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Keeping Teachers Happy: Job Satisfaction among Primary School Teachers in Rural Northwest China

Tanja Sargent

University of Pennsylvania, tsargent@rci.rutgers.edu

Emily Hannum

University of Pennsylvania, hannumem@soc.upenn.edu

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Keeping Teachers Happy: Job Satisfaction among Primary School Teachers in Rural Northwest China

Abstract

Numerous empirical studies from developing countries have noted that parental education has a robust and positive effect on child learning, a result that is often attributed to more educated parents making greater investments in their children's human capital. However, the nature of any such investment has not been well understood. This study examines how parental education affects various parental investments in goods and time used in children's human capital production via an unusually detailed survey from rural China. It is found that more educated parents make greater educational investments in both goods and time and that these relationships are generally robust to a rich set of controls. Evidence suggests that making greater investments in both goods and time stems both from higher expected returns to education for children and from different preferences for education among more educated parents. A second key finding is that the marginal effect of mother's education on educational investments is generally larger than that of father's education.

Disciplines

International and Comparative Education

Comments

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Keeping Teachers Happy: Job Satisfaction among Primary School Teachers in Rural Northwest China

TANJA SARGENT AND EMILY HANNUM

Introduction

Frameworks for understanding the production of academic achievement and the labor force outcomes of schooling often consider teacher quality to be a key input.¹ The distribution of quality teachers is an essential factor driving the transmission of inequality, because the recruitment and retention of qualified teachers tends to be problematic in areas of high poverty, such as inner cities in the United States and rural areas in developing nations.² This leads to a situation in which the neediest children are often paired with the least qualified teachers. Despite the importance of teachers as an element of educational stratification, very little research has emerged about the factors that are conducive to maintaining a quality teacher workforce in low-resource communities of developing countries. We begin to address this gap with a study of teacher job satisfaction in impoverished rural areas in northwest China.

In China, teacher retention is a growing concern. From a long-term perspective, market transition and the opening up of labor markets has created alternate career paths for current and potential teachers.³ Perhaps

We wish to acknowledge extremely helpful comments from three anonymous reviewers and from the *CER* editors. This research is part of an ongoing study made possible through grants from the Spencer Foundation, the Fogarty International Center at the National Institutes of Health, and the World Bank. The first author was supported during her work on this article from a Foreign Language and Area Studies fellowship and a David L. Boren graduate fellowship. Earlier versions of this article were presented at the International Sociology Association Research Committee 28 on Social Stratification and Mobility, New York University (August 2003), and at the Comparative and International Education Society Annual Meeting, Salt Lake City (March 2004).

¹ Linda Darling-Hammond, *Doing What Matters Most: Investing in Quality Teaching* (New York: National Commission on Teaching and America's Future, 1997).

² Linda Darling-Hammond and J. Green, "Teacher Quality and Equality," in *Access to Knowledge*, ed. P. Keating and J. I. Goodlad (New York: College Entrance Examination Board, 1990). See also Joseph P. Farrell and João Oliveira, *Teachers in Developing Countries: Improving Effectiveness and Managing Costs* (Washington, DC: World Bank, 1993); Linda Ankrah-Dove, "The Deployment and Training of Teachers for Remote Rural Schools in Less-Developed Countries," *International Review of Education* 28 (1982): 3–27; Robert E. Kliltgaard, Khalil Y. Siddiqui, Mohammad Arshad, Naheed Niaz, and Muneer Khan, "The Economics of Teacher Education in Pakistan," *Comparative Education Review* 29, no. 1 (1985): 97–110.

³ Xu Zhongwei discusses the problem of net movement of teachers out of the teaching profession and into the commercial sector, such as in foreign joint venture companies, other private companies, hotels, and the travel industry, where the working conditions are better and the opportunities for professional advancement more numerous. See Xu Zhongwei, "Shichang jingji yu jiaoshi liudong" [The

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even more important, the decentralization of school finance in China has disequalized the economic resources available to schools in different locales.⁴ During the same time period when school resources have begun increasingly to vary, good teachers are gaining greater flexibility to move to better jobs within the school system.⁵ As teacher labor markets continue to evolve, this trend will increase the career choices of individuals. This trend also means that schools serving poor rural communities will face new barriers to retaining qualified teachers.

What conditions keep rural teachers happy with their work? In this article, we address this question by examining the factors leading to satisfaction among teachers serving poor rural communities. We analyze a survey of rural primary school teachers, principals, and village leaders conducted in the year 2000 in Gansu, a northwestern province that is one of China's poorest.⁶ We look at three measures of job satisfaction: whether teachers perceive teaching to be their ideal profession, whether teachers want to change their profession, and whether teachers are satisfied with the local education bureau.⁷ Drawing on earlier research, we test hypotheses about three kinds of factors associated with teacher satisfaction:

1. Community factors: teachers are more satisfied in communities with greater economic and social resources, and in communities that are less remote.
2. School environment factors: teachers are more satisfied in schools with better economic resources, in larger schools, in schools where there are more opportunities for professional advancement, in schools where the workload is lighter, and in schools where there is an organizational climate characterized by experienced leadership

market economy and teacher turnover], in *Shichang jingji dachao xia de jiaoyu gaige*, ed. Jin Xibin (Guangzhou: Guangdong Educational Press, 1998), 304. See also Yanjie Bian, "Chinese Social Stratification and Social Mobility," *Annual Review of Sociology* 28 (2002): 91–116, for an excellent review of increasing social and labor market mobility in postreform China.

⁴ Albert Park, Scott Rozelle, Christine Wong, Changqing Ren, "Distributional Consequences of Reforming Local Public Finance in China," *China Quarterly* 147 (1996): 751–78; Mun C. Tsang, "Financial Reform of Basic Education in China," *Economics of Education Review* 15, no. 4 (1996): 423–44.

⁵ This is as a result of the new employment-contract system for teachers, which is gradually being implemented in China. See Yi Guobin, "Nongcun zhongxiaoxue jiaoshi pinrenzhi de shijian yu sikao" [The rural primary and middle school teacher employment-contract system: Implementation and considerations], *China Education and Research Network* (P. R. China), August 14, 2004, available at <http://www.edu.cn/20010919/3002166.shtml>.

⁶ Provinces that are classified as being in the northwest are Gansu, Inner Mongolia, Ningxia, Qinghai, Shaanxi, and Xinjiang. These provinces share many similarities in terms of climate, geography, economic, and social indicators. They are also home to many ethnic minority groups.

⁷ One reviewer pointed out that our measurement of job satisfaction is not consistent with strategies employed in the Western industrial psychology literature, which focuses on developing detailed descriptions of specific dimensions of work satisfaction. This literature is certainly relevant to understanding the psychology of teachers in China, and indeed many Chinese scholars of teacher job satisfaction draw heavily on this research (see n. 18). However, we are more interested in teacher satisfaction as a sociological phenomenon rather than a psychological one. For this reason, we seek to discover the relationships between feelings of overall satisfaction and community, school, and individual background factors.

that supports teacher collaboration.

3. Teacher characteristics: young teachers, male teachers, unmarried teachers, and teachers with greater human capital are less satisfied, while teachers who are more socially similar to the local community are more satisfied.

We begin the article with a discussion of research on teacher satisfaction, in general, and in the context of rural Gansu, in particular. We then provide a brief overview of the data and methods used in the study, followed by bivariate and multivariate analyses of teacher satisfaction. We close by considering implications of the main results for understanding educational opportunity and inequality in rural Gansu, as well as for further research on the role of teachers as elements of educational opportunity and inequality in developing countries.

Background and Context

Teachers and Educational Stratification

Teachers are an essential link in the transmission of educational opportunity to poor children. Teacher job satisfaction has, in turn, been tied to teachers' work performance, including teachers' involvement, commitment, and motivation on the job. Teacher job dissatisfaction is closely associated with teacher absenteeism and a tendency toward attrition from the teaching profession.⁸ Teacher commitment may also be an important factor determining the successful implementation of educational reforms in schools.⁹ In China, the current era of educational reforms aims to bring about a shift toward more student-centered teaching and learning, a greater emphasis on critical thinking and the application of skills, and the establishment of a more democratic classroom environment.¹⁰ The implementation of these reforms will likely require greater levels of teacher initiative and innovation, making teacher commitment and motivation increasingly important. Disengaged teachers are unlikely to inspire student engagement or, consequently, student achievement.¹¹

Furthermore, job dissatisfaction leading to attrition from the teaching profession may exacerbate the already acute teacher shortages in rural com-

⁸ Liu Haiyan, "Yingxiang jingji bu fada diqu zhongxiaoxue jiaoshi gongzuo jijixing zhu yinsu fenxi" [An analysis of various factors influencing middle school and elementary school teacher motivation in economically underdeveloped areas], *Jiaoyu yu fazhan* 1 (1995): 45–49; Chen Weiqi, "Zhongxue jiaoshi gongzuo manyigan de jiegou ji qi yu lizhi qingxiang, gongzuo jijixing de guanxi" [The structure of middle school teachers' feelings of job satisfaction and its relationship to work motivation and the tendency toward attrition from teaching], *Xinli fazhan yu jiaoyu* 1 (1998): 38–44.

⁹ See review and discussion of this in Xin Ma and Robert MacMillan, "Influences of Workplace Conditions on Teachers' Job Satisfaction," *Journal of Educational Research* 93, no. 1 (1999): 39.

¹⁰ People's Republic of China Ministry of Education, *Suzhi jiaoyu guannian: Xuexi tiyao* [The concept of quality education: Key points for study] (Beijing: Shenghuo-dushu-xinzhishi sanlian shudian, 2002).

¹¹ See Emily Hannum and Albert Park, "Children's Educational Engagement in Rural China" (unpublished manuscript, Sociology Department, University of Pennsylvania, Philadelphia, 2003).

munities. A report by the Gansu Institute of Education Research notes that between 1995 and 2001, the number of primary school students in Gansu increased by 16.5 percent. Despite this increase, the number of primary school teachers actually decreased by 6.2 percent.¹² According to the report, the impact of provincial teacher shortages is much greater in rural communities. Consequences include the inability to offer classes in English, computers, and the arts.¹³

Perhaps most important, teacher shortages may lower teacher quality in poor and remote areas. In areas of rural China, where certified teachers are difficult to recruit and retain, principals hire substitute or temporary (*daike*) teachers, who generally have lower levels of education and little or no formal teacher training.¹⁴ Teacher quality has been linked empirically to various student outcomes. In research conducted in developing countries, factors such as teachers' knowledge of subject matter, verbal and math proficiency scores, and qualifications have all tended to be associated with higher student achievement.¹⁵ In addition to having an important impact on student achievement, teachers may also play a crucial role in educational attainment. Eric Hanushek argues that higher school quality results in lower dropout rates and that teacher quality is the most important factor contributing to overall school quality.¹⁶

Research on Teacher Job Satisfaction

Despite the fact that high-quality teachers are more difficult to recruit and retain in rural communities, there has been little investigation of the association between teacher satisfaction and such community characteristics as poverty, remoteness, and social resources. To date, researchers have focused on the relationships between teacher job satisfaction and individual and job characteristics. This research has taken two main approaches: a focus on facet-specific job satisfaction and an emphasis on understanding teachers' overall sense of satisfaction with their job.

The first approach has sought to measure the extent to which teachers

¹² Su Zhaorong, "Pinkun diqu jichu jiaoyu shizi duiwu zhuangkuang fenxi yu sikao" [An analysis and discussion of the condition of the basic education teaching force in regions of high poverty], in *Zhongguo jichu jiaoyu fazhan yanjiu baogao—2001* [A report on the development of basic education in China—2001], ed. National Central Institute of Educational Research (Beijing: Educational Science Press, 2002), 372–76.

¹³ *Ibid.*, 373.

¹⁴ *Ibid.*, 374.

¹⁵ Bruce Fuller, "What School Factors Raise Achievement in the Third World?" *Review of Educational Research* 57, no. 3 (1987): 255–92; Bruce Fuller and Prema Clarke, "Raising School Effects While Ignoring Culture? Local Conditions and the Influence of Classroom Tools, Rules, and Pedagogy," *Review of Educational Research* 64, no. 1 (1994): 119–57; Albert Park and Emily Hannum, "Do Teachers Affect Learning in Developing Countries?" (paper presented at the Rethinking Social Science Research on the Developing World in the 21st Century conference for the Social Science Research Council, Salt Lake City, UT, 2001).

¹⁶ Eric Hanushek, "Interpreting Recent Research on Schools in Developing Countries," *World Bank Research Observer* 10 (1995): 227–54.

are satisfied with specific aspects of their job. These include remuneration, physical working conditions, quality of relationships with supervisors and colleagues, quality of supervision, workload, teachers' social status, opportunities for personal growth and promotion, teachers' skills and professional accomplishments to date, degree of decision-making autonomy, and characteristics of the educational system.¹⁷ In contrast, the second approach has sought to link characteristics of schools and teachers to overall job satisfaction.¹⁸ This approach uses a global measure of teacher satisfaction against which a variety of school and teacher explanatory variables are tested via multivariate analyses. In this article we adopt this latter approach, but we also include measures of community factors among our explanatory variables.

Factors Related to Teacher Satisfaction

Community factors.—Around the world, community poverty and remoteness present significant challenges to teachers in underresourced schools. Teachers serving in rural communities in developing nations experience particular challenges.¹⁹ Physical conditions brought about by poverty often

¹⁷ For seminal work on the measurement of facet-specific job satisfaction, see F. Herzberg, B. Mausner, R. O. Peterson, and D. F. Capwell, *Job Attitudes: Review of Research and Opinion* (Pittsburgh: Psychological Service of Pittsburgh, 1957); E. A. Locke, "The Nature and Causes of Job Satisfaction," in *Handbook of Industrial and Organizational Psychology*, ed. M. Dunnette (Chicago: Rand McNally College Publishing, 1976); and Victor Vroom, *Work and Motivation* (New York: Wiley, 1964). For examples of Chinese research that draws on this work, see Chen, "Zhongxue jiaoshi gongzuo manyigan"; Chen Yunying and Sun Zhaobang, "Jiaoshi gongzuo manyidu de celiang yanjiu" [Measurement of teacher satisfaction], *Xinli kexue* 17, no. 3 (1994): 146–49; Du Xiufang, "Jiaoshi gongzuo manyidu ji qi tigao duice" [The level of teacher job satisfaction and how to raise it], *Jiaoyu xinli* 19 (2003); Feng Bolin, "Jiaoshi gongzuo manyi ji qi yingxiang yinsu de yanjiu" [Factors influencing teacher job satisfaction], *Jiaoyu yanjiu* 2 (1996): 42–49; He Weiqiang and Xuan Hongping, "Jiaoshi gongzuo manyidu ji qi shehui xinli jizhi yanjiu" [Teacher job satisfaction and its social psychological mechanism], *Qiqihaer daxue xuebao—zhexue shehui kexue ban*, no. 3 (2002): 114–16; Wang Zuli, "Chuzhong jiaoshi gongzuo manyidu de diaocha yanjiu" [An investigation of junior middle school teacher job satisfaction], *Dangdai jiaoyu kexue* 11 (2003); Zhang Zhongshan and Wu Zhihong, "Xiaozhang lingdao xingwei yu jiaoshi gongzuo manyidu guanxi yanjiu" [The relationship between principal leadership behaviors and teacher job satisfaction], *Xinli kexue* 24, no. 1 (2001): 120–21; and Zhou Junhong, "Xuexiao zuzhi qifen yu jiaoshi gongzuo manyidu de xiangguanxing" [The relatedness of school organizational climate and teacher job satisfaction], *Meitan gaodeng jiaoyu* 4 (1997): 108–9; and Liu, "Yingxiang jingji bu fada diqu de zhongxiaoxue." For examples of research on facet-specific teacher job satisfaction in the Western literature, see Ma and MacMillan, "Influences of Workplace Conditions"; Pam Poppleton, "The Survey Data," *Comparative Education* 26, nos. 2/3 (1990): 183–210; F. Rodgers-Jenkinson and D. Chapman, "Job Satisfaction of Jamaican Elementary School Teachers," *International Review of Education* 36, no. 3 (1990): 299–313; Phillip Schlechty and Victor Vance, "Recruitment, Selection, and Retention: The Shape of the Teaching Force," *Elementary School Journal* 83, no. 4 (1983): 467–87.

¹⁸ For examples of this approach, see D. Chapman and M. A. Lowther, "Teachers' Satisfaction with Teaching," *Journal of Educational Research* 75, no. 4 (1982): 241–47; and M. Perie, D. Baker, and S. Whitener, *Job Satisfaction among America's Teachers: Effects of Workplace Conditions, Background Characteristics, and Teacher Compensation*, report of the U.S. Department of Education (Washington, DC: National Center for Education Statistics, 1997). See also Richard M. Ingersoll, "Teacher Turnover and Teacher Shortages," *American Educational Research Journal* 38, no. 3 (2001), for a multivariate analysis of individual and school factors that are related to teacher turnover.

¹⁹ For an elucidation of factors related to remoteness and teacher willingness to teach in rural schools in developing nations, see Ankras-Dove, "Deployment and Training of Teachers." The factors she discusses include personal and family factors (teachers raised in the city may not be accustomed to the harsh living conditions in rural areas, and there may be limited opportunities for the spouses

make even daily necessities scarce. In addition, teachers in rural villages may face a lack of access to transportation, cultural resources, or educational facilities. Recreation and opportunities for enrichment and personal advancement are often limited, compared to those available in towns and cities. Linda Ankrah-Dove writes, "Remote rural areas are in a very real sense on the periphery, far from the centers of political, economic and cultural life."²⁰ Teachers may also feel isolated from the local community, especially if they are from outside the village or if there is a wide educational gap between themselves and the local community.

Further, with global trends toward educational decentralization, teachers and schools in many developing countries are increasingly dependent on the degree of financial and other support for education in the local community. In China in the 1980s, fiscal decentralization of the educational system shifted the responsibility for rural elementary education to individual villages.²¹ Under these reforms, the village government would generally allocate money for its schools from the village budget.²² In many villages, local governments have controlled the development of collectively owned enterprises to ensure that the village would get a portion of the revenues. These revenues could be directed to education.²³

After decollectivization of agricultural production in the late 1970s and early 1980s, villages that were unable to establish industries and enterprises were left without revenue.²⁴ The poorest villages could get some minimal support in the form of various kinds of categorical grants from higher levels of government.²⁵ But, even with this assistance, collecting enough money to fund village schools has been a challenge. Local governments have frequently

to find work or for their children to attend school); social factors (isolation from social activities common to an urban lifestyle and also a feeling that they are strangers among the rural community); economic factors (lower salaries and higher cost of living due to transportation costs and difficulty of obtaining daily necessities); professional factors (lack of access to classroom aids, fewer opportunities for professional interaction with other teachers, and fewer opportunities to be recognized for their work by the authorities). She notes the need for more evidence from case studies and surveys to determine the willingness of teachers to serve in remote rural schools, 9.

²⁰ Ibid., 5.

²¹ It is now the county-level government that is responsible for the payment of teachers' salaries, but this reform had not yet occurred in the year 2000. Currently, one of the important barriers to staffing schools in rural areas is the lack of money available at the county level for the payment of teachers' salaries. In some places, shortages occur simply because county governments cannot afford to assign enough teachers to the schools.

²² See Lynn Paine, "Making Schools Modern: Paradoxes of Educational Reform," in *Zouping in Transition: The Process of Reform in Rural North China*, ed. Andrew Walder (Cambridge, MA: Harvard University Press, 1998); Tsang, "Financial Reform of Basic Education in China." Village governments take different shapes and forms, and the role they play in financing village schooling is heavily influenced by the degree of industrialization in the village and their relationship to it. See Jonathan Unger, *The Transformation of Rural China* (London: Sharpe, 2002); and Jean Oi, "The Evolution of Local State Corporatism," in Walder, *Zouping in Transition*, for more on this topic.

²³ Oi, "The Evolution of Local State Corporatism"; Unger, *The Transformation of Rural China*.

²⁴ Kevin O' Brien, "Implementing Political Reform in China's Villages," *Australian Journal of Chinese Affairs* 32 (July 1994).

²⁵ Tsang, "Financial Reform of Basic Education in China."

been unable to raise adequate funds for personnel expenses, which are the main cost of education. Many teachers have been paid with IOUs, and some have had to wait for months to get their salary.²⁶

The store of social capital available in a village community may also harness economic resources for village schools.²⁷ Further, social capital facilitates access to information and social connections that may be important for school development.²⁸ Nan Lin defines social capital as “resources embedded in a social structure which are accessed and/or mobilized in purposive actions.”²⁹ In the year 2000, one of the most important social relationships affecting a village school was that between the principal and the village leaders. In small rural communities in northwest China, until very recently, primary school principals generally relied on the village government for the financing of school buildings, maintenance, construction, as well as the recruitment and appointment of teachers.³⁰ Village governments also provided assistance in promoting school enrollment and connections with organizations above the village level. Through the relationship between the village leader and the principal, information is shared, influence is exerted, the status of the school principal is ensured, and emotional support may be obtained. This relationship is an important but delicate one. If it is strained, it is likely that the affairs of the school, and thus the teachers, will be affected.

With community economic and social factors in mind, we hypothesized there would be lower job satisfaction among teachers in (1) villages with fewer economic resources, (2) remote villages where connections to the outside are limited and the population is small, and (3) villages where social resources are constrained, including where the population is poorly educated and where community-school linkages are weak. However, we acknowledge an alternative possibility: teachers in villages where there are more economic opportunities, and teachers in more connected, better-educated, or higher-income villages may have greater access to information about the outside world and alternative opportunities, leading them to feel more dissatisfied with teaching as a career than those teachers in the most remote poor areas.

²⁶ Emily Hannum and Albert Park, “Educating China’s Rural Children in the 21st Century,” *Harvard China Review* (Spring) 2002: 8–14.

²⁷ The concept of social capital has gained increasing attention in recent decades. See the following important work: J. S. Coleman, “Social Capital in the Creation of Human Capital,” *American Journal of Sociology* 94 (1988): S95–S120; Nan Lin, *A Theory of Social Structure and Action* (Cambridge: Cambridge University Press, 2001); A. Portes, “Social Capital: Its Origins and Applications in Modern Sociology,” *Annual Review of Sociology* 24 (1998): 1–24; R. Putnam, “The Prosperous Community,” *American Prospect* 4, no. 13 (1993).

²⁸ See the case studies of two private village schools established as a result of the collective mobilization of villagers, in Heidi Ross and Jing Lin, “Social Capital and Chinese School Communities” (unpublished manuscript, Educational Studies Department, Colgate University, Hamilton, NY, 2002).

²⁹ Nan Lin, “Building a Network Theory of Social Capital,” in *Social Capital: Theory and Research*, ed. Nan Lin, K. S. Cook, and R. S. Burt (New York: Aldine de Gruyter, 2001), 12.

³⁰ Now schools must rely on the county government for finances and the recruitment of teachers; see n. 22.

School environment.—Drawing on previous research, we hypothesized that several factors associated with the school environment would affect teacher satisfaction. These factors are salary, school economic resources and working conditions, workload, opportunities for personal and professional advancement, collaboration with and support from other teachers, and quality of supervision.

Remuneration. Concerns with remuneration may be paramount. In the United States, poor salary is one of the most important reasons given for leaving teaching due to dissatisfaction in urban, high-poverty public schools and for the attrition of teachers in small private schools.³¹ Phillip Schlechty and Victor Vance also propose that low salaries and truncated salary scales are among the main reasons that the most academically able leave teaching.³²

In China, the level of teachers' salaries compared to other state employees is cited as one of the major reasons for the high rate of teacher turnover experienced in the 1990s.³³ One teacher in rural Gansu, interviewed in 2002, offered the following comment on the connection between low salaries and social status: "Actually, in people's minds, teachers are losers (*mei chuxi*), they don't make much money, isn't that right?"³⁴ However, in China, reliability of salary payment may be even more important than the amount of the salary itself. Teaching is generally perceived to be a stable career. Because of the trends described in the previous section that have led to the late payment and underpayment of teachers' salaries, this expectation of stability may have been compromised. Late payment of teachers' salaries could have a greater impact on teacher satisfaction than the actual amount of teacher salary received.

School economic resources and working conditions. There are different types of schools found in rural areas in China, including central primary schools, complete primary schools, and incomplete primary schools. These very different school environments may have an impact on teacher satisfaction. The central primary schools (*zhongxin xiaoxue*) are run by the township, represent scale economies, and have access to more resources. Village schools may be complete (*wanquan*, from grades 1–5 or grades 1–6) or incomplete (*bu wan-*

³¹ Richard M. Ingersoll, "Teacher Turnover and Teacher Shortages"; and Perie, Baker, and White-ner, *Job Satisfaction among America's Teachers*.

³² Schlechty and Vance, "Recruitment, Selection, and Retention."

³³ Xu, "Shichang jingji yu jiaoshi liudong," 307. For research about the relationship between teacher satisfaction and remuneration in China, see also Chen, "Zhongxue jiaoshi gongzuo manyigan"; Zhang and Wu, "Xiaozhang lingdao xingwei"; Wang, "Chuzhong jiaoshi gongzuo manyidu"; Feng, "Jiaoshi gongzuo manyi"; Zhu Jirong and Yang Jiping, "Xiaoxue jiaoshi gongzuo manyidu de diaocha yanjiu" [Primary school teachers' level of job satisfaction], *Jiaoyu lilun yu shijian* 24, no. 1 (2004): 63–64; and Liu, "Yingxiang jingji bu fada diqu zhongxiaoxue."

³⁴ From Gansu Survey of Children and Families qualitative component (teacher interview no. Liu09T, line 189), conducted March 2002. Ten teacher in-depth interviews were collected in rural primary schools as a supplement to the in-depth interviews of 33 mothers and 33 children.

quan, covering only the first few early grades [usually grades 1–3]).³⁵ In the late 1980s and early 1990s, China restructured its education system. Schools were consolidated using the theory of “economies of scale” in a move to improve the quality of schooling. Many village primary and junior middle schools were closed down, and the students had to walk to neighboring villages to go to school. Only complete primary schools were officially recognized, but in remote villages—where it is too far for young children to travel to the nearest complete primary school—the incomplete primary schools were permitted as teaching point schools.³⁶

Other important indicators of working conditions include the condition of the school buildings; the amount of economic resources that are available to pay for teachers’ bonuses and benefits; heating, water, and electricity; and supplies such as physical education equipment, library books, and teaching aids. In the most resource-poor schools, there may not be enough desks and chairs for all the students, and the school buildings may have fallen into disrepair. Every year, principals must report the number of dilapidated rooms (*weifang*) in the school. There are government projects specifically aimed at providing money for poor areas to rebuild their main school buildings.

Workload: Researchers in China have suggested that heavy workloads diminish teachers’ job satisfaction.³⁷ In 2002, a primary school teacher interviewed in Gansu characterized the heavy workload shouldered by teachers as follows: “This job has both its hardships and its pleasures. The hardship is that every day is very tiring, much more tiring than other jobs. In another job, when you get off work you get off work and you can rest. But in teaching, there is no rest. Sometimes you have to stay at school to supervise evening study hall . . . and then on the weekends, you still need to go and do a home visit. As a teacher, you are always busy with students’ affairs and so you never have time for your own affairs.”³⁸

Opportunities for personal and professional advancement: Research suggests that teachers are more satisfied if their job provides opportunities for personal and professional advancement.³⁹ China has an enormous system of teacher in-service training, and there are many opportunities for teachers to continue

³⁵ There are two primary school systems in China—the 6-year system and the 5-year system. Most of the Chinese primary and secondary schools follow the “six-three-three” educational system—6 years of primary school education, 3 years of junior secondary school education, and 3 years of senior secondary school education. In many rural localities, schools have adopted the “five-four-three” or “five-three-three” system that was intended to better fit the needs of the local employment market by allowing students to enter vocational training earlier, after 5 years of primary education. See Xiufang Wang, *Education in China since 1976* (Jefferson, NC: MacFarland, 2003), 143.

³⁶ Paine, “Making Schools Modern,” 213.

³⁷ See Du, “Jiaoshi gongzuo manyidu ji qi tigao duice”; Chen, “Zhongxue jiaoshi gongzuo manyigan”; Feng, “Jiaoshi gongzuo manyi”; and He and Xuan, “Jiaoshi gongzuo manyidu.”

³⁸ Gansu Survey of Children and Families qualitative component (teacher interview no. Liu06T, line 125).

³⁹ Susan J. Rosenholtz, “Effective Schools: Interpreting the Evidence,” *American Journal of Education* 93, no. 3 (1985): 352–88.

their education. These opportunities are provided by independent teachers' continuing education institutions, educational colleges and institutes, China TV teachers' colleges, regular higher education institutions, secondary specialized schools, and other channels such as correspondence courses and self-study programs.⁴⁰ However, schools in the remote poor areas may not be able to afford for their teachers to participate in these programs.⁴¹ Without such opportunities, teaching can be an isolating profession and can leave teachers with the sense of falling behind the rest of society. One of the teachers we spoke to in Gansu in 2002 expressed such a sentiment: "When we go out into society we don't know how to do anything, especially how to interact with others. Social interaction is the basic structure of society, but as a teacher, every day you only see children whose minds are like a blank sheet of paper and so we know nothing of the outside world."⁴²

Collegial relationships and collaboration: Another important factor related to teacher isolation is the extent to which teachers receive support from other members of the school community and engage in collegial collaboration and interaction. Research on teacher satisfaction and teacher retention has noted the importance of collegial relationships and administrative support for teaching.⁴³ This support is in the form of mechanisms of teacher induction and organizational socialization, such as internships and mentoring programs.⁴⁴

A unique feature of Chinese schools is the teaching and research section, or *jiaoyanzu*. Through the activities of the *jiaoyanzu*, teachers engage in joint lesson planning and professional discussion, in activities of peer evaluation and feedback, and actively share in making decisions regarding the instructional program. It is through this structure that new teachers are inducted

⁴⁰ Wang, *Education in China since 1976*, 118–19.

⁴¹ Lynn Paine, "Challenges in Reforming Professional Development" (unpublished manuscript, College of Education, Michigan State University, East Lansing, 2003), present a moving comparison of the availability of opportunities for professional development experienced by a *minban* teacher in a remote teaching point school in Inner Mongolia and those experienced by a middle school math teacher in Shanghai. For additional information regarding *minban* teachers, see n. 55.

⁴² From the Gansu Survey of Children and Families qualitative component (teacher interview no. Liu09T, line 191). Teachers in Dan Lortie's classic study, *Schoolteacher* (Chicago: University of Chicago Press, 1975), expressed this same sense of isolation from adult society. One of the teachers he interviewed said, "I just think you sort of stagnate in a way. You could stagnate more if you wanted to let it happen, if you did not read etc., but I would just like to give and take with adults once in a while . . . and be talking to someone in my same age bracket," 98.

⁴³ Ingersoll, "Teacher Turnover and Teacher Shortages"; Valerie E. Lee, Robert F. Dedrick, and Julia B. Smith, "The Effect of Social Organization of Schools on Teachers' Efficacy and Satisfaction," *Sociology of Education* 64 (1991): 190–208; J. W. Little, "Norms of Collegiality and Experimentation: Workplace Conditions of School Success," *American Educational Research Journal* 19, no. 3 (1982): 325–40; Rosenholtz, "Effective Schools," and *Teachers' Workplace: The Social Organization of Schools* (New York: Longman, 1989). Wang Zuli also found that teacher satisfaction was positively related to the extent to which teachers had the perception that their colleagues helped each other and took care of each other.

⁴⁴ Richard M. Ingersoll, *The Status of Teaching as a Profession: 1990–1991*, report of the U.S. Department of Education (Washington, DC: National Center for Educational Statistics, 1997) and "Teacher Turnover and Teacher Shortages"; Rosenholtz, "Effective Schools."

into teaching and into the norms and values of the school. Also, more experienced teachers support and mentor younger teachers.⁴⁵

Quality of supervision: Leadership styles are related to teacher satisfaction.⁴⁶ The quality of leadership and supervision affects a range of factors in the school environment, including the overall organizational climate of the school. Zhou Junhong describes the characteristics of a successful school leader capable of establishing an organizational climate conducive to teacher satisfaction.⁴⁷ According to Zhou, a successful principal believes in teachers and works hard to foster teacher motivation and autonomy, harnessing the collective force of all of the teachers to carry out the work of the school. Such principals love, protect, support, understand, trust, and care for teachers. They give reasonable work assignments, encourage teachers to participate in management, listen to suggestions, and ensure that teachers can spend most of their time and energy on instruction and research. A successful principal provides a well-maintained, pleasant working environment, establishes a happy atmosphere, gives teachers opportunities for professional advancement, places great importance on making ample teaching resources available, and gives teachers encouragement and feedback using both emotional and material rewards. Presumably skills such as these increase with principal experience, which we are able directly to measure.

Based on the foregoing, we adopt a working hypothesis that teachers are less satisfied in schools with fewer economic resources and where they carry a heavy workload. We hypothesize that teachers are more satisfied in larger schools with an organizational climate characterized by experienced leadership, collegial collaboration, and ample opportunities for professional advancement.

Teacher characteristics.—Of all of the 5.8 million full-time teachers in China, 15 percent teach in cities, 19 percent teach in counties and towns, and 65 percent teach in rural areas. Official statistics indicate that among full-time primary school teachers in China, 52 percent are female.⁴⁸ China's teaching force is relatively young, with 60 percent of primary school teachers under 40 years of age.⁴⁹ With regard to educational attainment, less than 2 percent

⁴⁵ See Lynn Paine, "Teaching and Modernization in Contemporary China," in *Education and Modernization: The Chinese Experience*, ed. R. Hayhoe (Oxford: Pergamon Press, 1992). She argues that the induction process through the *jiaoyanzu* inhibits teacher innovation and creativity (i.e., teacher autonomy) due to the value it assigns to seniority and the dominance of textual knowledge. On the other hand, it is likely that teachers in Chinese elementary schools experience both substantial administrative support and also collegial cohesion through the activities of the *jiaoyanzu*.

⁴⁶ See, e.g., Ronit Bogler, "The Influence of Leadership Style on Teacher Job Satisfaction," *Educational Administration Quarterly* 37, no. 5 (2001): 662–83; and Zhang and Wu, "Xiaozhang lingdao xingwei."

⁴⁷ Zhou, "Xuexiao zuzhi qifen."

⁴⁸ State Education Commission, *Zhongguo jiaoyu tongji nianjian—2001* [Educational Statistics Yearbook of China—2001] (Beijing: Department of Planning and Construction, 2001), 94.

⁴⁹ *Ibid.*

of primary school teachers in China have a 4-year college degree or higher, 26 percent have a 3-year college degree, 69 percent have a secondary school level of attainment, and 3 percent have less than a secondary school level of attainment.⁵⁰

In the literature in both the United States and in China, a number of background attributes of teachers have been linked to levels of satisfaction. Younger teachers have been shown to be less satisfied and more likely to leave than older teachers.⁵¹ In addition, women have been found to be more satisfied than men.⁵² Of greater concern is the finding that better-qualified teachers tend to feel more dissatisfied than do less qualified teachers, and thus they are more likely to leave teaching.⁵³ This finding may be in part attributable to the fact that teachers with better qualifications perceive more alternative opportunities. Marital status may also be a factor related to teacher satisfaction. Dan Lortie found marriage to be positively correlated with teacher job satisfaction; married women over 40 years of age were the most satisfied teachers in his sample.⁵⁴

Training and certification may also matter for teacher satisfaction. In rural areas, many uncertified teachers are hired directly by the village government or principals to make up for the shortage of official, certified *gongban* teachers available to rural schools. These uncertified teachers are sometimes referred to as *daike*, or substitute, teachers.⁵⁵ The salaries of these *daike* teachers are substantially lower than those of the *gongban* teachers. The *daike* teachers come from a variety of different backgrounds. Many are from the same village or nearby villages and are likely also to work as farmers. Some have only a junior middle school or high school level of education and little

⁵⁰ Ibid.

⁵¹ Ingersoll, "Teacher Turnover and Teacher Shortages"; Richard J. Murnane, "Understanding Teacher Attrition," *Harvard Educational Review* 57, no. 2 (1987): 177–82; Perie, Baker, and Whitener, *Job Satisfaction among America's Teachers*; Zhu and Yang, "Xiaoxue jiaoshi gongzuo manyidu"; Feng, "Jiaoshi gongzuo manyi"; and Wang, "Chuzhong jiaoshi gongzuo manyidu."

⁵² Chapman and Lowther, "Teachers' Satisfaction with Teaching"; and Ma and MacMillan, "Influences of Workplace Conditions."

⁵³ Linda Darling-Hammond, *Beyond the Commission Reports: The Coming Crisis in Teaching* (Santa Monica, CA: Rand Corp., 1984); Phillip Schlechty and Victor Vance, "Do Academically Able Teachers Leave Education? The North Carolina Case," *Phi Delta Kappan* (1981); Xu, "Shichang jingji yu jiaoshi liudong," 305; Wang, "Chuzhong jiaoshi gongzuo manyidu."

⁵⁴ Lortie, *Schoolteacher*, 95–96.

⁵⁵ During the current wave of educational expansion that has come about as a result of the Nine Years of Compulsory Education Law, the *daike* teachers play the same role that the *minban* teachers played during the time of the Cultural Revolution. During the Cultural Revolution, there was great expansion in rural education as part of the goal of achieving radical social equity. In order to fill the need for teachers during this period of expansion, junior middle school graduates from the village were hired as *minban* teachers to teach in the village schools. They did not receive the regular *gongban* teacher's salary but worked for work points and a small cash subsidy. See Joel Andreas, "Leveling the Little Pagoda: The Impact of College Examinations, and Their Elimination, on Rural Education in China," *Comparative Education Review* 48, no. 1 (2004): 19. There are still a small proportion of *minban* teachers teaching in village schools. However, in the past decade the majority of these teachers have been gradually upgraded into *gongban* teachers.

or no formal teacher training. According to official statistics, only 88 percent of teachers in rural areas in China are *gongban* teachers, and 12 percent are *daike* teachers. This is in contrast to the urban areas (cities, counties, towns), where 97 percent of teachers are *gongban* teachers, and only 3 percent are *daike* teachers.⁵⁶ In the rural areas of Gansu, however, it is estimated that 28 percent of teachers are *daike* teachers, and in the most remote areas, these percentages may be even higher.⁵⁷

Another characteristic that may be expected to contribute to teacher satisfaction is teacher rank. Certified teachers in China are evaluated every year, and, based on these evaluations, they are able to advance through a ranking system. Teachers are evaluated by students, colleagues, and administrators based on moral standing, instructional capability, and professional achievements, including research and publications.⁵⁸ Thus, the ranking system offers teachers recognition for their skills and competence in the teaching profession. Xin Ma and Robert MacMillan's results show that teachers with greater teaching competence tend to have higher levels of satisfaction.⁵⁹ Based on this research, we might expect teachers of higher rank to be more satisfied, net of other factors.

Also potentially important in rural China is the extent to which the teacher has ties to the local population. Teachers who come from the same village or who also engage in farm work are likely to be more familiar with the surrounding community and feel less isolated. It is also possible that a teacher from a farming family would feel more satisfied, since teaching is generally perceived to be a higher status profession than farming. One teacher we spoke to in Gansu, who was also a farmer, explained the difficulty of being a teacher and trying at the same time to take care of farm and family, saying, "Still, teaching, this profession, is good. It is in the intellectual realm; it allows you to continuously improve yourself."⁶⁰

In this article, we test whether younger and better-educated teachers have lower levels of satisfaction. In addition, we hypothesize that female teachers, married teachers, teachers who are more highly ranked, and those who are more socially similar to their surrounding communities are more satisfied. To test these hypotheses, we consider teacher age, gender, marital status, level of education, rank, place of origin, and whether or not the teacher is also a farmer.

⁵⁶ State Education Commission, *Zhongguo jiaoyu*, 94.

⁵⁷ Su, "Pinkun diqu jichu jiaoyu," 374.

⁵⁸ See Wang, *Education in China since 1976*, 117.

⁵⁹ Ma and MacMillan, "Influences of Workplace Conditions."

⁶⁰ Gansu Survey of Children and Families qualitative component (teacher interview no. Cai05T, line 147).

Data and Methods

Sample and Study Site

Data for this study come from an add-on component to the Gansu Survey of Children and Families (GSCF), conducted in Gansu Province in the summer of 2000. The main survey employed a multistage cluster sample, selecting first rural counties, then townships, then villages, and finally 2,000 children, along with their mothers, fathers, and homeroom teachers. The add-on component included three linked questionnaires administered to all village leaders and to all primary school teachers and principals in every sampled village.⁶¹ Data consist of 100 village leaders, 128 principals, and 1,003 teachers.⁶² (Fig. 1 is a map of Gansu, China; the inset shows GSCF sample counties. For details about the sampling methods, see appendix A [tables A1 and A2]. Appendix B is photographs of rural primary schools in Gansu [figs. B1–B9]. A color version of fig. 1 and appendixes A and B may be found in the electronic edition of *CER*.)

Gansu is one of China's interior northwestern provinces. The province stretches across flat Loess Plateau, parts of the Gobi Desert, mountainous and hilly areas, and vast grasslands. The targeted development policies of reform-era China have exacerbated the existing economic divide between the provinces of the eastern seaboard and western provinces, such as Gansu.⁶³ In the year 2000, Gansu Province had a population of 25.62 million, 76 percent of whom resided in rural areas.⁶⁴ It has one of the highest incidences of rural poverty among provinces in China, making it an ideal site for research on the impact of poverty on Chinese education.⁶⁵ A recent study of geography and educational inequality in China demonstrates striking differences in

⁶¹ The questionnaires allowed us to collect a variety of measures related to community and school environment and teacher characteristics. Village leaders answered questions that included questions about village income, the village labor force, various aspects of village resources, distance to the nearest township and county, village education indicators, ethnic composition of the village, access to communication facilities and transportation, cultural facilities in the village, and health facilities. Principal questionnaires collected data including information about school type, length of school day, number of classes, factors determining whether or not a child attends school, information about the teachers and the students in the school, background characteristics of the principal, physical characteristics of the school, and school finances. Teacher questions included those about their place of origin, education level, salary and working conditions, teaching experience, time allocation, certification, rank, job satisfaction, level of participation in professional development activities, and about students.

⁶² For more details about the Gansu Survey of Children and Families, including access to copies of the questionnaire instruments used, please visit our Web site at <http://www.ssc.upenn.edu/china/gscf/mainGscf.htm>.

⁶³ Government policy at the turn of the millennium seeks to redress this inequality through the various poverty alleviation measures of the Develop the West campaign, which include increasing central government investment in infrastructure, environmental protection, and resource development in these regions. See Information Office of the State Council, "The Development Oriented Poverty Reduction Program for Rural China" (October 2001, Beijing; cited August 22, 2004), available at <http://www.china.org.cn/e-white/fp1015/>.

⁶⁴ UNESCO, *Population and Family Planning in China by Province: Gansu Province* (Bangkok: UNESCO; cited July 22, 2003), available at <http://www.unescap.org/pop/database/chinadata/gansu.htm>.

⁶⁵ World Bank, *China: Overcoming Rural Poverty* (Washington, DC: World Bank, 2000).

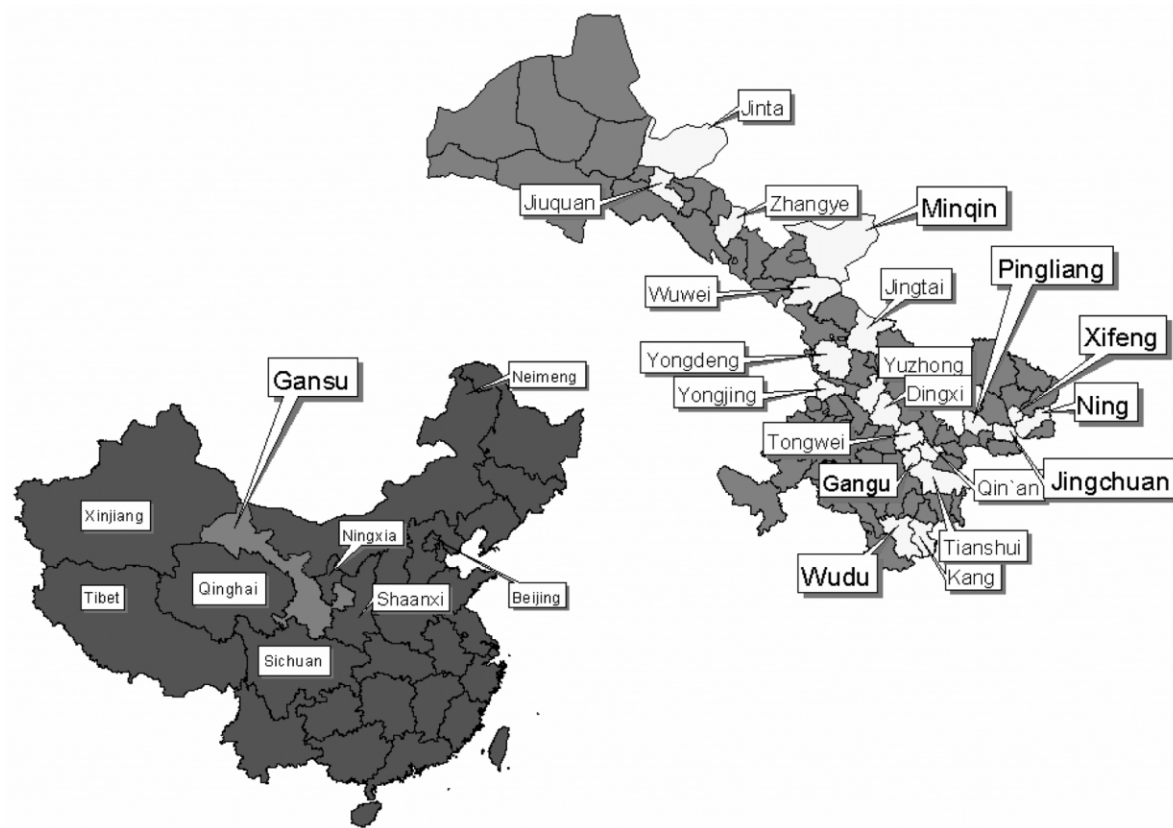


FIG. 1.—Map of Gansu, China. Inset shows the Gansu Survey of Children and Families (GSCF) sample counties. A color version of the map is available in the online edition of this article.

educational attainment by province across China. Western provinces, including Gansu, are the most disadvantaged.⁶⁶ Only 78 percent of the rural population in Gansu has at least a primary school education, as compared with 92 percent of Beijing's rural population. (See app. table A2 for a comparison of Gansu population and education indicators with those of other provinces.)

Variables Used in the Analysis

Teacher satisfaction.—Our three outcome variables are derived from the following questions: “Is teaching your ideal profession?” “Do you want to change your profession?” and “Are you satisfied with the local education bureau?” (See table 1 for full definitions of variables included in the analysis and for descriptive statistics for these variables.) These questions allow us to gauge the extent to which teachers feel an overall sense of satisfaction with their chosen career and whether they have any intention or desire to leave the profession. Finally, as a measure of satisfaction with the educational system, we investigate teachers' attitudes toward their particular local education bureau. This bureau is responsible for the annual teacher evaluations and the local educational policies that directly and indirectly affect teachers' daily working lives.⁶⁷ Based on these three outcome variables, we investigate how teachers' attitudes toward their job are affected by community, school, and individual factors.

Community factors.—We use several economic measures to test our hypotheses about the effects of community. Per capita income is measured as village income from agriculture and industry divided by the total village population. The presence of enterprises is measured as the proportion of the village labor force employed in county, township, village, and household enterprises.⁶⁸ Our third economic resource variable is the amount of financial contributions given to schools by the village during the year.

We use a remoteness scale generated from a series of nine variables that

⁶⁶ Emily Hannum and Meiyan Wang, “Geography and Educational Inequality in China” (paper presented at the 2004 annual meeting of the Chinese Economists Society, Atlanta, July 30–31).

⁶⁷ One teacher that we spoke to had this comment about his dissatisfaction with his job as a teacher: “The thing that makes me most dissatisfied is the fact that people who are in administration are not educators and they are the ones who lead the educators (*waihang lingdao neihang*), sometimes it is impossible to bear (laughs) . . . some of the people at the town and county levels don't know anything related to education but they come here and give directives and completely miss the point . . . education should be managed by the educators”; Gansu Survey of Children and Families qualitative component (teacher interview no. Lu07T, line 226).

⁶⁸ There has been rapid growth of the nonfarm sector in the postreform era with the development of township and village enterprises. At the national level, employment in these enterprises grew from accounting for 7 percent of the total rural employment in 1978 to accounting for 29 percent in 1997. Shenggen Fan, Linxiu Zhang, and Xiaobo Zhang, *Growth, Inequality, and Poverty in Rural China: The Role of Public Investments* (Washington, DC: International Food Policy Research Institute, 2002). The proportion of the village labor force employed in village enterprises in our sample was very low, with an average of 5 percent. About 32 percent of the village leaders reported that there were no villagers employed in enterprises located in the village. In communities where they exist, township and village enterprises have contributed greatly to the increase in the average income of rural dwellers and the available support for schooling.

measure access to telecommunications, transportation, and shopping for necessary goods. We also consider village population size as a measure of remoteness.

Finally, we measure two social factors in the village. First, the scarcity of human capital is indicated by the illiteracy rate among the village labor force.⁶⁹ Second, we gauge the presence of social capital by measuring village social support for schooling as the number of times per year the village leader meets with the school principal.⁷⁰

School environment.—School environment factors include remuneration, school economic resources and working conditions, workload, opportunities for personal and professional advancement, collegial collaboration, and quality of supervision. We measure remuneration using each individual teacher's report of monthly salary and also whether or not this salary is received never, sometimes, usually, or always on time. School economic resources and working conditions are measured using four indicators. First, we indicated whether the school is a complete or incomplete primary school.⁷¹ Second, school size is measured in terms of total number of students. Third, we consider the percent of rooms in the school that have been designated as "dilapidated classrooms" (*weifang*). Finally, we collected information on the prior semester's expenditures per student on water, electricity, and heating fees; purchase of science laboratory equipment; physical education supplies; library books; and teachers' bonuses.⁷²

In order to measure workload, we use the number of hours that the teacher spends per week preparing, giving lessons, and grading homework. Our measure of opportunities for personal and professional advancement is the proportion of teachers in the school who, during the previous year, participated in professional development activities outside the school at a local teacher education institute, a local college, or other facility. We used the hours per week spent in the teaching and research section (*jiayanzu*) to measure the amount of time spent in collegial collaboration. Years of principal experience (including both years as a teacher and years as a principal) give us a rough measure of the quality of supervision.

Teacher characteristics.—Our teacher characteristics include teacher age,

⁶⁹ According to the 2000 census, 14.34 percent of the population of Gansu was illiterate; illiteracy rates for Gansu are higher than for China as a whole. Ibid.; and UNSTAT, *United Nations Statistics Division: Statistics on Illiteracy* (Geneva: UNSTAT; cited July 22, 2003), available from <http://unstats.un.org/unsd/demographic/social/illiteracy.htm>.

⁷⁰ As has been pointed out by an anonymous reviewer, the number of times that the village leader and principal meet may not be as important as the quality of the interaction between the village leader and the principal when they meet. From our fieldwork in rural China, it appears that, in many villages, village leaders and principals are in frequent contact. For the purposes of our model, we assume that less frequent meetings mean that the relationship is strained or that the village leadership is not very involved in the school.

⁷¹ Unfortunately, our data do not tell us if the school is a central primary school or not.

⁷² Sources of this money include government funding, village funding, school budget, individual contributions, and money obtained from Project Hope or other social organizations.

TABLE 1
TEACHERS' SATISFACTION, COMMUNITY AND SCHOOL ENVIRONMENTS, AND TEACHER BACKGROUND
CHARACTERISTICS IN RURAL GANSU

	Mean or Proportion (SD)	N
Teacher satisfaction outcome variables:		
"Is teaching your ideal profession?" 1 = yes, 0 = no (proportion yes)	.83 (.38)	1,001
"Do you want to change your profession?" 1 = yes, 0 = no (proportion yes)	.18 (.38)	1,000
"Are you satisfied with the local education bureau?" 1 = yes, 0 = no (proportion yes)	.79 (.41)	991
Community factors:		
Previous year village income per capita from industry and agriculture (yuan)	1,289.63 (2,248.84)	874
Enterprise presence: proportion of the village labor force that works in county, township, village, or household enterprises located in the village	.05 (.08)	948
Amount of money that the village collective contributed to the school in the past year (yuan)	9,005.47 (26,829.06)	989
Remoteness scale: nine measures of remoteness were standardized, summed, and divided by the number of measures to generate a scale. The nine measures consisted of four dichotomous variables that measured access to telephone, postal services, radio broadcasts, and bus, and five continuous variables measuring distance to nearest railway, highway, bus station, and shops for daily necessities and durable goods. More positive values indicate more remote villages. Cronbach's alpha for the reliability of the scale was .74.	-.10 (.50)	1,003
Total village population	1,738.77 (933.40)	1,003
Proportion of illiterate workers in labor force	.22 (.20)	1,000
Number of times the village leader met with the school principal in the past year	7.16 (8.96)	989
School environment:		
Remuneration: teachers' monthly salary (yuan)*	524.63 (323.25)	996
Payment of salary on time*		999
Never	.32	316
Sometimes	.56	557
Usually or always	.13	126
School type: 0 = incomplete primary, 1 = complete primary (proportion complete)	.88 (.32)	1,003
School size: total number of students	342.97 (290.45)	1,003
Proportion of dilapidated classrooms in the school	.20 (.28)	970
Semester's expenditure per student (yuan)	29.35 (53.59)	1,003

KEEPING TEACHERS HAPPY

TABLE 1 (Continued)

	Mean or Proportion (SD)	N
Workload: hours per week spent on preparing and giving lessons and grading homework*	39.09 (12.37)	1,003
Proportion of teachers who participated in professional development outside the school	.37 (.40)	963
Hours per week on <i>jiaoyanzu</i> activities*	4.25 (2.61)	1,003
Principal experience: years spent as a teacher and as a principal	23.37 (8.18)	970
Teacher background:		
Age	36.00 (10.60)	1,000
Female	.38 (.49)	998
Married	.82 (.38)	1,003
Teacher education		1,003
Middle school or lower	.23	234
High school	.63	628
College	.14	141
Teacher rank		989
No credentials	.20	199
Intern	.20	197
Level 2	.42	414
Level 1	.15	148
High level	.03	31
Proportion from the same village	.35 (.48)	1,003
Proportion engaged in farm work	.49 (.50)	1,001

*Attributes of the school environment measured at the individual teacher level.

gender, and marital status.⁷³ We further consider teachers' level of education. The variable for teacher education has three categories: middle school graduate and below, secondary school graduate, and college-level graduate.⁷⁴ We also include teacher rank, which has five categories: uncertified, intern, level 2 teacher, level 1 teacher, and high-level teacher. We test ties to the local community with two variables: whether or not teachers come from the same village and whether or not they also engage in farm work.

⁷³ Another demographic variable of interest is teacher ethnicity. There are 11 major ethnic minority groups living in Gansu Province, most notably Mongolian and Hui. However, less than 3 percent of the teachers in our sample belong to an ethnic minority group, therefore this variable was not included in our models.

⁷⁴ There is also a group of teachers who graduated from middle school and later bypassed high school graduation and acquired college-level (*dazhuan*) certification, usually by correspondence course. Due to data limitations, this level of education is counted in our measure as equivalent to high school graduation.

Methods of Analysis

Our analysis is divided into two sections. Using univariate and bivariate statistics, we first provide a description of the social location of satisfied teachers. We then use random effects logit models to analyze the effects of community, school, and individual characteristics on three dichotomous indicators of teacher satisfaction:

$$\eta_{ij} = \beta_0 + U_{0j} + \beta'_r X_{rij} + \beta'_s X_{sj}, \quad (1)$$

where η_{ij} is the log odds of teacher satisfaction (*ideal*: teaching is ideal profession = yes, *change*: want to change profession = yes, or *local education bureau*: satisfaction with the local education bureau = yes) for individual teacher i in school j , X_{rij} is a vector of teacher variables, X_{sj} is a vector of school and village variables, β'_r and β'_s are vectors of parameters to be estimated, and U_{0j} is a random intercept at the school level.⁷⁵

Results*Description of Teacher Satisfaction Using Bivariate Analysis*

To illuminate the social location of satisfied and unsatisfied teachers, tables 2 and 3 show teacher satisfaction measures by community, school, and individual factors included in our analysis. Table 2 presents the mean values of several important community, school, and individual factors that may vary by teacher satisfaction. Table 3 shows school and individual characteristics tabulated by teachers' reported level of satisfaction.

Community factors.—As can be appreciated from table 2, there are several community-level factors that differ between satisfied and dissatisfied teachers. For *ideal*, strikingly, where differences emerge, they suggest that teachers in more economically developed communities are less satisfied. For example, satisfied teachers live in villages with significantly lower income per capita, villages with significantly fewer residents working in village enterprises, and villages that are significantly more remote. We might anticipate that the more economically dynamic communities (where private enterprises are emerging to a greater degree) would be more pleasant places for teachers to live. In fact, the evidence suggests a different interpretation. In villages with a greater presence of private enterprises, alternate career paths may be more visible, leading teachers to be less satisfied than in settings where no such paths are evident.

Satisfied teachers in the sample also live in smaller villages, though this difference is small and only marginally significant. Results in tables 2 and 3 do not show a significant difference between satisfied and dissatisfied teachers

⁷⁵ We use the command "xtlogit" in STATA, which allows us to do random effects analysis, clustering teachers at the level of the school. Although a three-level model with schools nested within communities would make sense conceptually, the small number of villages containing more than one school makes this strategy untenable.

by illiteracy in the workforce, by community contributions to schooling, or by community support for schooling as measured by the number of times the principal meets with the village leader per year.

For the *change* outcome, the only community factor that significantly differentiates satisfied and dissatisfied teachers is village income. Consistent with the *ideal* measure, teachers who wish to change their career are living in significantly wealthier villages than teachers who do not wish to do so. For the *local education bureau* outcome, levels of satisfaction do not differ by conventional tests of significance. There are smaller associations between teacher satisfaction and living in a community where the workforce is more literate as well as living in communities where principals have more meetings with village leaders. Overall, these findings suggest that better-off villages do not necessarily have more satisfied teachers. In fact, teachers may be less satisfied in these villages.

School environment.—We first considered the bivariate relationship of school environment and teacher satisfaction, and found some unexpected results. The average salaries of teachers who identified teaching as their ideal career were actually lower than those of teachers who did not have such an idealized view of their jobs, as we can see in table 2. One possible explanation is that teacher dissatisfaction with remuneration—which has been reported in other studies—reflects teachers' comparison of their current salary with their potential salary in an alternate profession. Unfortunately, we do not have data available about the potential salary that a teacher in rural Gansu might expect to earn in another profession. A second explanation could be that salaries are positively correlated with the teacher's certification as a *gongban* teacher (as opposed to a *daike* teacher). The *daike* teachers in our sample were more likely to feel that teaching is their ideal career than *gongban* teachers, as we discuss below, but their salary is much lower than that of *gongban* teachers. According to our data, the average monthly salary of a *daike* teacher is 173 yuan. The average monthly salary of a *gongban* teacher is 576 yuan.

On-time payment of salary is, however, positively linked to whether or not a teacher feels that teaching is an ideal career and whether or not a teacher is satisfied with the local education bureau, as we can appreciate from table 3. Only 77 percent of teachers who reported that their salary was always late felt that teaching was their ideal career. Ninety percent of teachers whose salary was usually or always on time felt this way.

Our bivariate analyses of teacher satisfaction with measures of working conditions led to ambiguous results. Whether or not the school is an incomplete primary or a complete primary school is unrelated to teacher satisfaction, although teachers in incomplete primary schools are marginally significantly more likely to be satisfied with the local education bureau. We find no effects of school size. School expenditure per student has a negative relationship with desire to change career. This demonstrates that teachers in

TABLE 2
MEAN LEVELS OF SELECTED COMMUNITY, SCHOOL, AND TEACHER CHARACTERISTICS BY TEACHER SATISFACTION

	Teaching Is Ideal Career		Teacher Wants to Change Career		Satisfied with Local-Education Bureau	
	No	Yes	No	Yes	No	Yes
Community factors:						
Village income per capita (yuan)	1,912.44 (132)	1,179.62 (741)**	1,205.29 (725)	1,710.22 (147)*	1,194.70 (175)	1,325.6 (689)
Proportion of village labor force working in enterprises	.07 (164)	.05 (782)**	.05 (780)	.06 (166)	.05 (205)	.05 (731)
Village collective contributions to school per year (yuan)	8,562.56 (168)	9,116.12 (819)	8,652.87 (811)	10,505.31 (175)	8,024.83 (207)	9,405.94 (770)
Remoteness	-.24 (170)	-.07 (831)**	-.10 (824)	-.10 (176)	-.09 (210)	-.10 (781)
Total village population	1,847.64 (170)	1,716.50 (831) ⁺	1,720.42 (824)	1,811.37 (176)	1,703.61 (210)	1,764.57 (781)
Proportion illiterate workers in labor force	.22 (170)	.22 (828)	.22 (822)	.22 (175)	.24 (210)	.21 (778) ⁺
Number of times village leader and principal meet per year	6.68 (168)	7.27 (819)	7.32 (811)	6.45 (175)	6.18 (207)	7.50 (770) ⁺
School environment:						
Remuneration (yuan)	594.20 (169)	511.47 (825)**	519.94 (818)	552.13 (175)	507.65 (207)	529.93 (777)
School size (total number of students)	346.69 (170)	341.38 (831)	344.56 (824)	336.30 (176)	337.85 (210)	339.21 (781)

Proportion of dilapidated classrooms	.14 (167)	.21 (801)**	.19 (798)	.21 (170)	.22 (208)	.18 (750) ⁺
Semester's school expenditure per student (yuan)	24.92 (170)	30.31 (831)	31.33 (824)	20.21 (176)*	25.03 (210)	30.86 (781)
Workload (hours)	36.33 (179)	39.67 (831)**	39.47 (824)	37.36 (176)*	38.35 (210)	39.38 (781)
Proportion of teachers who participated in professional development outside the school	.42 (165)	.37 (796)	.37 (793)	.38 (168)	.33 (207)	.38 (744)
Hours per week on <i>jiaoyanzu</i> activities	3.79 (170)	4.35 (831)*	4.31 (824)	3.98 (176)	4.20 (210)	4.30 (781)
Principal experience (years)	22.49 (167)	23.55 (801)	23.17 (798)	24.36 (170) ⁺	23.22 (208)	23.24 (750)
Teacher background:						
Age	30.81 (170)	36.59 (828)**	36.11 (821)	33.31 (176)**	32.74 (210)	36.32 (778)**

NOTE.—Number (*N*) of observations in parentheses.

⁺.10 level, indicating means are significantly different for satisfied and unsatisfied teachers; two-tailed *t*-test.

*.05 level, indicating means are significantly different for satisfied and unsatisfied teachers; two-tailed *t*-test.

** .01 level, indicating means are significantly different for satisfied and unsatisfied teachers; two-tailed *t*-test.

TABLE 3
TEACHER SATISFACTION BY SELECTED SCHOOL AND TEACHER CHARACTERISTICS (Proportion Yes)

	Is Teaching Your Ideal Career?	Do You Want to Change Your Career?	Are You Satisfied with the Local Education Bureau?
School environment:			
Salary payment on time:	**		**
Never	.77	.20	.68
Sometimes	.85	.17	.81
Usually or always	.90	.13	.93
School type:			+
Incomplete primary	.88	.17	.85
Complete primary	.82	.18	.78
Teacher background:			
Teacher gender:			
Male	.83	.17	.80
Female	.82	.19	.77
Teacher marital status:	**		*
Unmarried	.74	.21	.72
Married	.85	.17	.80
Teacher education:	**	*	
Middle school or lower	.88	.14	.83
High school	.84	.17	.78
College	.71	.26	.75
Teacher rank:	**		
No credentials	.91	.18	.78
Intern	.77	.19	.77
Level 2	.84	.14	.81
Level 1	.89	.19	.80
Level high	.69	.25	.63
Teacher comes from the same village:	**		
Yes	.90	.16	.79
No	.79	.19	.79
Teacher also works on a farm:	*	+	
Yes	.86	.15	.79
No	.80	.20	.79

NOTE.— χ^2 significance tests were conducted for each satisfaction measure by each row variable.

+ .10 level.

* .05 level.

** .01 level.

schools that spend more per student on teacher and student welfare and in support of teaching and learning are less likely to indicate a desire to change their career. However, teachers appear to be more satisfied in schools with a higher proportion of dilapidated classrooms. This finding corroborates our results with regard to the community variables, as it is in less economically developed villages where schools are more likely to be in poor condition. Interestingly, the proportion of dilapidated classrooms is negatively related to satisfaction with the local education bureau, although this result is not highly significant.

Our measure of workload also has an unexpected bivariate relationship with job satisfaction. Teachers who spend more time giving and preparing

for lessons and grading homework are significantly more likely to feel that their job is ideal and are significantly less likely to say that they wish to change their career. This result may be an indicator that satisfied teachers are more engaged in and involved with their work. The proportion of teachers who participate in professional development activities outside of the school is not significantly related to any of our outcome measures, although hours spent in professional collaboration through the activities of the *jiaoyanzu* are positively related to feelings that teaching is an ideal career. Finally, principal experience showed an unexpected positive relationship with the desire to change profession.

Overall, more satisfied teachers appear to teach in schools where economic resources for the support of teaching and for teacher and student welfare are more available and where payment of salary is received on time. However, teachers in schools that are in poorer physical condition are more likely to feel that teaching is their ideal career. This is consistent with our findings in the analysis of community variables, as schools in poor condition are more likely to be found in remote villages that are lacking in economic resources. Results hint at a positive role for collegial collaboration. Contrary to our original expectation, teachers who spend more time giving and preparing for lessons and grading homework tend to be more satisfied. This result may be an indication that teachers who are more satisfied are also more engaged and tend to be willing to spend more time on instructional activities.

Teacher characteristics.—Several teacher demographic characteristics show the expected relationship with teacher satisfaction. Most notably, by each of the three measures, dissatisfied teachers were significantly younger than satisfied teachers. Just as in the United States, younger teachers are less satisfied than older teachers. To some degree, this finding may be a survival effect, as the composition of teachers is likely to be weighted toward teachers who like the profession enough to persist in it. However, the difficulty of changing careers in China due to strict controls on labor mobility in the past argues against this interpretation. Further, for two of the three outcomes (*ideal* and *change*), less educated teachers displayed higher levels of satisfaction. This is perhaps due to perceived alternative opportunities.

Regarding rank, teachers who were uncertified were the most satisfied. There is a nonlinear relationship between teacher rank and teacher satisfaction among certified teachers. The newest teachers and the most senior-ranked teachers are the most dissatisfied, while middle-ranked teachers tend to be the most satisfied.

Results also suggest the importance of ties to local areas. For *ideal*, local teachers reported higher levels of satisfaction. For *ideal* and for *change*, teachers who engaged in farm work were more satisfied, though this result was only marginally significant for *change*.

Finally, gender has no apparent bivariate relationship with teacher satisfaction on any of the three measures. Married teachers are significantly more likely to feel that teaching is their ideal career than unmarried teachers. Further, married teachers are also significantly more likely to be satisfied with the local education bureau.

Multivariate Analysis of Teacher Satisfaction

The preceding section illuminates the social location of satisfied teachers. Given that many of these attributes of communities, schools, and teachers may be related to each other, we perform multivariate analyses to consider net effects of specific community, school, and teacher characteristics factors. Table 4 shows coefficients from random effects logistic regression models for the three teacher satisfaction measures.

Community factors.—Like the bivariate results, multivariate analysis also suggests that greater economic resources in the village do not contribute to teacher satisfaction. In some cases the presence of greater economic resources is linked to lower levels of teacher satisfaction. Per capita income is not significantly related to *ideal* or *local education bureau*, but it is positively related to the desire to change professions. Controlling for other factors, the proportion of the village labor force working in enterprises does not exert significant effects on any of our outcome measures. The contributions made by village collectives to schools do matter, however. These contributions were positively linked to *change*, lending further support to the alternative hypothesis that teachers are less satisfied in more prosperous villages. We also find that remoteness is not associated with greater dissatisfaction among teachers. Indeed, teachers in more remote villages are more likely to feel that teaching is their ideal career. Teachers in smaller villages are also less likely to wish to change their career, although these latter results are only marginally significant.

On the other hand, social resource variables are positively linked to teacher satisfaction in multivariate analysis. Significant results for *ideal* suggest that teachers in better-educated villages are more satisfied. This result may stem from teachers' reduced social isolation in such settings. Further, net of other variables in the model, the number of meetings between principals and village leaders is negatively related to teachers' desire to change their career.

We found little support for the notion that teachers in more developed or less remote villages are more satisfied with their jobs. In fact, the evidence appears to support an opposite conclusion with regard to village economic conditions. Teachers in more prosperous, less remote village communities tend to be those who are least satisfied. On the other hand, our findings suggest that factors that tap into community social resources—community

literacy and social support for schooling—may be positively linked to teacher satisfaction.

School environment.—Results from the multivariate analyses of social and economic resources of schools are, by and large, consistent with the findings of the bivariate analyses. School expenditure per student has a significantly positive effect on both *ideal* and *change*. Similarly, payment of salary on time shows strongly significant positive links to both *ideal* and *local education bureau*. In the multivariate model, salary levels, school type, proportion of dilapidated classrooms, and school size are all unrelated to levels of teacher satisfaction. Likewise, opportunities for professional development also have no significant effects on any of our satisfaction outcomes.

Teachers who work more hours per week giving lessons, preparing materials, and grading homework appear to be more satisfied by our measures. They are significantly more likely to feel that teaching is their ideal career and significantly less likely to wish to change their career. Time spent in *jiaoyanzu* activities has a significant positive relationship with *ideal*. Teachers in schools with more experienced principals are more likely to feel that teaching is their ideal career, although this result is only marginally significant.

Together, these findings suggest that the most consistent school-level factors predicting satisfaction are on-time payment of salary and amount of school expenditures per student. Furthermore, there is some evidence to suggest that organizational structures that enhance collaboration may be positively associated with teacher satisfaction.

Teacher characteristics.—The relationships of teacher characteristics to teacher satisfaction show certain results that are consistent with findings elsewhere. Net of other factors, younger teachers are less satisfied than older teachers. Further, women are more likely to identify teaching as their ideal profession. Teachers with higher levels of education are significantly less satisfied with the teaching profession and significantly more likely to state that they wish to change their career. Teachers with a college-level education are 65 percent less likely to feel that teaching is their ideal profession than those teachers with middle school or below as their highest level of educational attainment.⁷⁶ Teachers with a college education are 128 percent more likely to wish to change their profession than those with a middle school education or less. This finding is consistent with a view that more qualified teachers are less satisfied.

Using teachers ranked at level 2 as our reference point, there is some evidence to suggest that teachers with higher ranks may be less satisfied. Relative to level 2 teachers, level 1 teachers are significantly more likely to desire a change in their career. Relative to level 2 teachers, higher-level teach-

⁷⁶ Logistic regression allows for the calculation of the percentage change in the odds for a one-unit increase in x using the formula $100(e^{\beta} - 1)$, where β = the coefficient for the particular variable, x .

TABLE 4
RANDOM EFFECTS LOGIT MODELS FOR TEACHER SATISFACTION OUTCOMES

	Ideal	Change	LEB
	(1)	(2)	(3)
Community factors:			
Village income per capita (yuan × 100)	-.002 (.004)	.009 (.004)*	-.000 (.007)
Enterprise presence (proportion of village labor force working in enterprises)	-1.458 (1.240)	-.216 (1.250)	.064 (1.943)
Village collective contributions to school (yuan × 100)	-.000 (.000)	.001 (.000)**	-.000 (.000)
Remoteness	.726 (.279)**	.023 (.243)	.409 (.357)
Total village population (× 100)	-.018 (.013)	.022 (.012) ⁺	-.022 (.019)
Proportion of village labor force that is illiterate	.288 (.618)*	.880 (.566)	-1.159 (.855)
Number of times village leader and principal meet per year	.025 (.017)	-.034 (.016)*	.026 (.024)
School environment:			
Remuneration (yuan × 100)	-.108 (.076)	.046 (.036)	-.009 (.036)
Payment of salary on time (ref. never)			
Sometimes	.619 (.217)**	-.144 (.206)	.883 (.223)**
Usually or always	1.147 (.382)**	-.502 (.338)	1.864 (.443)**
Complete primary school	.193 (.373)	.113 (.321)	-.691 (.475)
School size (total number of students × 100)	.001 (.042)	.051 (.043)	.020 (.050)
Proportion of dilapidated classrooms	.646 (.483)	-.040 (.401)	-.325 (.559)
Semester's expenditure per student (yuan × 100)	.794 (.323)*	-1.081 (.372)**	.034 (.231)
Workload (hours)	.019 (.009)*	-.016 (.008)*	.010 (.008)
Proportion of teachers who participated in professional development outside the school	-.445 (.289)	.220 (.261)	.165 (.381)
Principal experience (years)	.026 (.015) ⁺	.011 (.013)	.010 (.018)
Hours per week on <i>jiaoyanzu</i> activities	.083 (.042)*	-.035 (.037)	-.024 (.038)
Teacher background:			
Age	.084 (.017)**	-.044 (.015)**	.049 (.015)**
Female	.702 (.230)**	-.247 (.220)	.042 (.228)
Married	.064 (.283)	.287 (.277)	.195 (.287)
Teacher education (ref. middle school or below):			
Secondary	-.531 (.267)*	.225 (.240)	-.279 (.251)
College	-1.046 (.335)**	.822 (.312)**	-.171 (.346)

KEEPING TEACHERS HAPPY

TABLE 4 (Continued)

	Ideal	Change	LEB
	(1)	(2)	(3)
Teacher rank (ref. level 2)			
No credentials	-.032 (.466)	.292 (.341)	-.061 (.357)
Intern	-.099 (.290)	.126 (.281)	.241 (.294)
Level 1	-.097 (.368)	.609 (.304)*	-.494 (.331)
High level	-.424 (.482)	.479 (.489)	-.903 (.516) ⁺
Teacher comes from the same village	.217 (.243)	.163 (.214)	-.302 (.221)
Teacher also does farm work	-.020 (.217)	-.184 (.203)	-.179 (.221)
Constant	-2.058 (1.051) ⁺	-.586 (.897)	.193 (1.124)
Observations	978	977	968
Number of schools	127	126	127
R ² analog	.12	.06	.06

SOURCE.—Paul Allison, *Logistic Regression Using the SAS System: Theory and Application*, 3rd ed. (Cary, NC: SAS Publishing, 2001), 56.

NOTE.—LEB is satisfaction with Local Education Bureau; standard errors in parentheses; missing values imputed using means; the R^2 analog was calculated using the formula $R^2 = 1 - \exp(-L/N)$, where L is twice the positive difference between the log likelihood of the full model and the model with no covariates.

⁺Significant at 10%.

*Significant at 5%.

**Significant at 1%.

ers are significantly less likely to feel satisfied with the local education bureau. Controlling for other factors, whether or not a teacher is married, comes from the same village, or also works as a farmer, are not significant.

Discussion and Conclusions

Many researchers have sought to identify the characteristics of families and schools that promote positive student outcomes in developing countries.⁷⁷ Provision of qualified teachers is an important policy tool for reducing poverty transmission in disadvantaged communities. However, little previous research exists that can identify factors helping to maintain the teacher workforce in poorer and more remote areas. We have addressed this gap by using a case study to investigate the community factors, as well as school and individual teacher factors, that are associated with teacher work satisfaction in the rural areas of a poorer province located in northwestern China.

Based on a broader theoretical literature on teaching, our working hypotheses suggest factors that may influence teacher satisfaction at the community, school, and individual levels. At the community level, we expected

⁷⁷ For a review of this literature, see Claudia Buchmann and Emily Hannum, "Education and Stratification in Developing Countries: A Review of Theories and Research," *Annual Review of Sociology* 27 (2001): 77–102.

that teachers would be more satisfied with their jobs in less remote locales that have greater material and social resources. At the school level, we hypothesized that teachers would be more satisfied in schools with greater economic resources and lighter workloads, and in schools with an organizational climate characterized by experienced leadership that fosters personal and professional advancement and collegial collaboration. At the individual level, we anticipated that young teachers, male teachers, unmarried teachers, and teachers with greater human capital would be less satisfied. Teachers who were more socially similar to the local community would be more satisfied.

The hypotheses that were most consistent with our results were those at the level of the teacher. Across the board, younger and better-educated teachers were less satisfied. Evidence from multivariate analysis also suggests that net of other factors, female teachers were more satisfied. Bivariate analyses suggest that teachers with greater ties to the local community were more satisfied. The multivariate results also suggest that other measured attributes of teachers with local ties explain this relationship.

Results related to the school environment also tended to confirm our hypotheses, although a few of the bivariate results were unexpected. Results supported our expectation that teachers are more satisfied in schools with more resources available for teaching and learning. Teachers also are more satisfied in schools where they are paid on time and where there are greater opportunities for professional discussion and collaboration. Unexpectedly, using our measures, teachers with greater workloads tend to have higher levels of satisfaction. We interpret this as an indication that more satisfied teachers are more motivated and engaged in their work. From bivariate analysis, there appears to be a negative relationship between salaries and teacher satisfaction. And teachers are more likely to report teaching as their ideal career in schools in poor physical condition.

We found the effects of community to differ considerably from those suggested by our working hypotheses. Indicators of economic development, such as village income per capita, presence of village enterprise, and contributions of the village collective to the school, are negatively associated with teacher satisfaction after other factors are controlled. How can we interpret these findings? The alternative careers that are perceived as available by teachers may be important elements of teacher satisfaction. In developing countries, Farrell and Oliveira warn that qualified teachers are likely to abandon teaching if what they earn in teaching differs too greatly from what they could earn in an alternative job.⁷⁸ The perceived availability of teaching alternatives probably improves with economic development of the village community. In their study of Jamaican teachers, Rodgers-Jenkinson and Chapman

⁷⁸ Farrell and Oliveira, *Teachers in Developing Countries*.

theorized that job satisfaction decreases as the modern sector develops and as teachers perceive more alternatives to teaching.⁷⁹ Given China's market transition and its emerging labor market—for teachers as well as other workers—dissatisfied teachers may increasingly desire other jobs and be able to find them. This will create problems for the retention of qualified teachers in impoverished settings.⁸⁰ Our results suggest a caution: rural development could just as easily exacerbate as ameliorate problems associated with teacher dissatisfaction.

Our findings also highlight the need for further attention to the social aspects of village communities as they influence teacher satisfaction. Social capital was negatively related to the desire to change professions in our sample. These results are significant in China, where decision-making authority has been shifted to local communities. Cross-community disparities in social, human, and cultural resources are increasingly tied to school conditions. Ross and Lin's recent fieldwork shows that communities in China differ dramatically in the social resources they can garner to support education. These social resources have increasingly tangible consequences for the formation and sustainability of effective schools.⁸¹

Perhaps the most compelling conclusion emerging from our research is a story about the inequality of student access to qualified teachers. We consistently found that the least qualified teachers are employed in Gansu's poorest and most remote villages, but these are also the most satisfied—Gansu's most satisfied teachers can be found among the uncertified *daike* teachers. They are receiving Gansu's lowest salaries, are teaching in its most remote communities, in the worst school buildings, and they have the heaviest teaching loads.⁸² Among the teachers in our sample, 60 percent of the *daike* teachers had never participated in any type of in-service training, as compared with 32 percent of the certified teachers. Considering that many of the *daike* teachers had received no preservice training, they are in much greater need of in-service training.

Interestingly, while these *daike* teachers are more likely to believe teaching is their ideal career, they are just as likely to want to leave teaching. *Daike* teachers, receiving very low salaries and only teaching temporarily, may have

⁷⁹ Rodgers-Jenkinson and Chapman, "Job Satisfaction of Jamaican Elementary School Teachers."

⁸⁰ Xu, "Shichang jingji yu jiaoshi liudong," 305, claims that the more economically developed areas in China experience much greater volumes and rates of teacher turnover than the less economically developed regions.

⁸¹ Ross and Lin, "Social Capital and Chinese School Communities."

⁸² Additional bivariate analysis of our indicators by whether or not a teacher is certified reveals that *daike* teachers are significantly more likely to work in smaller, more remote, and poorer villages. They are significantly more likely to be young, unmarried, and female; to have a level of education that is middle school or below; to be from the same village; and to also engage in farm work. They are significantly more likely to teach in incomplete schools and in schools where the conditions are poorer and where there are fewer opportunities for professional development and in-service training. Finally, they are significantly more likely to work for lower salaries but, interestingly, they are also significantly more likely to receive these lower salaries on time.

fewer attachments to the school. They may be just as likely to leave as teachers with greater human capital if they are able to find lucrative work in the towns and counties.

Su Zhaorong states “the *daike* teachers are at one and the same time the direct reason for the low quality of education and the indispensable force of education in poor rural areas. If it were not for these teachers, primary education in poor rural areas would not be able to continue.”⁸³ Thus, it would seem that, to address access to quality education in the rural areas of north-west China, the focus on getting qualified teachers to teach in rural villages should shift toward getting rural teachers qualified.

Our article is a first attempt at understanding the job satisfaction of primary school teachers in rural China, and there is a need for much further research. Most valuable will be follow-up interviews with satisfied teachers in remote rural areas as well as with teachers who left teaching for other jobs. Qualitative fieldwork would be helpful in providing further information about the relationship of community support to teacher satisfaction. We also need more research on the relationship of township local education bureaus to village schooling in this era of decentralization, including more information about how the actions and policies of local education bureaus affect teachers. Such further study is particularly important because of the low explanatory power of our multivariate statistical models. Quantitative researchers also must employ more precise measures of teacher satisfaction and gather information with which to explore other factors leading to teacher satisfaction. We need research into the precise aspects of jobs that rural teachers value in order to gain a clearer picture of what is important to them. While there is much ongoing investigation of teacher satisfaction in the Chinese literature, there has been far less investigation of rural teachers. A better understanding of ways to support rural teachers could help promote access to quality education for China’s children.

⁸³ Su, “Pinkun diqu jichu jiaoyu,” 374.