially the rural poor? In other words, the questions need to be answered are: through which way that the macro-impact can be transmitted to rural households or individuals? How the government policies need to be further adjusted to avoid, to a maximum extent, adverse impacts that WTO might bring to rural poor? Other related question is: how rural household income could be further increased under the global economic environment? A recent study by Zhang, et. al. (2002a) discovered that throughout the entire 1990s, majority of rural households’ income increase were realized through off-farm employment participation.
Of which, migration has played the most significant role regardless rich or poor. The
direct question for us is: will this trend be continued after WTO accession? How could
we project the possible impact on migration in poor areas? Various studies by Fan, et. al.
(2002); de Brauw et.al (2002); Zhang, et. al. (2002b) have shown that government
policies, such as education investments, the development of rural infrastructure, the
development of rural non-farm sectors, have contributed significantly to rural non-farm
employment, especially migration; and to household income increase through wages. So,
relevant question need to be addressed is how could government provide better
environment for migration, especially pro-poor migration?

2. Core Objectives of the Proposed Research

In light of the problems addressed above, we propose to conduct a research on
migration and poverty alleviation in post-WTO China. The overall objective of the
proposed research is to build an objective, quantitative and solid analytical framework for
household labor allocation and linking household model analysis to sectoral or national
policy analytical framework. Specific attention will be paid to how migration decisions
are made at household level and how the macro-economic environment can have impacts
on such household decisions. The ultimate goal of the study is to be able to model how
such household decisions contribute to household welfare change, especially household
income change. We believe that, this research bears important relevance to informing
policy formulations with a hope to accelerate poverty reduction in rural China.
3. Scientific Contribution of This Research

Despite the valuable contribution of those earlier works in areas of poverty alleviation; rural non-farm sector development and off-farm employment; and recent works on WTO impacts on agricultural sector and rural economy, the WTO and poverty debate in China is still very much at a formative stage. For example, much of the past rural off-farm employment studies were focused on assessing how well the rural labor markets have been developing? Although discussions have been carried out on gender dimensions of labor market development, little has been said on how migration can help with poverty alleviation in rural China. On the other hand, many of the past WTO impact studies have been focused on how the further economic development under WTO could have impacts on commodity supply and demand. Furthermore, the work done so far has been mainly concentrated at macro-level or regional level studies. Therefore, the key dimensions of the debate on WTO impact and rural individuals, especially rural poor have yet to be fully articulated.

There are several features of the proposed research that promise to enhance its value in the policy-making and academic community. First, the proposed work will be able to filling the gap on how to link macro-policies to micro-impacts. In particular, the study will extend from existing WTO impact studies at macro and regional levels and sectors to households and individuals. Secondly, the proposed work will be able to look specifically how the post WTO environment can facilitate migration of rural population and furthermore how this can contribute to poverty alleviation in rural areas? Thirdly, it is expected that this proposed study can develop a modeling tool that can capture macro
policy impact at micro level and contribute to methodological development in poverty study.

4. Methodology and Data

The scope of the study The impacts of WTO accession on China’s economy have been well discussed at both national and regional levels. The focus of this study will be mainly on the WTO impact related to agriculture and rural sector. In its WTO Protocol of Accession, China has agreed to have no agricultural export subsidies, and to limit its domestic support to farmers to 8.5% of the value of production (compared with 10% for other developing countries). The import market access commitments China has made to WTO members look substantial on paper. Tariff rate quotas (TRQ) will be retained only on wheat, rice, maize, edible oils, sugar, cotton and wool. So, the simulation of WTO impact on agriculture will be concentrated on the above areas. Of course, the WTO impact on other sectors will be captured by the CGE modeler and others and will not be covered in this proposed research.

Approach It is not the intention of the proposed project to cover all the aspects of WTO impacts from macro to micro-levels. Rather, the main focus of the study will be on household and individual level analysis. But, it will be built on the previous as well as current work that CCAP and her collaborators have done/are doing. More discussion on the previous work will be followed later.

Since the project is only able to get limited fund, it is also not the intent of the proposed study to build up a CGE-based migration model. Instead, the project will use an already developed sector model (to be discussed in the next section) as the baseline, and
will only focus on micro-level model building, i.e., a labor migration model. By linking these two models together through certain transmission mechanisms, we will be able to look at how the macro-environment can possibly affect communities and individual groups and what would be the possible measures to enhance/eliminate the positive/negative impacts. The logical framework of the study can be seen from Figure 1.

**Methodology to model migration**

According to the few general equilibrium micro-simulations with true data (Tongeren, 1994; Cogneau, 1999; Cogneau and Robillard, 2000), neglect of general equilibrium effects, as in standard micro-simulations, and the assumption of a fixed intra-group income distribution, as in standard CGE models, both strongly bias results (Cockburn, 2001). The complexity of CGE-based micro simulation models have evolved to address this and come to be a common tool for researchers to simulate the impact of macroeconomic policies on income distribution and poverty in developing countries, for example, Thorbecke (1991) for Indonesia, Morrisson (1991) for Morocco. More recently, Cockburn (2001) conducted an exercise for Nepal using household survey in collection with the IDRC’s MIMAP program.

The principle of a CGE micro-simulation model is to construct a CGE model with as many agents as there are in the survey in order to keep all the information about the heterogeneity with regards to endowment and consumption. Compared with traditional CGE models, CGE-based micro-simulation model allows macro-micro simulation practitioners to analyze intra group inequalities in poverty studies, which has been found to explain more than half of total income variance. An advantage of CGE-based micro-simulation models in poverty analysis is that it is possible to endogenize the poverty line
and the intra group distribution. However, as admitted by many practitioners, the large amount of work and statistical information that it requires, compared to the traditional CGE Model, casts doubts on the practical aspect of such modeling (Decaluw et al, 1999).

Given the labor market conditions in China, this proposed research prefers to use “New Economics of Labor Migration” model (NELM model hereafter). As it has been discussed by various studies, the NELM model hypothesizes that migration decisions are taken not by isolated actors, but by larger units of related people, typically households or families; and that people act collectively not only to maximize income but also to minimize risks and loosen constraints created by a variety of market failures in developing countries, such as China. These market failures would include missing or incomplete capital and insurance markets (Taylor, lecture note).

NELM theory implies new migration determinants (households capital constraints, risk, and community-level variables), as well as new potential impacts (positive effects of remittances on family production, but also negative impacts of losing family labor to migration).

For this particular study, NELM models will be used to estimate household labor migration decisions in China’s rural area with particular attention being paid to poor households.

Empirically, this research will use methods adapted from Rozelle et.al (1999) where household production (Eq1), migration (Eq2) and remittances (Eq3) decisions are recursive with migration and remittances are endogenously determined. Mathematically, they are presented as follows.
Constrained production equation (Yield response equation) assumes that migration and remittances affect household production:

\[ Y^c = \gamma_0 + \gamma_1 M + \gamma_2 R + \gamma_3 Z_y + \varepsilon_y \] ........................ (1)

Where \( Y \), \( M \) and \( R \) represent yield, migration and remittances, respectively; and \( Z \) is a vector representing other production related factors.

Remittances are generated by allocating family members to labor migration. Given migration, they are shaped by human capital and household characteristics affecting migrants’ success and motivation to remit:

\[ R = \alpha_0 + \alpha_1 M + \alpha_2 Z_R + \varepsilon_R \] ........................ (2)

Migration is represented in reduced form as:

\[ M = \beta_0 + \beta_1 Z_M + \varepsilon_M \] ........................ (3)

In the above three equations, \( Z \)s are vectors including not only the household demographic, human- and physical-capital variables, and the community-level variables, but also \textbf{prices} of commodities and inputs.

**Analytical methods**

The Center for Chinese Agricultural Policy (CCAP) of the Chinese Academy of Sciences has a long established record of studying the trade liberalization issues, especially in grain sector in China. In the last ten years or so, CCAP has developed a China Agricultural Policy Simulation Model (CAPSiM hereafter). This is basically a sector model that can make supply and demand projections for China’s agricultural sector. In this model, a series of important structural factors and policy variables are accounted for explicitly, including urbanization and market development,
labor market development on the demand side, and technology, agricultural investment, environmental trends, and institutional innovations on the supply side.

While using the sectoral model to capture the macro impacts, other aspects of the trade liberalization impacts at micro level will be captured by rural household response model analysis through certain transmission mechanisms. Such information could include econometrically estimated the price transmission from the national to local and farm levels, wage differences, etc. Also, specific demand and supply elasticities can be built up for different groups of farmers investigated. With the changes in the prices as well as other factors, the production/labor supply and consumption responses of farmers to these changes can be simulated for each group of farmers with different income levels. The poverty impacts of such changes can be easily calculated afterwards.
Figure 1. A general framework for Impact of WTO on rural household migration/poverty and policy interventions analysis.
Data

Through past few years of rural surveys, CCAP has been able to accumulate several first-hand household data sets. More importantly, data contain very detailed individuals’ employment information. This will enable the proposed study to develop its analytical model with a ready data set. As it was mentioned above, the CAPSiM modeling group has been able to have a complete data set at national and regional levels. So, it is possible to combine two different data sets and make the link between macro and micro models.

5. Previous Work

The Center for Chinese Agricultural Policy (CCAP) of the Chinese Academy of Sciences has a long established program on poverty and rural development studies. In the past few years, the program has been able to get financial support to conduct various studies along the line.

Our work on rural labor market development dates back to the beginning of the Center’s establishment in late 1995. The first piece of work of this kind was a case study in Jiangsu province (Zhang et. al., 1998). In this study, efforts were made to understand the evolution of rural labor markets, and to identify determinants of off-farm employment in rural China between 1988 and 1996. Particular attention was paid to female labor participation in rural labor market. Recently, a project was carried out jointly between CCAP, University of California at Davis and University of Toronto on land tenure and household employment studies. A big household data set, especially employment history of household individuals were collected. For each year between 1981 and 2000, the questionnaire tracks each individual’s participation in off-farm employment, the main
type of off-farm work performed, the place of residence while working (within or outside the village), the location of off-farm employment, and whether or not each individual was self-employed or wage earner. The questions were asked for both males and females. So far, two papers related to rural off-farm employment and migration have been developed (de Brauw et. al., 2002; Zhang et. al., 2002a), which may serve as the bases for this study.

Works related to poverty studies have also been carried out intensively at the Center. These include the work related to assessment of the impact of government poverty alleviation policies (Zhang, et. al. forthcoming), the impact of public investments, including poverty investment on poverty reduction, growth and regional inequality (Fan, et. al., 2002). Also, research interest has been extended to how micro-credit program can have impact on poverty alleviation through off-farm employment (Li, et. al., forthcoming). All these works have accumulated rich policy information, as well as data set and can partially serve the needs of this proposed study.

Furthermore, the macro level modeling work (CAPSiM) is still continuing and it is planned that further work on this will be focused on WTO impacts. It is also expected that future efforts of the modeling go to how to make the model comparable with micro level studies, which is exactly what this proposed study wants to achieve.

Having said above, we are aware that WTO or trade liberalization impact goes beyond one sector. Any sectoral model will not be able to provide a complete picture of the whole economy. However, one background information that is worth mentioning here is: CCAP is doing collaborative research work with various international research institutions (e.g. IIASA) and other country research teams (e.g. LEI of Netherlands) on the impact of WTO. During these collaborations, CCAP only works on the partial model
but linking our model to CGE and GTAP models that developed by our collaborator. Through this iterative process, some relevant information would be generated, which might be of interest to us. So, this proposed research will NOT consider using CGE model but making use of linkages to others to achieve the proposed goal.

6. Capacity Building

The human capital building part of the project has the following specific objective: improve the research capacity of CCAP staff; and build linkages between CCAP and other institutions doing agricultural economics research and policy analysis in China; and strengthen China’s research capacity. The ultimate aim of this set of activities is to increase the profile of CCAP and build its policy influence on poverty alleviation.

7. Information Dissemination

The project will produce several papers and reports. Papers based on the analytical work will be published in scholarly journals in English and in Chinese. Several policy briefs will also be released that address specific issues about China's rural labor market and poverty alleviation.

At the end of the project, a policy seminar will be held. It will be called "Migration and Poverty Alleviation in Rural China: Impact of WTO Accession." This seminar will have a policy focus. The project team will present the results of project (and own individual research interests), and sum up the experiences and lessons learned during the implementation of the project to key policy makers in China's agricultural and poverty alleviation organizations. During the one-day seminar, discussions will be held to
summarize and comment on the papers. The briefs will have been printed out prior to the seminar and distributed to all who participate.
Key references: