

Research Proposal

The Interaction of Health, Education and Employment in Western China

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Executive Summary

This research proposal is concerned with the linkages between health, education and labor market outcomes in developing countries. Past research has provided some information on relationships between these three socioeconomic outcomes, but much remains to be learned. The setting for this study is Gansu province in China, one of the poorest provinces in China. Detailed data were collected for Gansu province in 2000 on a sample of two thousand children age 9-12. The research proposed here will be based on a comprehensive re-survey of those children in 2003.

The research has the following four objectives:

- Document the disparities in the provision of health and education services, and in health and education outcomes, in Gansu province, and how these disparities changed from 2000 to 2003;
- Estimate the determinants of educational performance (measured in many different ways), with special attention given to the impact of child health status on educational performance;
- Estimate the impact of educational performance on the transition to the labor market and on labor market performance; and
- Estimate the direct and indirect (via education outcomes) impacts of children's health on their the transition to the labor market and on labor market performance.

While much research has been done on these issues, the literature suffers from three problems. First, almost all of the existing research focuses on the general population of a given country instead of focusing on subpopulations that are more likely to be poor. Second, virtually

all of the research to date uses a small number of very simple measures of human capital, with respect to both health and education, and as such it cannot explore the roles played by different kinds of human capital, or their interactions. Third, most of the existing studies have serious methodological weaknesses that raise doubts about the accuracy of the estimated relationships.

The data collected in 2000, when combined with new data to be collected in 2003 (and follow-up data to be collected in 2004 and 2005), will permit research that can overcome all of these problems. First, the data will come from one of the poorest provinces in China. Second, the data collected in 2000 and 2003 will measure many dimensions of both health and education outcomes. Third, the data collected will allow for the use of a broad range of empirical methods; for example, two randomized evaluations will be conducted and panel data will be available for all children.

This research proposal requests \$271,000 from the World Bank's Research Committee to pay for both data collection and analysis. These funds will be combined with \$135,000 that has already been obtained elsewhere (Fogarty Foundation and Spencer Foundation) to finance the total costs of the project. The work will begin in the summer of 2002 and be completed in December 2005.

The audiences for this project include the international public policy community (of which the World Bank is one member), the government of China (and the governments of other low income countries), and academic researchers. The results will be disseminated in the form of seminars (in China, at the World Bank, and elsewhere), working papers, and published journal articles.

I. The Motivation and Context

A. The General Issue

A growing body of research in the social sciences demonstrates the close relationship between human capital and incomes in developing countries. While human capital is sometimes narrowly defined in terms of education, in recent years health has increasingly been recognized as a key component of human capital (UNDP 2000). Researchers have examined the impacts of health and education on labor productivity, as well as the effects of income on health and education (see Behrman and Deolalikar, 1988, and Strauss and Thomas, 1995, for reviews). Studies have also examined the effects of health on education and of education on health (Behrman and Wolfe 1989; Glewwe, 1999a; Glewwe, Jacoby and King 2001; Kjellstrom, Koplan, and Rothenberg 1992).

The role played by human capital is of particular interest to the World Bank, because the Bank has financed, and continues to finance, a large number of projects in developing countries that aim at improving health and education outcomes. In education, the Bank has provided over \$30 billion in loans since the 1960's, and is currently financing 164 education projects in 82 countries. Its lending on health is on a similar scale, with new lending in health, nutritional and population of about \$1.3 billion per year. In China, the Bank lent \$414 million in the 1990's for four health and education projects (Education and Development in Poor Provinces, Basic Education in Poor and Minority Areas, Rural Health and Preventive Medicine, and Rural Health Workers), and new lending is being planned for the first decade of the new millennium (e.g. \$104 million for a tuberculosis control project). Given the Bank's resource constraints, and the resource constraints faced by other donors, a better understanding of the impact of these human

capital investments on health and education outcomes, and on employment outcomes is of critical importance to the World Bank.

Human capital outcomes are of particular importance in rural China, where over 800 million Chinese live. Disparities are growing in access to health and education services in rural China. Fiscal decentralization and the diminishing role of rural collectives have resulted in an increasing private share in health expenditures and growing inequities in access to health services (Henderson et al., 1994; West and Wong, 1995; Bloom and Gu 1997; Yu, et al. 1997). Use of preventive health care services has declined as costs for those services have risen, and outbreaks of preventable diseases have occurred with greater frequency as fees for immunizations have increased (Gu, et al. 1995; World Bank 1997). Moreover, evidence indicates that child malnutrition increased in rural areas in the late 1980s and early 1990s (World Bank 1997), and recent estimates suggest that over 40 percent of children in poor rural areas are stunted in their physical growth (Park and Zhang, 2000). This slippage in performance has led the World Bank and the UNDP (2000) to identify health and nutrition as priority areas for China's poverty alleviation strategies in the 21st century.

Similarly, decentralization in educational finance has increased the private costs of schooling. This has been accompanied by increased educational disparities between urban and rural areas and between coastal and interior provinces (Davis 1989; Tsang 1994; Hannum 1999b). Many rural children in poor areas fall short of the national goal that each child complete at least nine years of education (Hannum 1999a, 2002; Brown and Park 2002). These policy shifts in health and education raise important questions about rural children's welfare, particularly in the rural areas of the underdeveloped interior provinces.

Despite the fact that the majority of health and education access problems are in rural areas, and that the majority of China's children reside in rural settings, detailed studies of rural children's health and schooling in China are rare. Health studies have been primarily descriptive, and none have systematically examined the joint interactions of health, education, and income. Surveys sponsored by the Ministry of Health have facilitated the monitoring of the nutrition and health status of the population (e.g., China Center for Preventative Medicine and State Statistical Bureau, 1998), and the well-known China Health and Nutrition Survey, a panel survey of households in eight provinces conducted in 1989, 1991, 1993, 1997, and 2000, has documented health outcomes and some of their socio-economic correlates (Popkin, 1994; Popkin et al, 1993, Zhai et al., 1995). However, these datasets contain little information on educational outcomes. Moreover, they do not target a specific cohort of children, and they lack randomized trials to identify more convincingly the effects of specific policies on outcomes of interest.

Large-scale studies of education in China have been even more limited. Analyses to date do little more than describe disparities in enrollment or attainment by location of residence, poverty status, gender, and/or ethnicity. Examples of this literature are Hannum and Xie 1994; Zhang 1998; Brown and Park 2002; Hannum 2002.

Much research on human capital has been done in other developing countries, but the research to date suffers from several limitations. First, while much of the interest in this relationship centers on the role that human capital could play for poor and otherwise disadvantaged households, almost all of the current research focuses on the general population of a given country instead of focusing on subpopulations that are more likely to be poor. Second, almost all of the research in this area uses a small number of very simple measures of human capital, both in terms of health and education, and as such that research cannot explore the roles

played by different kinds of human capital, or their interactions. Third, most of the existing studies have serious methodological weaknesses that raise doubts about the accuracy of the estimated relationships.

The research proposed here addresses each of these three deficiencies in the literature. First, it focuses on one of the poorest areas of China, Gansu province. In 2001 Gansu ranked 29th out of 31 provinces in terms of per capita income. A recent World Bank report (World Bank and UNDP, 2000) shows that 23% of the population in Gansu is poor, compared to 6.5% for China as a whole. That report also states that “the educational, health and nutritional status of China’s remaining absolute poor is deplorable” (p.70). Second, the data used will have multiple measures of human capital, including both health and education outcomes, many of which have not been collected in past household surveys of poor populations in developing countries. Third, the panel data from Gansu province will be extremely rich, allowing for the use of a much larger set of econometric tools to analyze various relationships. Moreover, two specific questions (the impact of current vision and current nutritional status on health and education outcomes) will be addressed using prospective randomized trials.

The knowledge gained from the research proposed here will be important not only for China but for other countries as well (although bear in mind that China contains one fourth of the world’s population living in developing countries). It will have immediate implications for policy in several other developing countries. For example, Vietnam faces many of the same issues found in China. Rural areas are lagging behind urban areas, and financing for health and education has become more precarious as Vietnam has decentralized that financing. While China has a much higher income than Vietnam, Gansu province has an income level and a poverty rate comparable to that of Vietnam. Moreover, China and Vietnam are only two of

several countries in Asia that have made the transition from a planned economy to a market economy in the last two decades; the findings here should also be relevant for Cambodia, Kazakhstan, Laos and Mongolia, and perhaps in the future for North Korea. One interesting similarity of Gansu province with Mongolia and Kazakhstan is that all three are relatively dry areas with harsh climates.

This research is also relevant for developing countries that have never had planned economies. For example, the research on the impact of the provision of eyeglasses (see below) is relevant for many East Asian countries, whose populations are particularly prone to poor visual acuity. A case in the point is the Philippines; data collected in the Cebu metro area show that about 20% of 12-year-old children have serious vision problems but only about 1% wear glasses.

B. Objectives of the Proposed Research

The proposed research will use a panel data set that will be generated by reinterviewing all households that participated in the 2000 Gansu Survey of Children and Families (GSCF), a very detailed survey of 2000 children aged 9-12 in 20 rural counties in Gansu province. The survey instruments included questionnaires for children, mothers, households, teachers, school administrators, and village leaders, as well as tests of child cognitive ability and achievement in mathematics and language skills. The 2000 GSCF is probably the most detailed education-focused household survey ever conducted in China. It also includes several health measurements. See subsection II.A below for a detailed description of the education and health data collected in the 2000 GSCF.

With the 2000 GSCF and the data collected in 2003, the research will have the following four objectives:

- Document the disparities in the provision of health and education services, and in health and education outcomes, in Gansu province, and how these disparities changed from 2000 to 2003;
- Estimate the determinants of educational performance (measured in several different ways), with particular attention given to the impact of child health status on educational performance;
- Estimate the impact of educational performance on the transition to the labor market and on labor market performance; and
- Estimate the direct and indirect (via education outcomes) impacts of child health on the transition to the labor market and on labor market performance.

The specific research questions to be analyzed are:

1. *What disparities exist in the provision of health and education services in Gansu province, and how have these disparities changed over time?*

Comment: One consequence of China's economic reforms is that both the health and education sectors increasingly rely on user fees to cover costs (Tsang 1994; Bloom and Gu 1997). Health care researchers have observed declining use of health services with this shift toward linking access with households' ability to pay (Bloom and Gu 1997; Yu, Cao, and

Lucas 1997). In 1997, the percentage of poor counties in China with lower secondary school enrollment rates above 85 percent was only 40 percent, compared to 70 percent of all counties (World Bank, 1999). The World Bank's poverty alleviation projects in rural China have put priority on improving the quality of basic health and education services (Dahlman, Carl, and Jean-Eric Aubert. 2001), so the Bank has a stake in monitoring recent changes.

2. *What disparities exist in health and education outcomes in Gansu province, and how have these disparities changed over time?*

Comment: According a recent World Bank study (1997), child malnutrition increased in rural areas between 1987 and 1992; other evidence generally confirms a lack of improvement in health indicators in China in the early 1990s (Bloom and Gu 1997). Preventative care has declined with rising costs for services, and outbreaks of immunizable diseases have reportedly increased as immunization fees have risen (Gu et al. 1995; World Bank 1997). In education, new direct costs present significant barriers to the education of poor children in rural China, particularly above the primary level (Hannum 2002; Hannum and Park 2002).

3. *What is the impact of early childhood nutrition, as measured by current height-for-age and other indicators of chronic malnutrition, on school performance in terms of scores on academic tests and tests of "life skills"?*

Comment: Evidence from developing countries shows a strong link between early childhood nutritional status and subsequent school performance (Glewwe, Jacoby and King, 2001). In Gansu province, child malnutrition is quite common; according to data collected in 1997 in

Tongwei County, approximately 32% of children age 12 and under are stunted (calculations by Albert Park using data from the 1997 China Rural Poverty Survey).

4. *What is the impact of early childhood nutrition, as measured by current height for age and other indicators of chronic malnutrition, on indicators of psychological well-being?*

Comment: The 2000 GSCF was the first large-scale survey to measure psychological well-being among rural children in China, and piloted items for scales tapping anxiety, depression, aggression, stress, locus of control, self-concept, and resilience. The data from the 2000 GSCF indicate potentially serious problems regarding psychological well-being. For example, of all the children in the sample, 12% fully agreed that they “feel inferior to others”, 7% fully agreed that they “sometimes threaten or hurt others” and 13% fully agreed that they are “always worried”. In the GSCF for 2003, additional emphasis will be placed on developing batteries of items related to adolescent risk-taking behavior. Multiple-item scales will be used in analyses of psychological well-being.

5. *What is the impact of current health and nutritional status on school performance?*

Comment: In China the most common physical health problems among school-age children include myopia, malnutrition, iron deficient anemia, and ascariasis (Meng and Bloom 1990; Zhang, et al. 1995; Shi, Zhu, and Zhou 1990). Estimates suggest that 60% of children age 6-10 have low intake of Vitamin A (Dr. Geng Peng-fei, Deputy Director, Gansu Center for Preventive Medicine, personal communication). As explained below, this analysis will be based on a randomized trial.

6. *What is the impact of poor vision on school performance?*

Comment: It is estimated that 20-30% of middle age school children in China suffer from serious vision problems (Shi et al, 1990), yet the GSCF data collected in 2000 show that only 8% of children age 9-12 in Gansu wore glasses, even though 20% reported vision problems. As explained below, this question will also be addressed using a randomized trial.

7. *What is the correlation between psychological well-being status and school performance?*

Comment: A more ambitious question could be asked, namely: what is the impact of psychological well-being on school performance? However, there are serious methodological difficulties with trying to estimate this causal relationship. We will attempt to overcome them, starting with a simple difference-in-differences estimator, but at this point we can only promise to measure the correlation between psychological well-being indicators and school performance. This will provide a first approximation of the magnitude of the relationship.

8. *How do different aspects of school performance in early adolescence (age 9-12) predict schooling and employment outcomes in early teenage years (age 12-15)?*

Comment: It may be possible to estimate the causal impact of school performance in early adolescence on later school and employment outcomes, but there are serious simultaneity problems with such estimation. At minimum we will be able to predict outcomes in teenage years (primarily school continuation or dropping out, and employment prospects for those

who drop out), based on school performance in the pre-teen years. This should provide useful “early warning signals” of which students are “at risk” of dropping out of school.

9. Which skills learned in school affect the earnings of teenage workers?

Comment: The 2000 GSCF administered tests in mathematics, reading comprehension, and “cognitive development”. The 2003 GSCF will administer these same tests, along with specialized tests that focus on different kinds of literacy skills (see below). In 2003 the children will be 12-15 years old, and about one third to one half will have left school. Many of those who leave school will be working.

10. What is the impact of early childhood malnutrition and current health status on probability of employment in early teenage years?

11. What is the impact of early childhood malnutrition and current health status on income from employment?

Comment on questions 10 and 11: The causal link from health to employment outcomes has received increasing attention in recent years (Fogel 1994, Strauss and Thomas 1998), yet almost all studies have only very limited data, often measuring both health and employment outcomes at one point in time. None of the children in the 2000 GSCF were working in 2000, so their health in that year cannot be attributed to their working conditions in 2003.

C. Literature Review

A growing body of empirical research on adults finds a positive impact of human capital (both health and education) on labor productivity in developing countries (Strauss, 1986, in

Sierra Leone; Sahn and Alderman, 1988, for rural Sri Lanka; Thomas and Strauss, 1997, for urban Brazil; Croppenstedt and Muller, 2000, for rural Ethiopia; Behrman and Deolalikar, 1989, for rural India; Fafchamps and Quisumbing, 1999, for rural Pakistan; Haddad and Bouis, 1991, and Foster and Rosenzweig, 1992 and 1994, for the Philippines; and Glewwe, 1999b, for Ghana). The importance of education to labor productivity has received great policy emphasis, but there are many methodological problems that could lead to bias in estimated returns (Schultz 1988; Barro 1991; Behrman and Deolalikar 1993; Glewwe, 1996). Moreover, the process by which childhood health and educational attainment translate into adult labor productivity is poorly understood. There is a literature that examines the effect of child health on schooling outcomes (for China, see Jamison 1986), but these studies have been inconclusive, largely because of challenging identification problems (Behrman 1996). A recent study by Glewwe, Jacoby, and King (2001) exploits longitudinal data from the Philippines to identify more convincingly the effects of child height on test scores, and finds significant positive effects. The study does not, however, relate health and learning to labor market outcomes and restricts itself to narrowly defined measures of both health and learning.

While these studies have provided valuable insights about the impact of health on schooling and the impact of health and schooling on productivity, several limitations have prevented them from fully illuminating the questions of interest. The first is that the populations studied tend to be “national” populations that include both poor and better off households. Sample size limitations often force researchers to estimate effects that are averages over poor and non-poor households. If non-linear effects exist, such as larger impacts of child malnutrition on education outcomes among the poor (relative to the non-poor), they will not be captured in estimates of average effects.

Second, the majority of studies of health and schooling have employed a very limited set of measures of health and education outcomes (see Strauss and Thomas, 1995). This point is important, so the following paragraphs discuss it in detail.

Economic studies typically use narrow definitions of health and education outcomes. To more fully understand the relationships between health, schooling, and employment, studies should identify and measure the health outcomes most directly related to adolescents' lives, and those educational outcomes likely to have the greatest impact on productivity. We propose a broader conceptualization of health that adds psycho-social (mental health) indicators, health behaviors, and non-traditional direct assessments of health to the standard repertoire of health measures. We will also use newly-developed "life skills" measures of literacy, numeracy, and analytic ability designed to relate more directly to productivity outcomes than traditional academic tests.

Consider first the health measures. Evidence suggests that psycho-social factors, such as level of personal control, sense of agency, self-concept, and stress, as well as health behaviors are particularly significant in adolescence. Adolescents in developed countries are susceptible to influences in the social environment that encourage risky behaviors such as smoking, violence, alcohol and drug use, or risky sexual behavior (Smedley and Syme 1999).

The example of smoking is illustrative. Studies from developed countries show that most smokers start smoking during their adolescent or early adulthood years (CDC 1994). Adolescent smoking may impede human capital acquisition (Galambos and Silberseisen 1987, Kleinman, et al. 1988, Eckert 1983), and thus may indirectly affect adult productivity and health outcomes. Recent evidence from China suggests a parallel set of issues. The age of smoking initiation fell by approximately 3 years for both men and women between 1984 to 1996 (Yang et al. 1999) and

high rates of smoking initiation occur as early as elementary school among boys (Sun and Cui 1999).¹ Smoking among Chinese adolescents is associated with poor school performance and problem behaviors such as truancy from school, running away from home, destructiveness and fighting (Li et al. 1996, 1999). While measures of psychosocial well-being and risk and protective factors for adolescents have been widely used in developed country contexts, only a few studies of health, human capital acquisition, or productivity in developing countries have examined psycho-social factors and/or health behaviors.

The majority of economic studies of children's health and schooling have employed anthropometric data, especially child height, as the primary indicator of health. Yet anthropometric measures alone may miss entirely some health problems, such as micronutrient deficiencies, and for other health problems height is just a rough aggregate indicator. Further progress in understanding which dimensions of health matter most requires simultaneous use of multiple health measures (Strauss and Thomas 1998).

Similarly, there is a need for better conceptualization and measurement of the dimensions of learning that are most fundamentally linked to labor productivity. Academic achievement tests or years of schooling are the most commonly used measures of learning, but both are highly imperfect measures of the development of skills that are relevant for productivity outcomes (OECD and Statistics Canada 2000). Literacy and numeracy, on the other hand, have a more demonstrable effect on economic and social well-being. The importance of such skills increases with the process of economic development as the importance of information and technology

¹ About 28% of boys and 3% of girls had smoked cigarettes according to a study conducted among 16,996 elementary school students (aged from 10 to 12) in Beijing in 1988. Two other studies conducted in Beijing in 1991 and 1997 found the prevalence of teenager smoking ranged from 15% to 25% (Li et al. 1996, 1999).

increases. In many surveys, however, these skills are ignored or at best respondents are asked to rate their own ability rather than directly testing them.

Increasingly, the need for standardized measures of literacy or life skills has been recognized by researchers and the policy community. The recent International Adult Literacy Survey (IALS) initiative (OECD and Statistics Canada, 2000) represents an important step in the direction of developing international standards for measuring productivity-related skills. The International Adult Literacy Surveys (IALS), begun in the 1990s, have been conducted in 14 industrialized countries. Recent studies using IALS data from OECD countries have found that important differences in literacy skills exist across and within nations, and that literacy skill deficits affect large portions of the adult population. Literacy is strongly correlated with success and the use of opportunities, but is not synonymous with educational attainment (OECD and Statistics Canada 2000).

In 1998, UNESCO sponsored a related project to explore how adult literacy, numeracy, and life skills could best be measured in developing country settings. The added focus on life skills, which include knowledge, attitudes/values and actions, critical awareness, and problem solving, was thought to be particularly important in developing countries where large fractions of the population have low educational levels. The project was headed by Dr. Daniel Wagner, Director of the International Literacy Institute at the University of Pennsylvania, and core members included Dr. Bruce Murray of Statistics Canada and Dr. Hongwei Meng of the China National Institute for Education Research. (Dr. Meng is one of the main Chinese collaborators in our project.) Background reports have been prepared for four developing countries, including China (an initiative led by Dr. Meng). Like the IALS, the UNESCO instruments include a very

carefully designed set of questions that measure different aspects of literacy, numeracy, and other basic skills.

The third problem with the current literature is that almost all studies have serious methodological problems. For example, adult labor productivity is commonly modeled as a function of education, primarily accumulated in childhood, and current health. However, the directions of causation are not so simple. Productivity can affect health through income and occupational choice, and adult health is the outcome of early childhood educational and health experiences. Moreover, years of schooling is often an imprecise measure of educational human capital; although one could replace it with measures of current cognitive skills, those skills may be partly determined by the type of work done and thus would be endogenous.

The data to be collected as a part of this research proposal will provide alternative estimation methods that can overcome these methodological problems. For example, we will have data on health and education status (including cognitive skills) for the children when they were 9-12 years old, before they entered the labor market. These measurements of human capital are not affected by subsequent experience in the labor market, and thus can serve as instrumental variables for human capital in the teenage years. Another innovative aspect of this research proposal is that two of the questions to be addressed (the impact of vision and of current nutritional status on education and employment outcomes) will be analyzed using randomized trials, as explained below.

D. Bankwide Consultation

This research proposal has been circulated and presented in several ways among staff at the World Bank. First, it was circulated in draft form to Bank staff working on China, and

comments were received from those Bank staff. Second, it has been circulated to and discussed with Bank staff in the HD network, including Shanta Devarajan. Third, a seminar explaining the proposal was held on April 19, 2002, at the Bank, inviting a wide variety of Bank specialists who work on health and education, including staff in the HD network anchor and from DECRG. Many useful comments were received, almost all of which have been incorporated into this report. We have received strong support from the region and from staff in the HD network and from DECRG. One memo expressing support, from Emmanuel Jimenez (the Sector Director for Human Development in the East Asia Vice Presidency) is included as Attachment 2.

E. Intended Audience

There are three audiences for the findings produced by this research proposal. The first is the international public policy community, especially those concerned with poverty, health and education in China and other low-income countries. This includes the staff of international development agencies, such as the World Bank, the UNDP and the Asian Development Bank, and many non-governmental organizations (NGOs) that work in low-income countries. Initial results will be presented at seminars for World Bank staff in Washington, and aid agencies with offices in China will be invited to a workshop in Beijing for Chinese policymakers (see below).

A second target audience is Chinese policymakers and researchers. Preliminary results will be presented in Beijing and in Lanzhou (the capital of Gansu province). The research team also has close contacts with health and education officials in Gansu. Our main local collaborator, Jiayi Wang, has close ties to provincial education officials, and is considered a national expert on education problems facing poor and minority areas. We are also working directly with research staff in the Ministries of Education and Health to help us design

appropriate tests for academic achievement and physical health. For example, Ge Pengfei, Deputy Director of Gansu's Center for Preventative Medicine under the provincial health bureau, will supervise the nutrition and vision interventions and the physical health measurements. These experts will effectively communicate relevant research findings to local policy makers.

The research team is also working closely with national organizations and ministries in China. Within the national Ministry of Education, Professors Li Zhang and Mansheng Zhou, Director and Vice Director of the National Center for Research on Educational Development, were consultants on the 2000 GSCF. Our collaborator Chunming Chen, professor and former director of the Chinese Academy of Preventive Medicine under the Ministry of Health, is a well-known national expert on nutrition and health issues who has direct contact with national Ministry of Health officials. Two other collaborators, Professor Jianxin Zhang, Director of the Child Development Institute in the Chinese Academy of Sciences, and Meng Hongwei, Director of the Research Center on Educational Measurement and Monitoring at the China National Institute for Educational Research, also actively provide national policy advice.

The third target audience is academic researchers. China's recent performance in poverty reduction and human capital development is of great interest to these researchers. Results will be disseminated to this audience in the form of journal articles, and perhaps a book. Dissemination and final products are discussed further in subsection III.D below.

II. Analytic Design

A. Analytical Framework

As explained above, the research proposed here will overcome the three deficiencies in the literature. First, by undertaking the research in a very poor province of China, the research

will focus on a population that is of particular concern regarding the impact of human capital on labor incomes.

Second, the data used in the research are unusually rich in terms of the variety of health and education outcomes measured. The health data collected in the 2000 GSCF include self-reported (by the child or by his/her mother): current weight, current general health status, birth weight, vision problems, psycho-social indicators (self-esteem, depression, anxiety), recent illnesses (including respiratory problems and diarrhea), food frequencies, and availability and use of health care. Data were also collected on health facilities in the village and on household members' use of those facilities. The data to be collected in 2003 will include all of this information plus physical measurements (using appropriate equipment) of: height, weight, lung capacity, iron intake (from pin-prick), Vitamin A deficiency (via "dark adaptation" tests), zinc and magnesium deficiency (from hair samples), visual acuity, and blood pressure. In addition, detailed information will be collected on the child's history of smoking, exposure to passive smoking, alcohol consumption, reproductive health knowledge, eating habits, and recent use of health care services.

The education data will be even richer than the health data. In the 2000 GSCF the following data were collected for the target child: current years in school, daily attendance, years repeated, year entered school, and test scores on mathematics, reading and abstract thinking ability. A full set of items regarding children's educational aptitudes, aspirations and attitudes, study habits and time allocation, and classroom environment were also asked in questionnaires administered to the child, his or her mother, and his or her main teacher. Data were also collected on all teachers and principals in primary schools serving the sampled villages. In 2003, the same data will be collected, not only for the 2000 children in that survey but also for one

younger school-age sibling. In addition, for both the original children and the younger children tests will be administered on “life skills”, which measure the application of academic skills to everyday situations. More specifically, tests will be given on prose literacy (reading comprehension of everyday materials such as newspaper stories and information pamphlets), document literacy (the ability to understand maps, diagrams, charts, etc.) and numeracy (adding numbers on bank account slip, calculating interest charges on loans, etc.). Note finally that the data to be collected in 2003 may be supplemented with additional information. The research team will travel to Gansu in the summer of 2002 to discuss in detail the kinds of data to be collected in 2003.

Third, the data collection and analysis plans are designed to overcome many of the methodological deficiencies of past research. The following paragraphs briefly explain how the data to be collected in Gansu can be used to answer each of the 11 specific research questions presented above in subsection I.B.

1. *What disparities exist in the provision of health and education services in Gansu province, and how have these disparities changed over time?*

2. *What disparities exist in health and education outcomes in Gansu province, and how have these disparities changed over time?*

These first two questions can be answered using descriptive data from the 2000 GSCF and the data to be collected in 2003. The data on education in the 2000 GSCF has sufficient detail to allow us to detect significant changes in education variables between 2000 and 2003; it is less

clear whether changes can be detected for health over that time period because the data on health in the 2000 GSCF are less detailed.

- 3. What is the impact of early childhood nutrition, as measured by current height-for-age and other indicators of chronic malnutrition, on school performance in terms of scores on academic tests and tests of “life skills”.*

The methodology of Glewwe, Jacoby and King (2001) will be employed. In particular, the analysis will compare within-household differences between siblings who attend the same school. The dependent variable will be the difference in the siblings’ test scores, and the key explanatory variable will be differences in height-for-age. Since the latter difference is likely to be endogenous, birth weight information on the older sibling will be used as an instrumental variable.

- 4. What is the impact of early childhood nutrition, as measured by current height for age and other indicators of chronic malnutrition, on indicators of psychological well-being?*

The methodology of Glewwe, Jacoby and King (2001) can again be used. The only difference is that the dependent variable will be sibling differences in measures of psychological well-being.

- 5. What is the impact of current health and nutritional status on school performance?*

The key methodological problem here is that current health and nutritional status are likely to be endogenous with respect to school performance. We will use two approaches. First, we plan to implement a randomized intervention in which nutrient-enriched wheat flour will be provided to a randomly selected subsample of the households in the survey. This will start immediately after

the 2003 survey. Results will be measured by brief follow-up surveys in 2004 and 2005 that will collect data only on the main outcome measures of interest (school enrollment, scores on achievement tests, height, weight, Vitamin A, iron, visual acuity, blood pressure, employment and wage income). Second, a standard instrumental variables approach will be used. The main instruments for current health and nutritional status will be prices of food items, source of water, distance to local health facilities, type of toilet, recent weather and local outbreaks of illnesses. It may also be possible to estimate sibling difference outcomes using a subset of these instrumental variables (those that vary over time); that is, one may compare the academic performance of the older sibling in 2000 with that of the younger sibling in 2003.

6. What is the impact of poor vision on school performance?

Visual acuity of children is likely to be exogenous. The main exception to this is that those children who have glasses will have better functional acuity, and purchase of glasses is endogenous. Two approaches will be used to avoid potential problems of endogeneity bias. First, a randomized trial will be conducted in 2003 whereby a random sample of children with poor vision will be provided eyeglasses. Special surveys in 2004 and 2005 will collect information on school performance of all the children in the sample.

Second, instrumental variable methods will be used. Possible instrumental variables for use of eyeglasses are availability of optical services, price of glasses, household income (perhaps lagged to 2000) and Vitamin A intake.

7. What is the correlation between psychological well-being and school performance?

As pointed out in subsection I.B, it is simple to obtain correlation between any variables of interest. The analysis will include raw correlations and partial correlations (i.e. correlation in a regression framework after controlling for other covariates). It may be possible to find methods to estimate causal relationships, but this is uncertain.

8. *How do different aspects of school performance in early adolescence (age 9-12) predict schooling and employment outcomes in the early teenage years (age 12-15)?*

Prediction does not necessarily imply causation, so predictive relationships can be estimated without concern for bias. This information will be useful for identifying children “at risk” of dropping out school. Attempts will be made to tease out a causal relationship, but it is unclear whether a credible identification strategy can be found.

9. *Which skills learned in school affect the earnings of teenage workers?*

Simple OLS estimates of the impact of current skills on earnings could be biased because the type of work may affect skill retention and development. The best way to overcome this problem is to use skills acquired by 2000 to predict current skills (2003). None of the children were working in 2000, so skills in 2000 are not influenced by work experience in 2003. Another advantage of using instrumental variables is that, since skills are likely to be measured with error, it will remove measurement error bias. Finally, since the number of children working for wages in 2003 may be low, brief follow-up surveys will be conducted in 2004 and 2005, at which time a larger percentage of the sampled children will be working for wages.

10. What is the impact of early childhood malnutrition and current health status on probability of employment in early teenage years?

11. What is the impact of early childhood malnutrition and current health status on income from employment?

The answers to questions 10 and 11 can be obtained using estimates derived to answer earlier questions. In particular, estimates of the impact of early and current child nutrition on school performance (questions 1 and 3) can be combined with estimates of the impact of academic skills on income and the probability of employment (questions 8 and 9). Still, some additional estimates will be needed to calculate the impact of current health status on employment and income. Since the indirect impact of health on employment outcomes is already accounted for in the current educational characteristics, past values of health variables (i.e. their values in 2000) can be used as instruments for current health (which measures the direct effect of health on those outcomes).

B. Specific Research Tasks

This project will begin in the summer of 2002 and end in December 2005. There are three main tasks: finalize plans for collection of new data; collect new data in 2003 (with brief follow-up surveys in 2004 and 2005), and analyze the data in 2004 and 2005.

Pre-survey work, including designing the survey instruments and detailed planning of the survey design, will occur beginning the summer of 2002. Hannum, Park, and Glewwe will travel to Gansu and complete the following tasks: discuss and test preliminary versions of the survey instruments, focusing in particular on health-related and other measures not included in the 2000 GSCF; investigate the feasibility of different options for designing the randomized intervention

(taking into consideration financial costs, intrusiveness of design, receptiveness to treatment by individuals and communities, etc.); learn from face-to-face interviews with children, teachers, principals, health officials, and collaborators to better refine questions and research design; explore possibilities for collecting complementary secondary data (e.g., on health and education services in previous years, rainfall data, etc.). Chinese collaborators will conduct additional pre-tests of survey instruments and protocols as necessary throughout 2002.

The main survey will be undertaken in June 2003, just before children and teachers leave for summer vacation. At this time, or in September (the beginning of the school year), the vision and nutrition interventions will be initiated by provincial collaborators at Gansu's Academy of Preventive Medicine. Based on judgments about the receptivity of respondents, some parts of the survey (e.g., physical health measurements, attainment and ability tests, literacy tests) may be administered at staggered times, but all during the summer of 2003. The following two summers, in 2004 and 2005, each child will be resurveyed on a limited set of health, education and employment outcomes, including most health measurements, achievement, ability, and literacy tests, and educational experience in the past year, and employment and wages.

Data will be entered in Lanzhou (the capital of Gansu province) by the provincial State Statistical Bureau, and supervised by graduate students of Northwest Normal University. The data should be ready for analysis by the fall of 2003. During 2004 and 2005, the consultants will take primary responsibility for the analysis and production of written academic papers, and will collaborate on specific projects with the Chinese investigators. During this time they will also prepare for conducting a third wave of the survey in 2006.

C. Data Issues

The data will be maintained and archived at the Population Studies Center of the University of Pennsylvania. Data will be made publicly available after project investigators have had time to undertake initial analysis of the data, and no longer than three years after the data are entered. An archivist at the Population Studies Center will provide documentation and web access to the data. For a detailed description of the 2000 Gansu Survey of Families and Children, see Attachment 1.

III. Organization

A. Work Program

The research team will be overseen by Guo Li and Alan Piazza, both of EASRD. The proposed project brings together a multidisciplinary group of scholars from leading institutions in both the U.S. and China. The research team has extensive and complementary experience studying the sociological, economic, psychological, educational, and public health aspects of economic development, especially in rural China. The main investigators on both the U.S. and Chinese sides have a wealth of experience collecting primary data in China, and many members of the group successfully collaborated in the GSCF 2000 survey of two thousand children and their mothers, households, teachers, principals, and community leaders. There will be three American academic researchers and a larger number of Chinese researchers. Summary information on the main consultants is provided in the following paragraphs. Their c.v.'s are included in Attachment 3.

Most of the work on this research project will be done by the consultants. A project office will be established at University of Pennsylvania to organize research, training, and

conference activities. The University of Pennsylvania, the University of Michigan, and the University of Minnesota will each provide faculty and graduate students to analyze the data.

Many Chinese organizations and personnel will assist in the collection and the analysis of the data. The State Statistics Bureau (SSB) of China will oversee the overall data collection, in collaboration with the following institutions. The Chinese Academy of Preventive Medicine (CAPM) will develop the physical health components of the project. The Chinese Academy of Sciences (CAS) will develop the psychosocial health components of the project. The China National Institute for Educational Research (NIER) will develop the literacy measures. Finally, the Northwest Normal University (NWNNU) will assist in the school-based elements of the survey. Each of these institutions will conduct analyses of the data, with cross-institution collaborations emerging according to research interests. Researchers from these institutions will give feedback on others' ongoing studies and share research results via project workshops and a project Web site.

Guo and Piazza will keep operational staff at the Bank informed about the progress of the research. Results that are useful for specific operational work will be conveyed immediately after they are found.

B. Consultants

Paul Glewwe is Associate Professor of Applied Economics at the University of Minnesota. He also worked in the research vice presidency of the World Bank for over 13 years. His research focuses on poverty, inequality, education and nutrition in developing countries. He also has extensive experience in implementing household surveys in developing countries, including a survey in Northeast China in 1995.

Emily Hannum is Assistant Professor in Sociology and Population Studies at the University of Pennsylvania. Her research has focused on human capital investment, in particular educational attainment and its relationship to income level, occupational attainment, and inequality, as well as poverty and children's social welfare. Her work in China includes papers on trends in gender and urban-rural inequality in primary and secondary education (Hannum and Xie 1994; Hannum 1999a), changes in the impact of education on income and occupational attainment (Xie and Hannum 1996; Hannum and Xie 1998), and inequities in access and participation in rural primary and secondary education under market reforms (Hannum 1999b, 2002; Hannum and Park 2002). She was principal investigator for the 2000 GSCF, funded by the Spencer Foundation, and is co-directing (with Albert Park and Jiayi Wang) the Gansu Rural School Networks Project, a randomized experiment that combines an IT-based school networking intervention with a survey and ethnographic study of rural school culture, management, and performance.

Albert Park is Associate Professor of Economics at the University of Michigan. He is a development economist whose research has focused on rural development issues in China. Current projects focusing on health and educational outcomes in China include papers on mother's schooling and child health (Park and Zhang 2000), gender bias in household nutrient allocation (Park and Rukumnuaykit 2000), educational attainment in poor areas (Brown and Park 2002), and urban labor market development. He was the principal investigator for a large collaborative research and training project on rural poverty in China funded by the Ford and Luce Foundations (1996-1999), and has directed rural household surveys in northwest China as part of his dissertation field research in 1993, funded by Fulbright-Hays and Ford Foundation. He also played an important roles in the implementation and analysis of the 2000 GSCF.

Professor Chen Chunming is based at the China Center for Preventative Medicine (CAPM). The CAPM is an influential research institute within the Ministry of Health. Dr. Chen is one of China's leading health and nutrition experts (two recent publications include Chen 1996, 1997) and directed CAPM's participation in the University of North Carolina's China Health and Nutrition Survey, which has been one of the best sources of recent information on physical health outcomes in China.

Dr. Meng Hongwei is Director of the Research Center for Educational Measurement and Monitoring, China National Institute for Educational Research (NIER). Dr. Meng has a doctorate in educational evaluation and has extensive experience directing national and international literacy projects, as well as rural education projects. Most recently, he was appointed to head the Drafting Committee for the China National Education for All Action Plan. He is also on the Governing Board of the UNESCO Institute of Statistics. He has written numerous scholarly articles and policy documents on issues of literacy assessment, rural education, and educational evaluation and monitoring in China.

Professor Jiayi Wang is Vice-President of Northwest Normal University and an advisor to provincial and national policy makers on rural poverty and education issues. He has a doctorate in teaching and learning and works in the areas of educational measurement and research methodology (e.g., Wang 1993, 1995, 1998; Wang and Pei 1997). He directs research programs in schools in rural Gansu, and has directed numerous large-scale research and development projects related to poverty and education in western China supported by Chinese, British, and Canadian development organizations. He was a key investigator for the 2000 GSCF, and is the Chinese principal investigator for the Gansu Rural School Networks Project (described above).

Professor Jianxin Zhang is Director of the Division of Developmental and Educational Psychology in the Institute of Psychology at the Chinese Academy of Sciences. He developed the Chinese Personality Assessment Inventory (CPAI), which includes indigenous personality constructs. He is also adapting a Chinese General Self-Efficacy Scale, and designed the cognitive tests for rural children in the 2000 GSFC.

The Gansu Province office of the State Statistical Bureau (SSB), led by Tiemin Tang, Senior Statistician and Head of the Gansu Survey Team for the Urban Societal Economy, and Ruijun Dong, Director of the Gansu Survey Team for the Urban Market Economy, will be subcontracted to collect the survey data. The Gansu SSB has extensive experience collecting urban and rural household income and expenditure data on an annual basis and have survey staff in all counties in the province. Directors Tang and Dong oversaw the data collection and data entry processes for the 2000 GSCF.

Other project participants bring valuable complementary expertise to the project. Dan Wagner, Director of the International Literacy Institute, University of Pennsylvania, and Bruce Murray, Director of the IALS project at Statistics Canada, will be resource persons for the project. Dr. Meng has collaborated closely with Dr. Wagner on previous projects, upon which our instruments will be based.

C. Local Research Capacity Building

The proposed activities build capacity in two ways. First, the collaboration with Northwest Normal University builds capacity for conducting research on rural poverty and education in a part of China where these issues are extremely pressing. Northwest Normal University is geographically well-situated to sustain intensive, longitudinal research

on rural educational development issues. It offers research and training centers that focus on rural and minority education, as well as graduate students and faculty who have extensive experience working, implementing development projects, and conducting research in impoverished rural and minority schools.

Yet, as at other universities in China's interior, resources to support large-scale research projects at Northwest Normal University are limited. Opportunities for international exchange and access to the international research literature are also limited. The long-term collaborative relationships established through the 2000 and 2003 GSCF will contribute to developing NWNNU's research capacity, providing invaluable experience on the implementation of large, international research projects in the NWNNU's areas of expertise. Activities undertaken as a result of the 2000 GSCF include collaboration on research proposals, research conferences, and opportunities for short-term research visits to the US for faculty and graduate students at NWNNU. We expect to continue and extend these activities with the 2003 GSCF.

Second, the 2003 GSCF project is establishing new, cross-institution ties that may lead to more research on education, poverty, and health in western China. For example, one benefit of the 2000 GSCF has been the establishment of a relationship between the Gansu Statistics Bureau and Northwest Normal University. This relationship has led to conversations about sharing Statistics Bureau data with Northwest Normal University for purposes of policy research on educational access and outcomes. Similarly, with the 2003 GSCF we anticipate that the growing connections between Northwest Normal University, the Statistics Bureau, and the psychological and physical health institutes in Beijing will facilitate future collaborations linking education, poverty, and health issues.

D. Preliminary Dissemination

The project will produce several sets of papers, the preliminary results of which will be presented at workshops and conferences in China and the U.S. Academic research papers will be disseminated via a working paper series planned to run through the University of Michigan Population Studies Center Research Reports and the Chinese Academy of Social Sciences Institute of Population Studies Research Reports. Researchers will also submit papers to academic journals in the fields of economics, sociology, public health, psychology, education, and child development. Finally, policy and procedure reports will be developed in consultation with consultants from the Ministry of Education, Ministry of Health and State Statistics Bureau and disseminated to these agencies. As explained above in subsection I.E, preliminary results will also be disseminated in seminars at the World Bank and in China.

IV. Resource Requirements

[Budget Section Removed]

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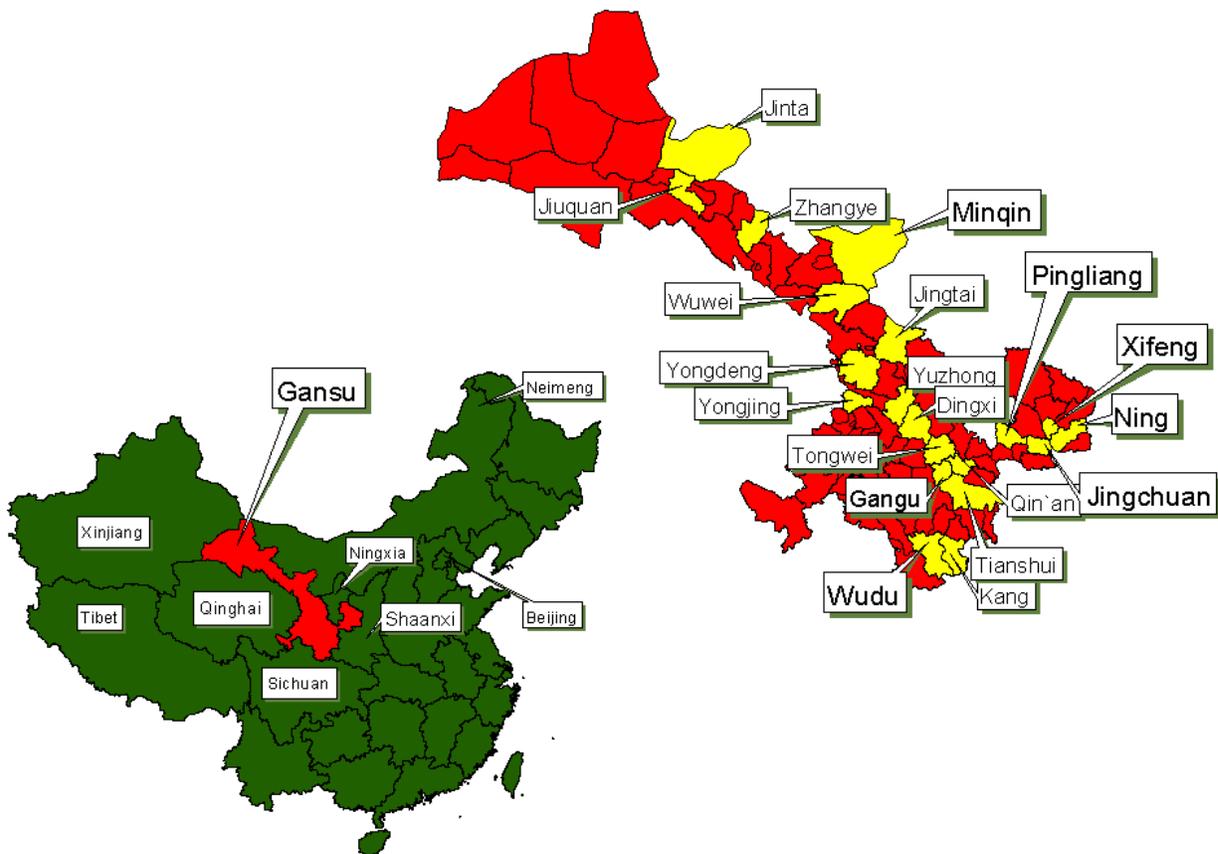
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Attachment 1: The 2000 Gansu Survey of Children and Families

The 2000 Gansu Survey of Families and Children (GSCF) is the first major survey of youth poverty and human capital acquisition undertaken in rural China. Gansu, the study site, is a northwestern province of China (see Map 1). Gansu encompasses 390,000 square kilometers of flat Loess Plateau, Gobi desert, mountainous and hilly areas, and vast grasslands. The province has a population of about 23 million. While rural industries have emerged as in other parts of China with the economic liberalization dating from the early 1980s, rural residents are predominantly employed in subsistence farming or animal husbandry. Table 1 shows demographic and socioeconomic indicators calculated for China as a whole, Gansu, and other interior provinces for the year of the most recent population census. Gansu's socioeconomic profile resembles that of other interior provinces: relative to the nation as a whole, Gansu exhibits high rates of illiteracy, prevalent poverty, and lackluster economic growth.



Map 1. Gansu Province, GSCF Counties Marked

Sample

The sample design for the 2000 GSCF consisted of the following elements:

- a primary sample of 2000 children in 20 rural counties aged 9-12 in July 2000
- five linkable secondary samples of children's mothers, household heads, home-room teachers, school principals, and village leaders
- a census of primary school teachers and school principals in sampled villages
- a qualitative interview subsample of children, mothers, and teachers

The sampling strategy, illustrated in Figure 2, resulted in a multi-stage, cluster sample with random selection procedures employed at each stage. First, a systematic random sample of 20 counties was selected from the total of 86 counties in Gansu, ordered according to per capita income level in each county (see Map 1). The number of households selected from each county was determined according to the proportion of the rural population in each selected county. A random-start, systematic sample of two townships was then selected from the list of all townships for each county, and a random-start, systematic sample of five villages was selected from each sampled township (townships and villages were listed in “natural” or geographic order). Finally, a random sample of 20 children was selected from a listing of all 9-12 year old children in each selected village.

Instrumentation for the 2000 GSCF

Instruments for the 2000 GSCF are included as Attachment 4. Here, we briefly summarize relevant education, health, and socioeconomic items in the 2000 GSCF.

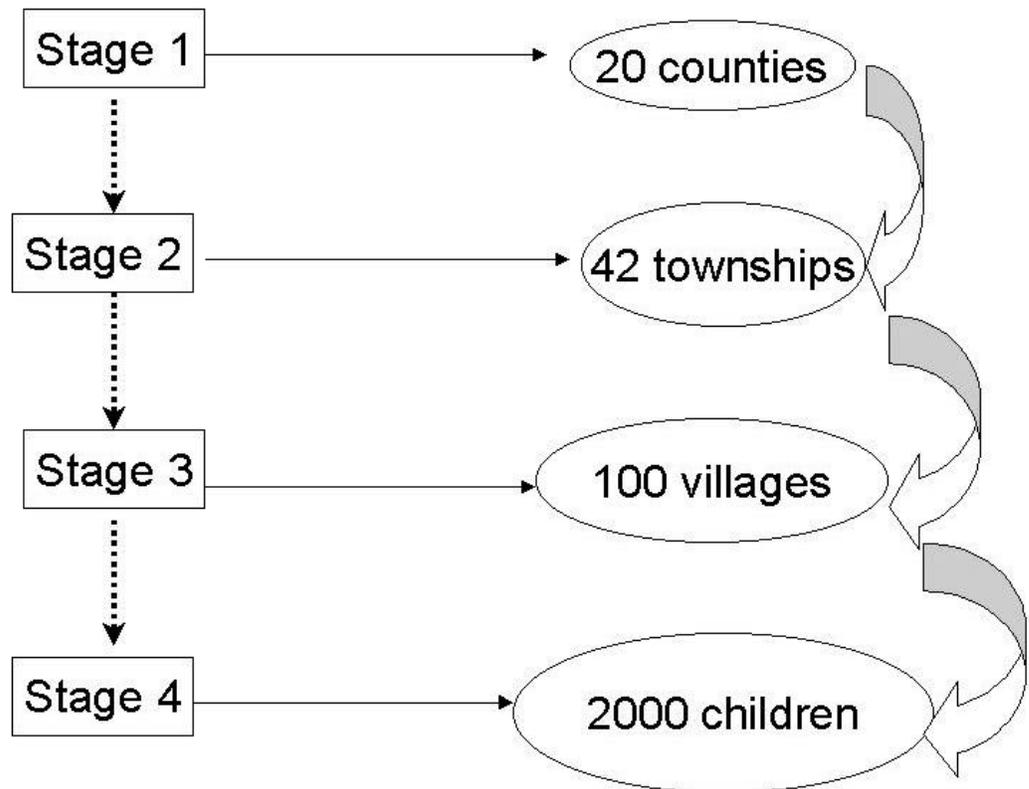
Education items in the 2000 GSCF included detailed educational histories for all family members. Measures of children's schooling outcomes included age of enrollment, enrollment history, including years held back, grades skipped, and years of suspended schooling, attendance, grades in school, and scores for Chinese and math achievement and cognitive ability from tests administered by the project. Subjective measures of educational outcomes included mother's, child's and teacher's assessments of ability, motivation, engagement, achievement, and behavioral problems. School questionnaires covered infrastructure, policies, finance, management, performance, and teacher demographic and socioeconomic composition.

Although the main focus of 2000 GSCF was to explain educational outcomes, a number of health items were also included. An innovative aspect of the questionnaire content was a series of maternal and child psychosocial health indicators. 2000 GSCF included items measuring mother's self-conceptions and satisfaction with life. Data on children's internalizing (depression, lonely feeling, anxiety) and externalizing (truancy, aggressiveness, delinquency) problems, and about their self-conceptions were also collected. In addition, a number of commonly used health indicators were collected, such as self/others-reported general health status, chronic morbidity and disability status, days of school and work lost due to sickness, number of times to see doctor and number of days staying in hospital in the past 12 months, and health expenditures for each family member. For children younger than 18 years old, questions pertaining to acute morbidity

(respiratory disease, diarrhea and fever) were asked. Family consumption, nutrition, and food security items were also included. Other health-related items included teacher and child assessments of child nutrition and vision and the family's distance to local health clinics.

The 2000 GSCF also contained detailed measurement of community and household resources, including social and cultural resources. The household and mother questionnaires ask detailed question about household economic resources (household income and expenditures, land-holding, assets, credit access), as well as father's and mother's parents and siblings (extended kinship network), social networks, parental attitudes to children's education, discipline, emotional support for children, and time spent with children. Community questionnaires include questions about local geography and infrastructure (transportation, communication, irrigation, education, health), village collective revenues, and local market development (prices, periodic markets). The household questionnaire asks about utilization of health care services and distance to health clinics. Additional information on community social resources comes from questions on parental views of community safety and cohesion.

Figure 2. Illustration of Multi-stage Cluster Sampling Process



Attachment 2: Supporting Memorandum from Emmanuel Jimenez

THE WORLD BANK/IFC/M.I.G.A.

OFFICE MEMORANDUM

DATE:: May 2, 2002
TO: Mr. Boris Pleskovic, Administrator, DECRA
FROM: Emmanuel Jimenez, Sector Director, EASHD
EXTENSION: 33481
SUBJECT: Research on Education in Gansu Province, China

From the regional perspective, my colleagues and I heartily support this project. It will enhance our knowledge base of the educational system of a poor province in China. Issues of access and quality are key. The results will also feed directly into our policy dialogue with both central and provincial governments.

Attachment 3: Curriculum Vitae of Consultants

March, 2002

CURRICULUM VITAE

Paul William Glewwe

Department of Applied Economics
University of Minnesota
1994 Buford Ave.
St. Paul, MN 55108
(612) 625-0225 (phone)
(612) 625-2729 (fax)
Internet: pglewwe@appec.umn.edu

Home Telephone: (952) 941-9445
Birth Date: April 4, 1958
Marital Status: Married, 2 Children

EDUCATION

Ph.D. Economics, Stanford University, 1985
Doctoral Dissertation: "An Analysis of Income Distribution and Labor Markets in Sri Lanka"

B.A. Economics, University of Chicago, 1979

PROFESSIONAL EXPERIENCE

Associate Professor, Department of Applied Economics. University of Minnesota, 2001-present.

Assistant Professor, Department of Applied Economics. University of Minnesota, 1999-2001.

Senior Economist, The World Bank, Policy Research Department. 1994-1999.

Adjunct Professor, Department of Economics, George Washington University. 1996-97.

Economist, The World Bank, Population and Human Resources Department. 1988-1993.

Consultant, The World Bank, Welfare and Human Resources Division, Population and Human Resources Department (previously Living Standards Unit, Development Research Department). 1986-1988.

Assistant Professor, Department of Agricultural Economics, Pennsylvania State University. 1985-86.

Consultant, The World Bank, Development Research Department. 1984-85.

RESEARCH INTERESTS:

Economic Development
Empirical Microeconomics
Applied Econometrics
Economics of Education

TEACHING INTERESTS:

Microeconomics
Economic Development
Econometrics
Public Economics

PUBLICATIONS: Books, Authored or Edited

Household Welfare and Vietnam's Transition to a Market Economy (co-edited with David Dollar and Jennie Litvack). The World Bank, Washington D.C., 1998.

The Economics of School Quality Investments in Developing Countries: An Empirical Study of Ghana. MacMillan Press, U.K. 1999.

Designing Household Survey Questionnaires for Developing Countries: Lessons from 15 Years of the Living Standards Development Study (co-edited with Margaret Grosh). Oxford University Press (for the World Bank), 2000.

PUBLICATIONS: Book Reviews

Review of *Basic Needs in Developing Countries*, by Frances Stewart. *Journal of Economic Literature*, September 1986.

Review of *The Earthist Challenge to Economism: A Theological Critique of the World Bank*, by John B. Cobb, Jr. *Faith and Economics*, Spring 2001.

Review of *World Development Report 2000/2001: Attacking Poverty*. *Agricultural Economics*, March, 2002.

PUBLICATIONS: Journal Articles and Book Chapters

"The Distribution of Income in Sri Lanka in 1969-70 and 1980-81: A Decomposition Analysis". *Journal of Development Economics*, December 1986.

"Growth and Equity in Developing Countries - A Reinterpretation of the Sri Lankan Experience. (with Surjit Bhalla) *World Bank Economic Review*, September 1986. (Reprinted in Deepak Lal, ed., *Development Economics, Volume II*, International Library of Critical Writings in Economics. Edward Elgar. United Kingdom).

"Response to Comments by Pyatt and Isenman" (with Surjit Bhalla). *World Bank Economic Review*, May 1987.

"Unemployment in Developing Countries: Economist's Models in Light of Evidence from Sri Lanka", *International Economic Journal*. Winter 1987.

"Trends in Self-Employment Income in Sri Lanka: 1969-70 to 1981-82". In van Ginneken, ed., *Trends in Employment and Labour Incomes: Case Studies on Developing Countries*, International Labour Office, Geneva, 1988.

"Economic Liberalization and Income Inequality: A Re-Examination of the Sri Lankan Experience". *Journal of Development Economics*, March 1988.

"Response to Comments by Ravallion and Jayasuriya". *Journal of Development Economics*, March 1988.

“The Poor During Adjustment: A Case Study of Cote d’Ivoire” (with Dennis de Tray). In *The Macroeconomic Policy Reforms, Poverty, and Nutrition: Analytical Methodologies*, Per Pistrup-Andersen, ed. Monograph No. 3. Cornell Food and Nutrition Policy Program, Cornell University. 1990.

“Measurement of Income Inequality Under Inflation: Correction Formulae for Three Inequality Measures”. *Journal of Development Economics*, January 1990.

“Identifying the Poor in Developing Countries: Definitions, Information and Policies” (with Jacques van der Gaag). *World Development*, June 1990.

“The Willingness to Pay for Education in Developing Countries: Evidence from Rural Peru” (with Paul Gertler). *Journal of Public Economics*, August 1990.

“World Bank Efforts at Poverty Measurement in the Third World: The Living Standards Measurement Study.” in R. Teekens and B. van Praag, eds., *Analyzing Poverty in the European Community*. Eurostat. Luxembourg. 1991.

“Household Equivalence Scales and the Measurement of Inequality: Transfers from the Poor to the Rich Could Decrease Inequality”. *Journal of Public Economics*, March 1991.

“Investigating the Determinants of Household Welfare in Cote d’Ivoire”. *Journal of Development Economics*, April 1991.

“The Poor in Latin America During Adjustment: A Case Study of Peru” (with Dennis de Tray). *Economic Development and Cultural Change*, October 1991.

“The Willingness to Pay for Education for Daughters versus Sons: Evidence from Rural Peru” (with Paul Gertler). *World Bank Economic Review*, January 1992.

“Targeting Assistance to the Poor: Efficient Allocation of Transfers When Household Income is not Observed”. *Journal of Development Economics*, April 1992.

“The Three-Choice Multinomial Probit with Selectivity Corrections”. *Econometric Theory*. (Problems and Solutions Series), June 1992 (Problem), and June, 1993 (Solution).

“Unorthodox Adjustment and Poverty in Peru (with Gillette Hall). *Finance and Development*, December, 1992.

“Using Nationally Representative Household Surveys for Food Policy Analysis: An Examination of the World Bank’s Living Standards Measurement Study Surveys (with Margaret Grosh). In J. von Braun and D. Puetz, eds., *Data Needs for Food Policy in Developing Countries: New Directions for Household Surveys*, International Food Policy Research Institute, Washington, D.C., 1993.

“Poverty, Inequality and Living Standards During Unorthodox Adjustment: The Case of Peru, 1985-1990” (with Gillette Hall). *Economic Development and Cultural Change*. July, 1994.

“Student Achievement and Schooling Choice in Low Income Countries: Evidence from Ghana” (with Hanan Jacoby). *Journal of Human Resources*, Summer, 1994.

“Poverty and Human Development: An Emerging Consensus?” (with Harsha Atarupane and Paul Isenman). *American Economic Review* (Papers and Proceedings), May, 1994.

“An Economic Analysis of Delayed Primary School Enrollment in a Low Income Country: The Role of Early Childhood Nutrition” (with Hanan Jacoby). *Review of Economics and Statistics*, February, 1995.

“An Eclectic Approach to Estimating the Determinants of Achievements in Jamaican Primary Education” (with Margaret Grosh, Hanan Jacoby and Marlaine Lockheed). *World Bank Economic Review*, May, 1995.

“Household Survey Data from Developing Countries: Progress and Prospects” (with Margaret Grosh). *American Economic Review* (Papers and Proceedings), May, 1996.

“The Determinants of School Attainment in Sub-Saharan Africa: A Case Study of Ghana” (with Nauman Ilias). *Journal of International Development*. May-June, 1996.

“The Relevance of Standard Estimates of Rates of Return to Schooling for Education Policy: A Critical Assessment”. *Journal of Development Economics*, December, 1996.

“Estimating the Impact of Peer Group Effects on Socio-Economic Outcomes: Does the Distribution of Peer Group Characteristics Matter?” *Economics of Education Review*, January, 1997.

“A Test of the Normality Assumption in the Ordered Probit Model”. *Econometric Reviews*, February, 1997.

“Data Watch: The World Bank’s Living Standards Measurement Study Household Surveys (with Margaret Grosh). *Journal of Economic Perspectives*, Winter, 1998.

“Who is Most Vulnerable to Macroeconomic Shocks: Hypothesis Tests Using Panel Data from Peru” (with Gillette Hall). *Journal of Development Economics*, June, 1998.

“Why Does Mother’s Schooling Raise Child Health in Developing Countries? Evidence from Morocco”. *Journal of Human Resources*, Winter, 1999.

“School Quality, Student Achievement and Fertility in Developing Countries: An Assessment of Current Knowledge and Recommendations for Future Research”, in G. Bledsoe, J. Casterline and J. Johnson-Kuhn, eds. *Education and Fertility in the Developing World*. National Academy of Sciences. Washington D.C. 1999.

“The Role of the Private Sector in Education in Vietnam: Evidence from the Vietnam Living Standards Survey” (with Harry Patrinos). *World Development*, May, 1999.

“A Guide to Living Standards Measurement Study Surveys” (with Margaret Grosh), in *Household Accounting: Experience and Concepts in Compilation*. Statistics Division. Department of Economic and Social Affairs. The United Nations. 2000.

“The Impact of Early Childhood Nutritional Status on Cognitive Development: Does the Timing of Malnutrition Matter?” (with Elizabeth King). *World Bank Economic Review*, September 2001.

“Early Childhood Nutrition and Academic Achievement: A Longitudinal Analysis” (with Hanan Jacoby and Elizabeth King). *Journal of Public Economics*. September, 2001.

"Markets, Human Capital, and Inequality: Evidence from China," (with Dwayne Benjamin, Loren Brandt and Guo Li), forthcoming in "*Global Inequality: Where Are We and Where Are We Headed*," edited by Richard Freeman, MacMillan Press.

“Provision of Health Care and Education in Transitional Asia: Key Issues and Lessons from Viet Nam” (with Jennie Litvack), in A. Li, ed., *Poverty and Welfare in the Asian Transitional Economies*. World Institute for Development Economics Research, Helsinki. (forthcoming)

“Retrospective vs. Prospective Analyses of School Inputs: The Case of Flip Charts in Kenya” (with Michael Kremer, Sylvie Moulin and Eric Zitzewitz). *Journal of Development Economics* (forthcoming)

“Economic Growth and the Demand for Education: Is there a Wealth Effect?” (with Hanan Jacoby). *Journal of Development Economics* (forthcoming).

“Who Gained from Vietnam’s Boom in the 1990’s (with Michele Gragnolati and Hassan Zaman). *Economic Development and Cultural Change* (forthcoming).

"Schools and Skills in Developing Countries: Education Policies and Socioeconomic Outcomes" *Journal of Economic Literature* (forthcoming).

CURRENT RESEARCH AND MANUSCRIPTS UNDER REVIEW

“Textbooks and Test Scores: Evidence from a Prospective Evaluation in Kenya” (with Michael Kremer and Sylvie Moulin).

“Child Nutrition and Economic Growth in Vietnam in the 1990s” (with Stephanie Koch and Binh Linh Nguyen).

“How Much of Estimated Economic Mobility is Measurement Error? A Simple Method to Remove Measurement Error, with an Application to Vietnam” (with Phong Nguyen).

MAJOR RESEARCH GRANTS (over \$100,000)

World Bank Research Committee Grant, “Assessing the Quality and Socioeconomic Impact of Education in Sub-Saharan Africa”. RPO 674-57. 1988.

National Academy of Sciences, Committee on Scholarly Communication with the People’s Republic of China. Award to Study Household Behavior in Rural China (with Loren Brandt). 1991.

World Bank Research Committee Grant, “Improving Effectiveness and Efficiency in Developing Countries: The Case of Jamaica” (with Marlaine Lockheed). RPO 676-87. 1991.

World Bank Research Committee Grant, “Household Welfare during Viet Nam’s Transition to a Market Economy” (with David Dollar and Jennie Litvack). RPO 678-83. 1991.

Asian Development Bank Grant, “The Impact of Children Health and Nutrition on Educational Outcomes in a Developing Country: An Analysis of Longitudinal Data from Cebu, Philippines” (with Elizabeth King). 1994.

World Bank Research Committee Grant, “Increasing the Policy Relevance of LSMS Household Survey Data” (with Margaret Grosh). 1994.

World Bank Research Committee Grant, “Improving Primary Education in Kenya: A Randomized Evaluation of Different Policy Options”. 1996.

World Bank Research Committee Grant, “The Impact of Deworming Treatment on Primary School Performance in Busia, Kenya”. 1998.

World Bank Research Committee Grant, “Economic Growth and Household Welfare – Policy Lessons from Vietnam”. 2000.

OTHER RELEVANT EXPERIENCE

Implementation of Ghana Living Standards Survey, in cooperation with the Ghana Statistical Service. This includes: design of survey instruments, supervision of consultants, field testing, training of interviewers, supervisors and other survey staff, field visits to monitor the progress of the survey teams after data collection commenced, and advice on data management and subsequent analysis. 1986-1988.

Assistance to the Statistical Institute of Jamaica in the implementation of the Jamaican Survey of Living Conditions. Preparation of the preliminary reports on the survey. 1988-1990.

Implementation of the 1992-93 and 1997-98 Viet Nam Living Standards Survey, in cooperation with the General Statistical Office of Viet Nam. Funding was obtained from UNDP and the Swedish International Development Agency. 1991-1998. Currently working on plans for additional surveys from 2002 to 2010.

Travel to the following countries for World Bank operational and research work: China, Cote d’Ivoire, Ghana, Jamaica, Jordan, Kenya, Laos, Malaysia, Morocco, Philippines, Peru, Sri Lanka, Turkey and Viet Nam.

OTHER PROFESSIONAL ACTIVITIES:

Member of: American Economic Association
Econometric Society
Royal Economic Society

Referee for: *American Journal of Agricultural Economics, Annales d’Economie et de Statistique, Cambridge University Press, Demography, Econometric Reviews, Economic Development and Cultural Change, Economic Journal, Economics of Education Review, Education Economics, Educational Evaluation and Policy Analysis, European Economic Review, European Review of Agricultural Economics, International Economic Review, Journal of African Economies*

Journal of Business and Economic Statistics, Journal of Development Economics, Journal of Development Studies, Journal of Human Resources, Journal of Population Economics, Journal of Public Economics, Quarterly Journal of Economics, Review of Economics and Statistics, Spencer Foundation, World Bank Economic Review, World Bank Editorial Committee, World Development.

Emily Hannum
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3718 Locust Walk
University of Pennsylvania
Philadelphia, PA 19104-6299,
Telephone: 215-898-9633
hannumem@ssc.upenn.edu
(10/6/2003)

Employment

Assistant Professor of Sociology and Education, University of Pennsylvania, 2001-.
Assistant Professor of Administration, Planning and Social Policy, Harvard Graduate School of Education, 1998-2001.

Education

Ph. D., Sociology, University of Michigan, Demography Concentration, conferred 1998.

Doctoral Dissertation: Educational Inequality: Hidden Consequences of the Reform Era in Rural China. Committee: Professor Yu Xie (Chair, Sociology), Professor Barbara Anderson (Sociology), Professor Reynolds Farley (Sociology), Professor Harold Stevenson (Psychology).

B.A., Sociology, Magna Cum Laude, Georgetown University, 1991.

Mandarin Training Program, National Taiwan Normal University, Taipei, Taiwan, 1990.

Research Interests

Education, social stratification, poverty and children's healthy development, gender and ethnicity, social policy, economic development, Chinese society.

Teaching Interests and Experience

Educational stratification in comparative perspective; social issues in economic development; social problems in contemporary China; survey data collection; introduction to research methods; introduction to demographic methods; introductory sociology.

Published Articles and Chapters (*=peer reviewed)

- Hannum, Emily and Albert Park. (2002). "Educating China's Rural Children in the 21st Century." *Harvard China Review* 3 (2): 8-14.
- Hannum, Emily. (2002) Ethnic Differences in Basic Education in Reform-Era Rural China. *Demography* 39 (1): 95-117.*
- Fuller, Bruce, and Emily Hannum. (2002) "Scaffolds for School Achievement? The Cultural and Institutional Sources of Social Capital," in *Research in Sociology of Education 13: Schooling and Social Capital in Diverse Cultures*, ed.s Bruce Fuller and Emily Hannum. (Forthcoming, Elsevier Science.)
- Hannum, Emily and Bruce Fuller. (2002) "Social Resources, Social Institutions and Educational Stratification: Contributions of Cross-Cultural Research," in *Research in Sociology of Education 13: Schooling and Social Capital in Diverse Cultures*, ed.s Bruce Fuller and Emily Hannum. (Forthcoming, Elsevier Science.)
- Buchmann, Claudia and Emily Hannum. (2001) "Education and Stratification in Developing Countries: A Review of Theories and Empirical Research." *Annual Review of Sociology* 27: 77-102.*
- Stash, Sharon and Emily Hannum. (2001) "Who Goes to School? Educational Stratification by Gender, Caste and Ethnicity in Nepal." *Comparative Education Review* 45 (3): 354-378.*
- Hannum, Emily. (2001) "Commentaries," in *Unequal Schools, Unequal Chances. The Challenges to Educational Opportunity in the Americas at the End of the 20th Century*, ed. Fernando Reimers. (Cambridge: Harvard University Press.)
- Hannum, Emily. (1999) "Poverty and Basic-Level Schooling in the People's Republic of China: Equity Issues in the 1990s." *Prospects: the Quarterly Journal of Comparative Education* 29 (4): 561-577.
- Hannum, Emily. (1999) "Political Change and the Urban-Rural Gap in Education in China, 1949-1990." *Comparative Education Review* 43 (2): 193-211.*
- Hannum, Emily, and Yu Xie. (1998) "Ethnic Stratification in Northwest China: Occupational Differences between Han Chinese and National Minorities in Xinjiang, 1982-1990." *Demography* 35 (3): 323-333.*
- Xie, Yu and Emily Hannum. (1996) "Regional Variation in Earnings Inequality in Reform- Era Urban China." *American Journal of Sociology* 101 (4): 950-992. (Also published in translation in *Market Reform and Social Stratification: American Sociologists' Analyses of China*, edited by Yanjie Bian. Beijing: San Lian Press, 2000.)*
- Hannum, Emily, and Yu Xie. (1994) "Trends in Educational Gender Inequality in China: 1949-1985." *Research in Social Stratification and Mobility* 13: 73-98.*

Forthcoming Edited Books

- Hannum, Emily (co-editor with Bruce Fuller). (2002) *Research in Sociology of Education 13: Schooling and Social Capital in Diverse Cultures*. (Forthcoming, Elsevier Science.)

Hannum, Emily (co-editor with Bruce Fuller and Regina Werum). *Research in Sociology of Education 14: Educational Stratification from a Comparative-International Perspective*. (Working title, forthcoming, Elsevier Science, 2003.)

Research and Policy Reports

Hannum, Emily and Jae-Eun Joo. (2001) "Alleviating Poverty through Education: Potential ICT Applications in Developing Countries." Paper prepared for the Asian Development Bank Institute Workshop, "Information and Communication Technology and Education: Potential for Partnerships." (Hong Kong, April 23-27, 2001).

Hannum, Emily. (1998) "Educational Expansion and Demographic Change: Pathways of Influence." Background paper prepared for the World Bank Workshop, "Asia's New Demographic Realities: Do they Matter for Economic Growth." (April, Bangladesh) (Available on-line in the World Bank Institute's Adapting to Change Learning Program Library, <http://www.reprohealth.org/library.asp>, version current 08/15/01).

Hannum, Emily, and Yu Xie. (1995) "Ethnic and Gender Stratification in an Economic Reform Era: The Case of Xinjiang, China," University of Michigan Population Studies Center Research Report No. 95-327.

Hannum, Emily, and Yu Xie. (1992) "Gender and Educational Attainment in Modern China: an Analysis of Trends," University of Michigan Population Studies Center Research Report No. 92-264.

Works Under Review and in progress

Hannum, Emily. Poverty and Basic Education in Rural China: An Analysis of Community and Household Influences on Girls' and Boys' Enrollment. (Revise and resubmit, *Comparative Education Review*.)

Hannum, Emily (co-editor with Albert Park). Schooling in Transition: Market Reforms and Educational Inequality in China. (Book manuscript, prospectus submitted to Harvard University Press.)

Hannum, Emily. Modernization versus Market Transition? Explaining Educational Gender Inequality in Reform-Era Rural China.

Hannum, Emily and Albert Park. Families, Teachers and Children's Educational Engagement in Rural Gansu, China.

Park, Albert and Emily Hannum. Teacher Effects on Child Learning in Developing Countries: Evidence from Rural China.

Liu, Xiaodong and Emily Hannum. Spare the Rod and Spoil the Child? Parenting Practices and Children's Behavioral Problems in Rural Northwest China.

Hannum, Emily and Peggy Kong. Gender and Educational Aspirations in Rural Northwest China.

Adams, Jennifer and Emily Hannum. Trends in Children's Social Welfare in China: Access to Health Care and Education.

Hannum, Emily. and Claudia Buchmann. Educational Expansion in Developing Countries: Consequences for Health, Welfare, and Political Change.

Hannum, Emily. Educational Opportunity and Inequality in Rural Northwest China. (Book project.)

Externally Funded Projects

“A Pilot Study of Children and Families in Gansu” (1998-1999). Spencer Foundation, Principal Investigator with Co-Investigator Yanhong Zhang, UNESCO. This project was a pilot study intended to refine and test the design and implementation procedures for the Gansu Poverty and Education Project (described below). (\$35,000)

“The Gansu Poverty and Education Project” (1999-2002). Spencer Foundation, Principal Investigator with Co-Investigator Yanhong Zhang, UNESCO. This project employs a multi-method, multi-level data collection strategy designed to illuminate the complex relationship between poverty and rural children’s welfare. Children’s welfare is broadly conceptualized to include educational, cognitive, psycho-social, and physical dimensions. The survey component of this project, “The Gansu Survey of Children and Families 1,” consists of linkable questionnaires administered to 2000 9-12 year-old children in 20 rural counties and their parents, community leaders, and teachers. In addition, teacher and principal questionnaires about teacher background and working conditions and school organization, finance, and management were conducted in all primary schools in all sampled villages. The design facilitates the evaluation of material resource, human capital, social capital and cultural capital explanations of the mechanisms by which poverty relates to children's outcomes, as well as separation of community infrastructure effects, family factors, and school quality factors. (\$278,000)

“Harvard Conference on Chinese Education Reform” (2001). Ford Foundation-Beijing and Harvard University Asia Center, Co-organizer with Albert Park, Economics, University of Michigan. Session titles: priorities for basic education reform, teachers and school performance, student motivation and engagement, schooling in poor and minority areas, trends in education finance, higher education reform issues, education and social stratification, and education and the labor market. (\$45,000 total)

“Gansu Survey of Children and Families, Waves 2 and 3: Pilot.” (2001-2003). Development grant from the International Studies in Health and Economic Development Program, Fogarty International Center, National Institutes of Health. Principal Investigator with Co-Principal Investigator Albert Park, Economics, University of Michigan, and Yanhong Zhang, UNESCO. This project will develop new health-focused survey modules for follow-up waves to The Gansu Survey of Children and Families (GSCF), a survey of 2000 children aged 9-12 in 20 rural counties in a province in northwest China. The follow-up survey seeks to 1) examine the economic consequences of physical and psychosocial health, especially for future labor supply decisions and labor productivity; 2) evaluate the indirect effects of health on labor outcomes through its effect

on education and learning; and 3) identify community, family, and individual factors that affect health and development. (\$126,000)

“School Governance Networks for Educational Improvement in Developing Countries

(Gansu, China Pilot).” (2002-2003) Grant funded by the InfoDev Program at the World Bank. Co-Principal Investigator with Co-Principal Investigators Albert Park, Economics, University of Michigan, Jae-Eun Joo, Education, Harvard University and Jiayi Wang, Education, Northwest Normal University. This project examines the consequences of bringing Internet-based virtual communities to low-income rural schools in China. The intervention seeks to improve governance in isolated rural schools serving impoverished populations by offering an information-technology enabled “rural school governance network” for principals and teachers in remote regions of Northwest China. The network will provide ICT tools that will enable interaction with the outside world, and particularly with peers and expert advisors, and facilitate school management and planning. Using a randomized experimental design combined with surveys, on-line data capture, and ethnographic research, we will analyze consequences for principals’ and teachers’ attitudes and networking behaviors, school culture and functioning, and student achievement and engagement. (\$150,000)

“Human Capital in China’s Urban Labor Market: Insights from New Literacy, Numeracy and Life-Skills Measures.” (2002-2003) The International Center for the Study of East Asian

Development, Kitakyushu, Japan. Principal Investigator, with Co-Investigators Albert Park, Economics, University of Michigan, John Giles, Economics, Michigan State University, Meng Hongwei, China National Institute for Educational Research, and Cai Fang and Zhang Juwei, both of Chinese Academy of Social Sciences. Partial support to develop and analyze a literacy survey (The China Adult Literacy Survey) that will augment an ongoing five-city survey of urban households and migrants (The China Urban Labor Survey, directed by Park, Giles, and Cai). Three lines of research will be pursued: 1. Literacy and Life-Skills among China’s Urban Work Force. What is the distribution of adult literacy, numeracy, and basic skills in the labor force? How does it vary by demographic group, educational level, and occupation? Are there weaknesses that merit policy attention? 2. Life-Skills, Schooling and the Labor Market in Urban China: New Insights on Old Relationships using Direct Measures of Human Capital. How do adult literacy, numeracy, and basic skills affect labor market outcomes (i.e., earnings, occupational choice), income inequality and social stratification, and labor mobility? How do education and experience affect labor market outcomes after controlling for adult life skills and other sources of bias? 3. Life Skills and Labor Market Inequality in Urban China. What can life skills measures, adding to traditional measures of human capital, tell us about labor market inequalities in urban China? To what extent are urban labor markets segmented, or do they discriminate, with respect to migrant status, ownership type, sector, gender, and age? (\$15,000)

University Grants

2001. “Virtual Seminars on International Education Policy” (2001). Harvard University Provost’s Office, Co-Organizer with Jae-Eun Joo and Suzanne Grant-Lewis, Harvard Graduate School of Education. Virtual seminars with education professionals working in developing countries and International Education Policy faculty and graduate students. (\$45,833.)

2000. Harvard Graduate School of Education Technology Award, awarded to organize a team to explore distance learning possibilities for the international development and education program (\$12,000).

1999. Harvard Graduate School of Education Faculty Research Innovation Fund Grant, awarded to develop psychological indicators for use among adolescents in rural China (\$5,000).

1999. Harvard Graduate School of Education Teaching and Curriculum Quality Grant, awarded to write a review of educational stratification research in developing countries as introductory material for the course, Seminar on Education and Social Inequality (\$5,000).

1999. Harvard Graduate School of Education Faculty Research Innovation Fund Grant, awarded to partially fund an Harvard Graduate School of Education doctoral student as an editorial assistant for the volume, *Research in Sociology of Education* (matching funds provided by Berkeley) (\$5,000).

1998. Harvard University David Rockefeller Center for Latin American Studies Curriculum Improvement Grant, awarded to incorporate Latin American source materials into the course, Seminar on Education and Social Inequality (\$5,000).

1998. Harvard Graduate School of Education Faculty Research Innovation Fund Grant, awarded for the research project, "Poverty and Children's Health in China." (1998-1999). Analyses of the National Survey of the Situation of China's Children and of the China Health and Nutrition Panel Study designed to evaluate children's health equity in an era of privatization (\$5,000).

1998. Harvard Graduate School of Education Teaching and Curriculum Quality Grant, awarded to incorporate international materials into the course, Seminar on Education and Social Inequality (\$3,000).

1998 Harvard Graduate School of Education Teaching and Curriculum Quality Grant, awarded to create a Website containing links to survey data archives, question banks, and searchable databases for the course, Survey Data Collection: Design and Management (\$3,000).

Academic Honors and Fellowships

National Academy of Education/Spencer Foundation Post-doctoral Fellowship, awarded to study poverty, gender and children's schooling experiences in Western China (2001-2002).

Spencer Foundation Dissertation Fellowship for Research Related to Education, awarded to study the consequences of economic reforms for educational stratification in rural China (1996-1997).

University of Michigan Horace H. Rackham School of Graduate Studies Dissertation Write-up Grant, awarded to study the consequences of economic reforms for educational stratification in rural China (Fall 1997).

University of Michigan Horace H. Rackham School of Graduate Studies Predoctoral Fellowship (1996-1997), awarded to study ethnic, gender, and socio-economic disparities in schooling in rural China, declined.

National Institute of Child Health and Human Development Fellowship for Training in Social and Economic Development (1994-1996).

Social Science Research Council/Ford Foundation International Pre-dissertation Fellowship, awarded to study ethnic differences in educational and occupational attainment in China (1992-1993).

Curriculum Vitae

April 24, 2002

ALBERT FRANCIS PARK

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University of Michigan
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Harvard University
Cambridge, MA 02138
T: (617) 495-4238

RESEARCH INTERESTS

Development, Transition, Labor, Applied Microeconomics, Chinese Economy

EDUCATION

Ph.D., Stanford University, Food Research Institute and economics, 1996

A.B., Harvard College, economics, *magna cum laude*, 1988.

Intensive Chinese language training: Beijing Language Institute, fall 1992; Inter-University Program for Chinese Language Studies in Taipei, summer 1992; Chinese Summer Language School, Middlebury College, summer 1990.

EXPERIENCE

Assistant Professor of Economics, University of Michigan, Ann Arbor, Michigan. Teach graduate course on microeconomics of development, undergraduate course on the Chinese economy. Faculty Affiliate of the Population Studies Center, Institute of Social Research, Research Fellow of the William Davidson Institute, Research Affiliate of the Center for Chinese Studies. January 1997 to present.

Visiting Assistant Professor, John F. Kennedy School of Government, Harvard University, Cambridge, MA. Teach MPA (International Development) course in advanced quantitative methods. January to June 2002.

Fulbright Visiting Researcher, China Center for Economic Research, Peking University, Beijing, China. Collaborative research on China's urban labor markets, coteach graduate course in labor economics. September to December 2001.

An Wang Post-doctoral Fellow, Fairbanks Center for East Asian Research, Harvard University, Cambridge, MA. Coteach junior seminar on "China: Social Science." September 2000 to August 2001.

Visiting Research Fellow, Institute of Economics, Academia Sinica, Taipei. Collaborative research on economics of the elderly in Taiwan. January to June, 1999

Consultant, World Bank. Review China poverty sector report (1999), write reports on rural financial market development in China (1998) and grain market development (1995).

Visiting Professor, Winrock Ph.D. Program in Agricultural Economics, China Agricultural University, Beijing. Co-teach lecture course on economic development and seminar on methods for analyzing poverty and inequality. Summer 1997 and fall 1996.

Visiting Scholar, Institute of Agricultural Economics, Chinese Academy of Agricultural Sciences, Beijing. Collaborative research on China's poverty alleviation programs. April to October, 1996.

Post-doctoral Fellow, Asia/Pacific Research Center, Stanford University. Coordinated seminar series on "Rural Industrialization in China." September 1995 to March 1996.

Acting Instructor, Food Research Institute, Stanford University. Lecture course on Economic Development in Greater China. Spring 1995.

Teaching Assistant, Food Research Institute, Stanford University. Courses in International Development Policy (masters) and Economic Development in China. Winter, spring, and fall, 1994; spring 1992.

Research Assistant, Korea Development Institute, Seoul, Korea. Government-funded economic policy research center. Edited speeches for the Deputy Prime Minister, economic working papers, and government documents such as the Korean government's Revised Sixth Five-Year Plan. August 1988 to July 1989.

PUBLICATIONS

Articles in Academic Journals

Park, Albert, and Minggao Shen. "Joint Liability Lending and the Rise and Fall of China's Township and Village Enterprises," *Journal of Development Economics*, forthcoming.

Park, Albert, Loren Brandt, and John Giles. "Competition Under Credit Rationing: Theory and Evidence from Rural China," *Journal of Development Economics*, forthcoming.

Park, Albert, Sangui Wang, and Guobao Wu. "Regional Poverty Targeting in China," *Journal of Public Economics*, forthcoming.

Brown, Phil, and Albert Park. "Education and Poverty in Rural China," *Economics of Education Review*, forthcoming.

Park, Albert, Hehui Jin, Scott Rozelle, and Jikun Huang. "Market Emergence and Transition: Transaction Costs, Arbitrage, and Autarky in China's Grain Markets," *American Journal of Agricultural Economics* 84(1): 67-82, 2002.

Park, Albert, and Kaja Sehr. "Tests of Financial Intermediation and Banking Reform in China," *Journal of Comparative Economics* 29: 608-644, 2001.

Park, Albert, and Sangui Wang. "China's Poverty Statistics," *China Economic Review* 12: 384-398, 2001.

Park, Albert, and Changqing Ren. "Microfinance with Chinese Characteristics," *World Development* 29(1): 3-62, 2001.

Rozelle, Scott, Albert Park, Hehui Jin, and Jikun Huang. "Bureaucrat to Entrepreneur: the Changing Role of the State in China's Grain Economy," *Economic Development and Cultural Change* 48(2):227-252, 2000

Park, Albert, and Scott Rozelle. "Reforming State-Market Relations in Rural China," *The Economics of Transition* 6(2): 461-480, 1998.

Rozelle, Scott, Albert Park, Changqing Ren, and Vince Bezinger. "Targeted Poverty Investments and Economic Growth in China," *World Development* 26 (12): 2137-2151, 1998.

Williams, Jeffrey, Ann Peck, Albert Park, and Scott Rozelle. "The Emergence of a Futures Market: Mungbeans on the China Zhengzhou Commodity Exchange," *The Journal of Futures Markets* 18(4): 427-448, 1998.

Rozelle, Scott, Albert Park, Jikun Huang, and Hehui Jin. "Liberalization and Rural Market Integration in China," *American Journal of Agricultural Economics* 79(2): 635-642, 1997.

Park, Albert, Scott Rozelle, Christine Wong, and Changqing Ren. "Distributional Consequences of Reforming Local Public Finance in China," *The China Quarterly* 147: 751-778, 1996.

Park, Albert, and Bruce Johnston. "Rural Development and Dynamic Externalities in Taiwan's Structural Transformation," *Economic Development and Cultural Change* 44(1): 181-208, 1995.

Park, Albert, Scott Rozelle, and Fang Cai. "China's Grain Policy Reforms: Implications for Equity, Stabilization, and Efficiency," *China Economic Review* 5(1): 15-33, 1994.

Chapters, Notes, and Other Publications

Brandt, Loren, Albert Park, and Sangui Wang. "Are China's Financial Reforms Leaving the Poor Behind?" in Yasheng Huang, Edward Steinfeld, and Anthony Saich, eds., *Financial Sector Reform in China* (Cambridge: Harvard East Asian Press), forthcoming.

Gale, Fred, and Albert Park. "Can Rural Income Growth Accelerate?" *China's Food and Agriculture: Issues for the 21st Century* (Washington, D.C.: USDA), April 2002.

Hannum, Emily, and Albert Park. "Educating China's Rural Children for the 21st Century," *Harvard China Review*, April 2002.

Park, Albert, and Minggao Shen. "Traps in Decentralizing Financial Institutions: Some Interesting Lessons from China," *Transition* (World Bank and William Davidson Institute) 12(3): 35-36, July-August-September 2001.

Park, Albert. "Trade Integration and the Prospects for Rural Enterprise Development in China," *China's Agriculture in the International Trading System* (Paris: OECD), pp. 184-207, 2001.

Park, Albert, and Kaja Sehr. "Tests of Financial Intermediation and Banking Reform in China," *Transition* (World Bank and William Davidson Institute) 10(5): 28-30, October 1999.

Park, Albert. "Banking for the Poor," *Chinabrief*, May 1999.

Park, Albert, and Changqing Ren. "Resource Flows, Markets and Economic Development in China's Poor Areas," *Asia Prashant* 3(1): 21-48.

Johnston, Bruce, and Albert Park. "Dynamic Externalities and Structural Change in Kenya," in John Mellor, ed., *Agriculture on the Road to Industrialization* (Baltimore: Johns Hopkins University Press), 1995.

Johnston, Bruce, and Albert Park. "Strategic Notions and Great Policies: Reflections on Taiwan's Experience with Economic Transformation," in John Montgomery and Denis Rodinelli, eds., *Great Policies: Strategic Innovations in Asia and the Pacific* (Greenwood Publishing Group, Inc., Praeger Publishers), 1995.

Park, Albert. "Grain Market Liberalization in Shaanxi Province," USDA Economic Research Service, *Asia & Pacific Rim Agriculture and Trade Notes*, November 15, 1993.

Reviews

Review of *Analytical Development Economics*, by Kaushik Basu (Cambridge: Oxford University Press, 1997), *Economica*.

Review of *Financing Local Government in the People's Republic of China*, edited by Christine Wong (Hong Kong: Oxford University Press, 1997), *Journal of Comparative Economics*, 1998.

Review of *China's Economic Reforms*, by Shangquan Gao (London: Routledge Press, 1996), *Journal of Economic Literature*, 1997.

Review of *Financial Reform in China*, edited by On Kit Tam; *Fiscal Management and Economic Reform in the People's Republic of China*, by Christine Wong, Christopher Heady, and Wing Thye Woo, and *Banking and Financial Control in Reforming Planned Economies*, by Haiqun Yang, *The China Quarterly*, 1998.

Books in Chinese

Zhang, Baomin, Albert Park, and Changqing Ren, eds. *Resource Flows and Poverty Alleviation* (Taiyuan: Shanxi Economic Press), 1997.

Articles in Chinese

Park, Albert, and Changqing Ren. "Microfinance with Chinese Characteristics." In *China's Rural Development Report 1*, (Beijing: Social Sciences Document Press House [shehui kexue wenxian chubanshe]), 2001.

Park, Albert, and Sangui Wang. "Credit Supply and Demand of the Poor Households in China," *Annual Report on Economic and Technological Development in Agriculture* (Beijing: China Agricultural Press), 2001.

Park, Albert, Sangui Wang, and Guobao Wu. "Assessing China's War on Poverty," *Annual Report on Economic and Technological Development in Agriculture* (Beijing: China Agricultural Press), 1999.

Morduch, Jonathan, Albert Park, and Sangui Wang. "Microfinance in China," *Problems in Agricultural Economics* 3, 1998; also published in *Poverty and Development* 6: 1-8, 1997.

Park, Albert, and Changqing Ren. "Resource Flows, Markets, and Economic Development in China's Poor Areas," *Problems in Agricultural Economics* 3: 20-28, 1996. Also published in Zhang, Baomin, Albert Park, and Changqing Ren, eds. *Resource Flows and Poverty Alleviation* (Taiyuan: Shanxi Economic Press), 1997.

Park, Albert, and Changqing Ren. "A Model of Self-sufficiency and Household Production Response to Risk," *Agricultural Technology Economics* 5: 22-26, 1995. Also published in *Omnibus of Best Poverty Papers*, Vol. 1, (Beijing: People's Press), 2001.

Chen, Fan, Albert Park, and Scott Rozelle. "Evaluation of the Effectiveness of China's Poverty Alleviation Investments," *The Tribune of Economic Development* 6: 16-22, 1994.

Park, Albert. "Grain Market Liberalization in Shaanxi Province," *The Journal of Rural Social Economics* 40-44, Beijing Agricultural University, May 1994.

Book Manuscript

Hannum, Emily, and Albert Park, eds. *Education and Reform in China*, Modern China Series (Cambridge, Harvard University Press), in preparation.

Other Papers

Park, Albert. "Risk and Household Grain Management in Developing Countries," revised submission to the *The Economic Journal*, August 2001.

Park, Albert, and Minggao Shen. "A Refinancing Model of Decentralization with Empirical Evidence from China," submitted to the *Review of Economic Studies*, April 2002.

Kan, Kamhon, and Albert Park. "Dynamics of Elderly Living Arrangements in Taiwan."

Park, Albert, and Emily Hannum. "How Do Teacher Characteristics Affect Student Learning in Developing Countries?: Evidence from Matched Teacher-Student Data from Rural China."

Park, Albert, and Sangui Wang. "Will Credit Access Help the Rural Poor? Evidence From China."

Park, Albert, and Linxiu Zhang. "Mother's Education, Nutritional Awareness, and Child Health in Rural China."

Park, Albert. "Democracy and Agency in China."

Park, Albert, and Pungpond Rukumnuaykit. "Eat Drink Man Woman: Testing for Gender Bias in Intra-household Resource Allocation in China Using Individual Nutrient Intake Data."

Kan, Kamhon, and Albert Park. "Preference Heterogeneity and Elderly Living Arrangement Choice in Taiwan."

Pan, Suwen, and Albert Park. "Collective Ownership and Privatization of China's Village Enterprises."

Giles, John, Albert Park, and Juwei Zhang. "Health and Productivity in Rural China."

Park, Albert, David Ng, Jinyun Liu, Mingming Shen, and Ming Yang. "Beijing's Urban Labor Market in Transition, 1995 to 2000."

Hannum, Emily, and Albert Park. "Families, Classrooms, and Educational Engagement in Rural Gansu, China."

Li, Wen, Albert Park, and Sangui Wang. "School Equity in Rural China."

SURVEY PROJECTS

Co-principle Investigator, **China Urban Labor Survey**, fall 2001. Survey of 5000 urban resident and migrant households and neighborhoods in four Chinese cities (Fuzhou, Shanghai, Shenyang, Wuhan, and Xian). U.S. collaborator: John Giles, Michigan State University. Chinese collaborating organization: Institute of Population Studies, Chinese Academy of Social Sciences. Funding: Ford Foundation, Michigan State University, University of Michigan, Chinese Academy of Social Sciences.

Co-principle Investigator, **China Rural Poverty Survey II**, 2001. Survey of 600 rural households, including anthropometric measurements, and local villages, schools, medical clinics, and rural financial institutions in four officially-designated poor counties in Gansu, Shaanxi, Guizhou, and Sichuan. Half of sample is panel from the China Rural Poverty Survey I. Survey of 1000 villages in the same four counties on the provision of local public

goods. Chinese collaborating organization: China Poverty Research Association, and Institute of Agricultural Economics, Chinese Academy of Agricultural Sciences. Funding: Ford Foundation.

Co-principal Investigator, **School Governance Networks for Educational Improvement in Developing Countries**, 2001-2003. Proposal to implement and evaluate an internet-based training and support program for a randomly selected group of middle-school principals in remote, rural areas in China. Survey design includes surveys of students and teachers before and after treatment in control and treatment schools. U.S. collaborator: Emily Hannum, Harvard University. Chinese collaborating organization: Northwest Normal University. Funding: World Bank (infoDev).

Co-principle Investigator, **Gansu Survey of Children and Families**, 2000. Survey of 2000 9-12 year-old children in rural areas, their mothers, families, teachers, school principals, and villages in 20 counties in Gansu. Survey of 1000 teachers in same village schools. U.S. collaborator: Emily Hannum, Harvard University. Chinese collaborating organization: Northwest Normal University. Funding: Spencer Foundation.

Participant, **Survey of Health and Living Status of the Elderly in Taiwan, Wave 4**, 1999. Survey of 2000 elderly in Taiwan. Collaborators: Al Hermalin, University of Michigan, Jack Chang, Taiwan Provincial Family Planning Institute.

Investigator, **Rural Financial Institutions, Enterprises, and Local Governments in Rural Areas**, 1998 and 1999. Surveys of 200 rural financial institutions, 250 enterprises, and 100 township leaders in two interior provinces in 1999 (Shanxi and Sichuan) and two coastal provinces in 1998 (Zhejiang and Jiangsu). Collaborators: Loren Brandt, University of Toronto; Minggao Shen, Hong Kong University of Science and Technology; Hongbin Li, Chinese University of Hong Kong; Sangui Wang, Institute of Agricultural Economics, Chinese Academy of Agricultural Sciences. Funding: Ford Foundation and William Davidson Institute, University of Michigan.

Co-principle Investigator, **China Rural Poverty Survey I**, 1998. Survey of 450 rural households, including anthropometric measurements, and local villages, schools, medical clinics, and rural financial institutions in six officially-designated poor counties in Gansu, Shaanxi, Guizhou, Sichuan, Jiangxi, and Henan. Survey of 800 rural households in NGO and government microfinance program sites. U.S. collaborator: Scott Rozelle, University of California at Davis. Chinese collaborating organization: China Poverty Research Association. Funding: Ford and Luce Foundations.

Investigator, **China National Village Survey**, 1996. Survey of 220 villages in 8 provinces. Collaborators: Loren Brandt, University of Toronto; Scott Rozelle, University of California at Davis; Jikun Huang, Center for Chinese Agricultural Policy, Chinese Academy of Sciences. Funding: Rockefeller Foundation and Ford Foundation.

Principle Investigator, **Resource Flows and Poverty in China**, 1993. Two-part survey of 288 agricultural households in 4 poor counties in Shaanxi Province in northwest China. U.S. collaborator: Scott Rozelle, University of California at Davis. Chinese collaborating organization: Rural Development Institute, Chinese Academy of Social Sciences. Funding: Ford Foundation.

SURVEY PROJECTS PARTIALLY FUNDED OR IN PROPOSAL STAGE

Co-principle Investigator, **Gansu Survey of Children and Families II**, 2003. Re-survey of 2000 9-12 year-old children in rural areas, their mothers, families, teachers, school principals, and villages in 20 counties in Gansu. Expanded physical and mental health components. U.S. collaborators: Emily Hannum, Harvard University; and Paul Glewwe, University of Minnesota. Chinese collaborating organization: Northwest Normal University. Two-year seed grant from Fogarty Foundation. Potential Funders: National Institute of Child Health and Human Development, National Institute of Health; Spencer Foundation.

Investigator, **Perceptions of Social Inequality in China**, 2002-2004. Proposal to examine perceived and actual inequality among 8000 urban residents and migrants in eight Chinese cities. U.S. collaborator: Marty Whyte,

Harvard University. Chinese collaborating organization: Center for Research on Contemporary China, Peking University.

GRANTS AND AWARDS

Population Studies Center, University of Michigan, grant for project *New Measures of Literacy, Numeracy, and Life Skills: Human Capital and Socio-Economic Mobility in China*, 2002.

Center for International Business, University of Michigan, grant for survey project *Privatization and Firm Performance: An Empirical Study of China's State-Owned Enterprises*, 2002-2003.

World Bank, grant for project *New Measures of Literacy, Numeracy, and Life Skills: Human Capital and Socio-Economic Mobility in China*, 2002. (with Juwei Zhang and Fang Cai)

World Bank, infoDev, grant to support survey project *School Governance Networks for Educational Improvement in Developing Countries*, 2001-2003. (with Emily Hannum)

Fogharty Foundation and NIH, seed grant for research on international health and development, to support *Gansu Survey of Children and Families II*, 2001-2003. (with Emily Hannum)

Fulbright Visiting Research Award, to support 4-month visit to Center for China Economic Research at Peking University, 2001-2002.

Ford Foundation, grant to study *China's Urban Labor Markets in Transition* by supporting the China Urban Labor Survey, with John Giles, Michigan State University, and the Institute of Population Studies, Chinese Academy of Social Sciences, 2001-2002.

Rackham Faculty Research Grants, University of Michigan, *Urban Labor Market Development in China*, 2001.

Asia Center, Harvard University, grant to support *Conference on Education Reform in China*, with Emily Hannum, 2001.

Ford Foundation, grant to support Chinese participants in a 2001 workshop for the *Gansu Education and Rural Poverty* project, 2001. (with Emily Hannum)

Ford Foundation, grant for research on *Human Development and Socio-Economic Change in China's Poor Areas* (with China Poverty Research Association), 2000-2001. To fund second wave of China Rural Poverty Survey.

William Davidson Institute, International Institute, and Center for Chinese Studies of the University of Michigan, grants to hold a conference on *China's Uneven Transition: Inequality and Economic Reform* (co-organized with Ching-Kwan Lee and Mary Gallagher), April 2001.

An Wang Postdoctoral Fellowship, Harvard University, 2000.

Faculty Research Grant, Center for Chinese Studies, University of Michigan, 2000.

Ford Foundation Grant for Research on Rural Financial Institutions and Enterprises in Poor Areas, with Sanguai Wang and Minggao Shen, 1999.

Taiwan National Science Council, visiting research grant, February to July, 1999.

Livingston Award, Department of Economics, University of Michigan, 1998.

William Davidson Institute, grant for research on China's collective enterprise and local public finance, 1997-98.

Best Dissertation Award, Honorable Mention, American Agricultural Economics Association, 1997.

Henry Luce Foundation, United States-China Cooperative Research Program and Ford Foundation, Beijing, grants for research on Rural Poverty, Finance and Investment, and Poverty Policies in China, 1996-98. (with members of the China Poverty Research Association)

Berkeley Center for Chinese Studies, Post-doctoral Fellowship for Collaborative Research with the People's Republic of China, to support 6 months of research in China, 1996.

Stanford Centennial TA, 1994-95. One of 30 teaching assistants, recognized for outstanding teaching.

Institute for International Studies and Center for East Asian Studies, Stanford University, summer research grants, 1995 and 1994.

Fulbright-Hays Doctoral Dissertation Fellowship, 1993.

Committee on Scholarly Communication with China, Graduate Fellowship, 1992-93.

Pacific Basin Research Center of Soka University, Center for Science and International Affairs, J.F.K. School of Government, Harvard University, for field research in Taiwan, 1992. (with Bruce Johnston)

Social Science Research Council, International Predissertation Fellowship funded by the Ford Foundation, for Chinese area studies and research on China's rural development, 1991.

Center for Conflict and Negotiation, Stanford University, graduate fellow 1990-91, research grant for summer research in China, 1991.

Institute for International Studies, Stanford University, grant for summer research in China, 1991.

Phi Beta Kappa, Harvard University, 1988.

OTHER ACTIVITIES

Co-organizer, panel on China's urban labor markets, ASSA meetings (China Economists Society panel), with Yaohui Zhao, January 2003.

Steering Committee, project to publish definitive edited volume on Chinese economic reform entitled *The Transition that Worked: Origins, Mechanism, and Consequences of China's Long Boom*, led by Loren Brandt and Tom Rawski, 2001.

Co-organizer. Conference on Education Reform in China, with Emily Hannum, sponsored by Asia Center, Fairbanks Center for East Asian Research, Graduate School of Education, and Kennedy School China Public Policy Program, Harvard University, July 14-15, 2001.

Co-organizer. Workshop for researchers participating in the project Gansu Survey of Children and Families. with Emily Hannum, sponsored by the Fairbanks Center for East Asian Research and the Ford Foundation, July 16-17, 2001.

Co-organizer. Conference on "Inequality and Reform in China," with Ching-Kwan Lee and Mary Gallagher, sponsored by William Davidson Institute, the International Institute, and the Center for Chinese Studies, University of Michigan, April 7, 2001.

Co-organizer, Policy Forum on Rural Poverty in China, a forum for Chinese researchers to present research results to Chinese policy makers, with Sangui Wang and the China Poverty Research Association, supported by Ford Foundation, January 2000.

Faculty Mentor, SSRC International Predissertation Fellowship Program Fellows Conference, Park City Utah, October 2000, and Scottsdale, AZ, October 8-11, 1998.

Organizer, Seminar Workshop on "Political Economy of Evolving Markets in Rural China," Center for Chinese Studies, University of Michigan, March 17, 1997.

Advisory Committee, Research Grant Selection Committee, and dissertation advisor for 2 Ph.D. students, Winrock Ph.D. Program in Agricultural Economics, China Agricultural University, Beijing, 1996-98.

Co-organizer, Panel on Assessing China's War on Poverty, 1995 Annual Meeting of the Association for Asian Studies, with Scott Rozelle, April 6-9, 1995.

Co-organizer, Forum on China's Poverty Policies, a forum for Chinese researchers to present research results to Chinese policy makers, with Scott Rozelle and the China Poverty Research Association, supported by Ford Foundation, October 26, 1994. Co-editor, *Promoting Economic Development in China's Poor Areas*, collection of research briefs presented at the Forum, 1995. (With Scott Rozelle)

Instructor, Training Workshop on Methods for Analyzing Poverty and Rural Finance for Chinese researchers, sponsored by the China Poverty Research Association with support from the Ford Foundation, Beijing. September 4-13, 1996.

Assistant Instructor, Poverty Alleviation Research Training Program for Chinese researchers, with Scott Rozelle and Greg Veeck, sponsored by the Ford Foundation, Beijing. July 1993.

Chunming Chen,
Chinese Academy of Preventive Medicine

Brief Bio, 8/2000

Current Position

Senior Advisor and Professor, Chinese Academy of Preventive Medicine

Academic Appointments

1992- Present: Senior Advisor, Chinese Academy of Preventive Medicine

1999- Present: Professor and Special Advisor for International Collaboration, Union School of Public Health, Beijing Union Medical University

1985- Present: Professor of Nutrition, Chinese Academy of Preventive Medicine

Education

B.Sc. 1947, Department of Agricultural Chemistry, National Central University

Selected Publications

English

Chen CM. 1993. Development and Use of Regional Dietary Guidelines. Report of the Regional Expert Consultation of the Asian-Pacific Network for Food and Nutrition, FAO RAPA Publication 1993/17, pp.18-22.

Chen CM. 1995. Progress in Overcoming Hunger in China, 1989-1994. 1995 Hunger Report. Brown University, USA.

Chen CM. 1994. Household Food Security in China. Presentation at the FAO RAPA Regional Expert Consultation on Food and Nutrition 1994 Meeting (to be published in an FAO Publication).

Chen CM. 1994. Summary Report on the Establishment of a Food and Nutrition Surveillance System, Chen CM & Shao ZM, Food, Nutrition and Health Status of Chinese in Seven Provinces 1990. China Statistical Publishing House, Beijing, pp. 1-9.

Chen CM et al. 1996. Nutrition Status of Chinese People. Biochemical & Environmental Sciences, 9:2, pp. 81-94.

Chen CM. 1997. Diet-related Non-Communicable Diseases in China. Diet, Nutrition and Chronic

- Diseases – Lessons from a Contrasting World. John Wiley & Sons Ltd., London, pp. 23-30.
- Chen CM. 1997. Dietary Habits of the Chinese Population and Cardiovascular Risk, presented at the 4th International Conference on Preventive Cardiology, Montreal Canada.
- Chen CM. 1997. Food and Nutrition Policy in China - Using Nutrition Surveillance Data, presented at Symposium 24 (Nutrition Surveillance) of the 16th International Congress on Nutrition, Montreal, Canada.

Chinese

- Chen CM. 1991. Dietary Guidelines for Food and Nutrition Planning in China, Proceedings of the International Symposium on Food, Nutrition and Social Development, China Science and Technology Publishing House, Beijing, pp.34-48
- Chen CM et al. 1994. Food Consumption and Nutrition of Rural Households in Seven Provinces in China. Chen CM & Shao ZM, Food, Nutrition and Health Status of Chinese in Seven Provinces in 1990. China Statistical Publishing House, Beijing, pp. 21-28.
- Chen CM et al. 1994. Food Consumption and Nutrition of Urban Households in Seven Provinces in China, China Statistical Publishing House, Beijing, pp. 39-46.
- Chinese Academy of Preventive Medicine and State Statistical Bureau. 1997. Report on the Food and Nutrition Status of Chinese People 1990-1995 and Policy Recommendations on Nutritional Improvement. In-house publication, Chinese Academy of Preventive Medicine.
- Chen CM and Ge KY. 2000. Guide to Diet and Nutrition for the People of China. Huaxia Publishing House, Beijing.

Awards

- 1985 First Class Award for Scientific Advancement, Ministry of Public Health
- 1986 Second Class Award for Scientific Advancement, State Commission of Science and Technology
- 1988 First Class Award for Scientific Advancement, Ministry of Public Health
- 1989 Second Class Award for Scientific Advancement, State Science and Technology
- 1992 Certificate of Achievements in Nutrition, Food Agriculture Organization of United Nations

Membership In Academic Societies

- Chinese Association of Science and Technology
- Chinese Medical Association
- Chinese Nutrition Society
- Chinese Association of Preventive Medicine
- Chinese Association of STD and AIDS Prevention and Control

Chinese Association of Endemic Disease Control

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed for Form Page 2.
Follow the sample format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME	POSITION TITLE
Hongwei Meng	Director of the Research Center for Educational Measurement & Monitoring, China National Institute for Educational Research

EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Beijing University	AB	1964-1968	Diploma
Beijing Normal University	MED	1979-1981	Education and Psychology
University of Hong Kong	PhD	1988-1992	Educational Evaluation

Professional Positions

1995.7-present. Director of the Research Center for Educational Measurement & Monitoring, China National Institute for Educational Research.

Selected Awards and Professional Activities

2001.9-2001.11 Team Leader of Drafting Committee of China National EFA Action Plan

2001.3-2001.9 Team Leader of UNESCO INRULED International Rural Education Report

2000.12-2001.3 Team Leader of Assessment & Evaluation Project for the EU-China Higher Education Cooperation Programme

2000.12-2001.1 National Consultant of Functional Literacy Training for WFP Qinling Mountain Area Poverty Alleviation Project in Shaanxi/Hubei Provinces

2000.11 Resource Person, UNESCO Senior Training Workshop for African and Asia Countries on Rural Education

2000.5-10 National Consultant, UNICEF end-cycle programme evaluation

2000.9 National Consultant, British-China Gansu Basic Education Project

1999.11 Member of the Governing Board of UNESCO Institute for Statistics (Representative for Asia & Pacific Region)

1999.10 Resource Person of UNESCO/ILI Workshop Assessing Basic Learning Competencies Among Youth and Young Adults in Developing Countries.

1999.9 Resource Person of the UNESCO Regional Workshop on Local Self-government Involvement in Non-formal Education.

1999.8. Consultant for the UN Common Country Assessment on Basic Education in China

1999.6 - 7 National Consultant for the WFP Qinling Mountain Area Poverty Alleviation Project in Shaanxi/Hubei Provinces

1999.5-12 Project Coordinator of UNESCO Conditions of Teaching and Learning in Primary Schools in China

1999.4-12 Project Leader of the UNDP pilot study of Adult Literacy Assessment in China

1998.8–2000.2 Consultant for the Department of Development & Planning, Ministry of Education for “UNESCO Education for All 2000 Assessment Project”

1998.5- Vice President of Cultural and Education Commission. The Central Committee of China Democracy League

1998.3 – 4 Consultant for the European Union Project “Basic Education in Gansu province”

1997.11- Member of ISCED 1997 Task Force, UNESCO

1997.9–Consultant of the Department of Development & Planning, Ministry of Education for “UNESCO/OECD World Education Indicators Project”

1997.6-1997.12 Local Consultant for EMIS Component, the Asian Development Bank Project for Department of Ethnic Minorities, State Education Commission

1997.2 Vice Director of the Basic Education Commission, China Democracy League, Beijing

1996.5- Professor and Member of the Academic Committee of Yuda Business College

1996.5-1997.1 UNESCO National Consultant for UNDP Educational Quality Indicators Project

- 1996.1-1997.12 International Project Coordinator of APEC (Asia- Pacific Economic Cooperation) Project "School Based Indicators of Effectiveness"
- 1995.9-2000.11 President-elect for Asia-Pacific Association of Educational Assessment
- 1995.8-1996.8 Local Consultant for the Asian Development Bank's Project in the National Academy of Educational Administration
- 1994.10-1998.5 Member of Education Commission, Central Committee of China Democracy League
- 1994.10-1997.12 Consultant for the Government of Beijing Experimental District of Educational Reform (Haidian District, Beijing).
- 1993.12 –1997.11 Executive Director of the Sino British Link Project "School Effectiveness in China".
- 1993.12 - 1994.10 Consultant for the UNESCO / UNICEF Joint Project "Monitoring Education for All Goals" in Sri Lanka.
- 1993.6 Executive Director of the World Bank Project "Educational Development in Poor Provinces in China, Student Assessment".
- 1993.2 - 1995.5 Consultant for the UNESCO / UNICEF Joint Project "Monitoring Education for All Goals" in China.
- 1992.10 - 1994.10 Consultant for the UNICEF Project "Minimum Levels of Learning in Primary Schools in the Poor Areas in China. "
- 1991.12 – 1995.12 National Project Coordinator in China, IEA Third International Mathematics & Science Study.
- 1984 - 1987 Secretary of the Chinese National Center for IEA (International Association for the Evaluation of Educational Achievement) and Member of SISS (Second IEA Science Study) Technical Committee in China.

Selected Peer-Reviewed Publications (In Chronological Order)

- "Study on the Development of Part-Whole Picture Perception at the age of 4 - 8", Acta Psychologica Sinica Vol.2, 1982.
- "Experimental Study on Stereoscopic Depth Constancy", Acta Psychologica Sinica Vol.1, 1984.
- "The Preliminary Research on Measuring the Mathematical Ability of Primary School Students", Educational Research Vol.4, 1984.
- "The International Association for the Evaluation of Educational Research (IEA)", Educational Research Vol.6, 1984.

"Educational Evaluation and Educational Measurement", Educational Research Vol.3, 1987.

"American National Assessment of Educational Progress", Foreign Education Vol.4, 1987.

"Applying Multiple Regression in Education", GanSu Education Vol.5, June, 1987.

"The Affective Outcomes in Secondary Schools in China", The International Journal of Educational Research
Vol 17 No 3-4, 1992

"The Non-attendance of Basic Education in the Border Minority Areas in China." Educational Research 1995
Vol 1.

"Multilevel Data Analysis in Educational Research." Educational Research 1995 Vol 2.

"Establish the National Learning Standard and Monitoring System." Educational Evaluation, Vol 1, March,
1995

"School Evaluation." Methods Vol 3, March 1996

Publications since January 1 1998:

Comments and Suggestions for Writing the Operation Manual of ISCED 1997 (Level 5), Prepared for the
ISCED Task Force Meeting UNESCO, Paris Jan 30, 1998.

Mission Report on the EU-China Basic Education in Gansu Project, Prepared for the European Union
Delegation in Beijing, April 9 1998. Beijing.

Assessing Literacy of out-of-school Youth and Adults -- Experiences in China, Prepared for the UNESCO/ILI
Expert Meeting of Literacy Assessment for out-of-school Youth and Adult, UNESCO, Paris, June 21-
24, 1998

Desk Review on Functional Literacy Training for the WFP Qinling Mountain Area Poverty Alleviation Project
in Shaanxi/Hubei Provinces

Resource Paper on Local Self-government Involvement in Non-Formal Education Innovative Training for
District/Community Representatives New Delhi, India, 20-25 September 1999

Education for Rural Transformation, UNESCO INRULED, September, 2001.

BIOGRAPHICAL SKETCH

NAME	POSITION TITLE
Jiayi Wang	Professor and Assistant to the President, Northwest Normal University

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.*)

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	FIELD OF STUDY
Northwest Normal University, Lanzhou, China	A.B.	1988	Educational Psychology
Northwest Normal University, Lanzhou, China	M.A.	1991	Educational Research Methods
Northwest Normal University, Lanzhou, China	Ed.D.	1994	Theories of Teaching and Learning

POSITIONS HELD:

Professor of Education, Northwest Normal University, Northwest Center for Training Minority Teachers

Assistant to the President, Northwest Normal University, China

RESEARCH EXPERIENCE:

1989--1991 Study of Compulsory Education in the Western Region of China. The Seventh Five-Year Priority Project of the State.

1991—1995 Study of National Admission Examinations in Minority-inhabited Regions. The Eighth Five-Year Priority Project of the State Education Commission.

1992--1993. Canada-China Joint Doctoral Program in Education. Supported by Canadian International Development Agency.

1993--1994 Investigation of Educational Experiments in the Past Decade in China. The Eighth Five-Year Priority Project of the State.

1993--1995 Studies on Higher Education in Minority Areas. The Eight Five-Year Priority Project of the State Education Commission

1993--1996 Investigation of Educational Experiments in Primary and Secondary Schools . The Eighth Five-Year Priority Project of the State Education Commission

1996--1999 The Models and Approaches of Basic Education Development, the Seventh Five-year Priority Project of Gansu Province.

1996--1999 Women and Minorities: Educational Change Agents. Supported by Canadian International Development Agency (CIDA), Canada

1996--1999 New Developments in Western Educational Research Methods and their Applications in China. funded by the Gansu Provincial Education Commission.

1996--2000 Categories of Modern Teaching Theories. The Ninth Five-Year Priority Project of the State Education Commission.

1996--2000 Comparative Study of Educational Reforms in the Contemporary World. The Ninth Five-year Priority Project of Gansu Province.

1997-1999. Research of Bilingual Education in Minority Areas. Supported by CIDA, Canada.

1997-1999. Study of Compulsory Education in Poor Areas. Supported by Huo Yingdong Education Research Foundation, Hong Kong.

1998-1999. Study of Quality of Compulsory Education in Poor and Minority Areas in China. The Ninth Five-year Priority Project of the State.

1998-2000. Gansu Poverty and Education Project, Harvard University, School of Education, supported by the Spencer Foundation.

1998-2000. Save the Children Fund in Hong Kong for Poor Areas of Gansu Province.

2000-2004. Case Studies of Schools, UK-China Gansu Basic Education Project.

HONORS:

1994 Outstanding Social Researcher Award of Gansu Province

1996 Outstanding Social Researcher Award of Gansu Province

1997 Young Academic Leaders at the Turn of Next Century in Gansu Province

1997 First Prize of National Universities' Teaching Achievement ;

1997 Outstanding Young Scholar Award of Gansu Province,

1997 Outstanding Social Sciences Researcher Award of Gansu Province.

1998 Study of Compulsory Education in Poor Areas, awarded by Huo Yingdong Education Research Foundation, Hong Kong

1998 Research Foundation for Excellent Young Professor, awarded by the Ministry of Education

SELECTED PUBLICATIONS:

Wang Jiayi (2000), On the strategic Policy on Development and Educational Progress in Western Areas, Educational Research, No.6.

Wang Jiayi (1999), Educational Research Should Serve for Educational Policy Making and Educational Development of Poor Area. Educational Researcher, No.7.

- Pei Dina & Wang Jiayi (1997a): Evaluation of Contemporary Educational Experiments in China (Chengdu, Education Press of Sichuan Province)
- Wang Jiayi (1997b). Introduction to Research on Teaching (Lanzhou, Culture Press of Gansu Province).
- Wang Jiayi (1997c) Comparisons of theoretical paradigms of teaching research between China and North America, Comparative Education Review, No.5.
- Wang Jiayi (1997d), The priority shift of higher education reform from hardware Construction to software improvement, Popular Tribune, No.11.
- Wang Jiayi (1997e), The renewal of educational research methods in our country, Education Guide, No.6.
- Wang Jiayi (1997f), The methodology of teaching research at the turn of century, Journal of the Northwest Normal University, No.5.
- Wang Jiayi (1996a), Degrees and Graduate Education, No.5.
- Wang Jiayi (1996b), Curriculum should be the focus of attention for higher education reform, Journal of Higher educational Research, No.6
- Wang Jiayi (1996c), On Theory of Teaching and Learning. Educational Research, No.4.
- Wang Jiayi (eds.) (1995a). Minority Higher Teachers Education Toward the 21st Century Lanzhou, Gansu's People Press)
- Wang Jiayi (1995b), Teaching Research in North America: An overview, Journal of Higher Educational Research, No.2.
- Wang Jiayi (1995c), The Qualitative Approach and its Application in Educational Research. Journal of Northwest Normal University, No.2.
- Wang Jiayi (1995d), The Nature and Characteristics of Teaching Research, Educational Research, No.8.
- Wang Jiayi (1994). An Inquiry Into Some Theoretical Issues in Educational Experiment, Educational Research for Higher Teachers Education, No.2.
- Wang Jiayi (1993a), Problems of Minority Education in Gansu. Ethnic Educational Research, No.3.
- Wang Jiayi (1993b), To Clarify Several Concepts in Educational Experiment Research, Educational Research and Experiment, No.3.
- Wang Jiayi (1993c), Some Patterns of Educational Experiment Evaluation. Jiangxi Educational Research, No.3.

Jianxin Zhang,
Institute of Psychology, Chinese Academy of Sciences
Brief Bio, 8/2000

Education

Beijing University, Beijing, B.Sc., 1982, Psychology

Chinese University of Hong Kong, Hong Kong, M. Phil., 1990, Psychology

Chinese University of Hong Kong, Hong Kong, Ph. D., 1997, Psychology

Current Position

Professor and Director, Division of Developmental and Educational Psychology, Institute of Psychology, Chinese Academy of Sciences.

Professional Experience

Assistant Professor, Institute of Psychology, Chinese Academy of Sciences, 1982-1987

Deputy-Chief, Division of Personality Study, Institute of Psychology, Chinese Academy of Sciences, 1990-1993

Coordinator, Working Committee for the National Personality Survey. Members of the committee have been involved in many large-scale research projects, such as standardizing the Chinese MMPI-2 and the CPAI (Chinese Personality Assessment Inventory, a new personality instrument modified to fit Chinese culture), 1990-present

Associate Professor, Institute of Psychology, Chinese Academy of Sciences, 1997-1999

Director, Division of Developmental and Educational Psychology, Institute of Psychology, Chinese Academy of Sciences, 1998-present

Professor, Institute of Psychology, Chinese Academy of Sciences, 2000-present

Professional Organizations

Standing Committee Member, Division of Psychological Testing, Chinese Psychology Society

Standing Committee Member and General Secretary, Division of Child and Adolescent Mental Health, Chinese Association of Mental Health

Member, Association of Asian Social Psychology

Consulting Editor, Journal of Cross-Cultural Psychology

Consulting Editor, Journal of Asian Social Psychology

Selected Publications

- Zhang, J. X. (1985). "Utility in Economic and Consumer's Behaviors in Psychology". In M. C. Ma, ed., *Psychology of Consumers*. Beijing: Science and Technology Press. (in Chinese).
- Zhang, J. X. (1992). "Do We Need to Make K Corrections in Scores of Scale 8 and 9 of MMPI Chinese Norms?" *Acta Psychologica Sinica*, 4, 429-435. (in Chinese).
- Zhang, J. X. & Bond, M. H. (1993). Target-based Interpersonal Trust: Cross-cultural Comparison and Its Cognitive Model." *Acta Psychologica Sinica*, 2, 164-172. (in Chinese).
- Song, W. Z., Zhang, J. X. Zhang, J. P., Cheung, F. M. & Leung, K. (1993). "The Significance and Process of Developing the Chinese Personality Assessment Inventory (CPAI)." *Acta Psychologica Sinica*, 4, 400-407. (in Chinese).
- Zhang, J. X. & Schwarzer, R. (1995). "Measuring Optimistic Self-beliefs: Chinese Adaptation of the General Self-efficacy Scale." *Psychologia*, 38, 174-181.
- Leung, K. & Zhang, J. X. (1995). "Systemic Considerations: Factors Facilitating and Impeding the Development of Psychology in Developing Countries." *International Journal of Psychology*, 30(6), 693-706.
- Cheung, F. M., Leung, K. Fan, R., Song, W. Z., Zhang, J. X., Zhang, J. P. (1996). "Development of the Chinese Personality Assessment Inventory." *Journal of Cross-Culture Psychology*, 27(2), 181-199.
- Cheung, F. M., Song, W. Z. & Zhang, J. X. (1996). "The Chinese MMPI-2." In Butcher, J. N.(Ed.), *International Adaptations of the MMPI-2*. Minneapolis: University of Minnesota Press.
- Cheung, F. M., Zhang, J. X. & Song, W. Z. (1997). "Chinese Personality from Perspective of Psychological Testing." In Tseng, W. S. (Ed.), *Chinese Minds and Psychological Therapy*. (in Chinese) Taipei: Laureate Book Co.
- Leung, K. Cheung, F. M., Zhang, J. X. (1997). "The Five-factor Model of Personality in China." In K. Leung, et al. (Eds.) *Progress in Asian Social Psychology (Volume 1)*. Singapore: John Wiley & Sons, Inc.
- Zhang, J. X. (1997). "Distinction between General Trust and Specific Trust." Paper presented to the 2nd Conference of Asian Social Psychology. Hong Kong: Chinese University of Hong Kong.
- Zhang, J. X. & Bond, M. (1998). "Personality and Filial Piety among College Students in Two Chinese Societies: the Added Value of Indigenous Constructs." *Journal of Cross-Cultural Psychology* 29(3).
- Zhang, J. X., Song, W. Z. & Cheung, F. M. (1999). "Introduction to Chinese MMPI-2 and Its Standardization Process in China and Hong Kong." *Journal of Chinese Mental Health*. 10(1). (in Chinese).
- Cheung, F. M., Leung, K., Zhang, J. X., Sun, H. F., Gan, Y. Q., Song, W. Z., & Xie, D. (2000). "Indigenous Chinese Personality Constructs: Is Five-factor Model Complete?" *Journal of Cross-Cultural Psychology* (accepted).
- Zhang, J.X., Song, W.Z. & Cheung, F. M. (2000). "Manual for the Chinese MMPI-2." Hong Kong: Chinese University Press. (in Chinese).