DANWEI PROFITABILITY AND EARNINGS INEQUALITY IN URBAN CHINA *

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Abstract

Prior research has debated the relative importance of such factors as human capital, political capital, and region in determining workers' earnings in reform-era urban China. In this paper, we argue that a main agent of social stratification in contemporary China continues to be *danwei*, the work unit. Using data from a 1999 survey we conducted in three large Chinese cities, Wuhan, Shanghai, and Xi'an, we assess the extent to which workers' earnings (including regular wages, bonuses, and subsidies) depend on the profitability of their *danwei*. Results show that the financial situation of *danwei* is one of the most important determinants of earnings in today's urban China. Furthermore, the importance of *danwei* profitability does not vary by city or by employment sector.

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Introduction

Accompanying the rapid economic growth in China since 1978 has been a sharp rise in economic inequality.[1] One study estimates that the Gini index, a standard measure of income inequality, jumped steadily from 0.310 in 1985 to 0.415 in 2001 in China.[2] Responding to this rapid social change, sociological research on contemporary China has focused on social inequality in the past fifteen years.[3] With a few exceptions that explored reasons for the sharp rise in inequality,[4] much of the research effort has attempted to address the distributional question of "who wins and who loses" during the transition.[5]

Two main themes have emerged in the literature. First, in a series of papers, Nee[6] has advanced a thesis called "market transition theory," the conjecture that income determination will depend more on market credentials (such as education) and less on political factors as the economic reform advances. Second, a large group of sociologists have challenged Nee's thesis, citing both theoretical reasons pertaining to institutional, historical, and cultural features unique to the reform-era Chinese economy and empirical findings that defy predictions of market transition theory.[7] For example, Xie and Hannum find that returns to education are higher in slow-developing cities than in fast-developing cities.[8] Further, returns to education were lower for bonuses set by work units than for base salaries set by the government.[9]

While much sociological research has been devoted to the market transition debate, no consensus has been achieved. One problem is the difficulty operationalizing market transition.[10] Despite the challenge of definitively testing Nee's market transition theory, it has proved useful in generating new empirical research on social inequality in contemporary China. We now recognize the following empirical patterns, although their implications for market transition theory are still debatable. First, returns to education have significantly increased over time.[11] Second, political capital has not only remained important but become more so.[12] Third, regional variation has been very large and continues to dominate other determinants of earnings.[13]

At the core of the widespread skepticism concerning the applicability of market transition theory is the observation that the government, especially the local government, continues to play a very strong role in the Chinese economy. At least at the local level, business interests are allied with government interests. In the words of Oi,[14] "local governments in China [are] fully fledged *economic* actors, not just administrative-service providers as they are in other countries." Oi has termed the merger of state and economy at the local level "local state corporatism."[15] One important reason for this merger is that the local government has a vested interest in promoting local economic interests so that it can provide welfare and public services to its population. While Oi's work has been focused on rural China, her characterization can also be readily extended to urban China, where the work unit, known as *danwei*, still serves as a well-being provider for its employees, continuing the long tradition of "paternalism" as discussed by Walder[16] in pre-reform China. More concretely, an employer in contemporary China may not wish to maximize profits by reducing labor costs as low as the labor market equilibrium would allow. Rather, it may be interested in protecting current employees by paying them at levels substantially higher than may be justified by the labor market competition.

If the labor market in China does not function as a truly competitive market, individuals who happen to be placed in favorable positions (for whatever reason) have structural advantages over those placed in less favorable positions.[17] This situation is analogous to what is described by Walder's[18] pioneering work on pre-reform China, in which *danwei* (单位) played all-encompassing roles to urban citizens: *Danwei* defined one's work life, political life, economic well-being, and, ultimately, membership in society so that individuals depended on *danwei* for almost everything (called "organized dependency"). Further, cadres at *danwei* used their power to cater to the needs of their subordinates ("paternalism") and favor some of them ("particularism"). Since the reform, the role of *danwei* has changed but not disappeared. Certain functions of *danwei* (such as housing provision, food rationing, entertainment provision, and political rights conferment) have been displaced or at least substantially weakened. Non-state economic entities (such as private firms and joint ventures with foreign firms) have appeared and

gained more prominence in the economy. Even state-owned or state-transformed employers, such as large public-traded firms, universities, and hospitals have now lost their previous characters as all-encompassing *danwei*. Technically, they are no longer part of the state's command economy and thus are subject to "hard-budget" constraints emphasized by Kornai[19] for economic efficiency. This leads to our question of whether and how *danwei* continues to play an important role in determining earnings in reform-era urban China.

In this paper, we argue, and will demonstrate with survey data, that *danwei*, the work unit, continues to be a main agent of social stratification in contemporary urban China. Using data from a 1999 survey we conducted in three large Chinese cities, Shanghai (上海), Wuhan (武汉), and Xi'an (西安), we assess the extent to which workers' earnings (including regular wages, bonuses, and subsidies) depend on their *danwei*'s profitability. We find *danwei* profitability to be one of the most important determinants of earnings in urban China as of the late 1990s. These results reveal the persisting role of *danwei* in the social stratification regime of post-reform China.

***Danwei*, Then and Now**

Danwei in pre-reform China

The central role of *danwei* in contemporary China has long been studied by sociologists.[20] Prior to the economic reform in China, almost all urban workers were organized as part of a *danwei*, be it a factory, a store, a school, or a government office. The *danwei* organizations had multiple social, political, and economic functions, a permanent "membership" of life employment.[21] Workers and their families were totally dependent upon their affiliated work units for material resources and career chances.[22] Chinese urban society was organized as a hierarchy, in which each work organization functioned as a social "unit" in the system dominated by the state. Indeed, membership in a *danwei* was an important sign of social status and an important vehicle for status attainment and social mobility.[23]

Not all work units were equal. Resources at a work unit's disposal were contingent upon its sector, ownership, and bureaucratic rank in the redistributive hierarchy.[24] First, government and party agencies were *de facto* redistributors, and enterprises were required to submit most profits to central planners. Second, ownership type was another important criterion in resource distribution. The redistributive system favored state-owned work units because they were considered the base of the communist regime. State-owned work units had priority in acquiring resources from the government to provide housing and subsidized coupons for their employees. Finally, each work unit had a rank which could strengthen a work unit's ability to gain resources from the state. The higher the rank of a work unit, the closer it was to the central planner, and thereby the more power it had in bargaining with government offices.[25]

Material compensations to employees provided by work units included both salaries and in-kind goods and services. After the 1956 wage reform, workers' salaries were rigidly regulated by the government.[26] Each person was given a rank in the wage ladder based on his or her occupational status, seniority, and administrative position. The unified and centralized wage policies applied to all workers (called the eight-grade payment system), with some adjustments governed by clear rules.[27] There was not much leeway left for a work unit to pay its employees higher cash salaries than another work unit. Most inequalities under socialism were caused by the unequal distribution of in-kind goods and services such as housing, retirement insurance, medical care, social services, and other welfare programs among different types of work units at various ranks.[28] In an economy of scarcity, access to these goods and services was more important than cash income and could be made available only through work units on the basis of their sector, ownership type, and bureaucratic rank.

Economic Reform and the Transformation of *Danwei*

The market-oriented reform that began in 1984 in urban areas has fundamentally transformed the redistributive system described above. One of the objectives of the Chinese economic reform was to restructure state-owned enterprises and improve their economic competitiveness.[29] As a part of the decentralization process, enterprises had secured some discretionary decision-making power from the

state and gradually evolved into economic entities with relative autonomy, especially with respect to rights pertaining to profit-retaining and distribution. Firms could decide their own forms of bonus distribution.[30] Accordingly, a significant part of the workers' income was freed from the rigid salary system mandated by the state and subject to flexible adjustment supposedly reflecting workers' productivity.

The reformers' initial goal was to link the workers' material rewards closely to productivity, which would in turn improve a firm's business performance. However, the loosened control over firms had both expected and unexpected consequences. First, it quickly became clear that firms' profitability depended on many external factors other than workers' productivity. Such external factors included technology, competition (i.e., whether a firm had a monopoly), and regional advantages (i.e., access to natural resources or foreign technology). Second, the patron-client relationship between managers and workers[31]motivated firms to increase bonus payments to employees, often out-of-proportion to increases in productivity and profitability,[32] only to be curtailed by policy measures such as setting a ceiling on bonuses in the late 1970s and levying bonus taxes on state firms in the 1980s.[33] Third, while initially intended as a form of supplementary income, bonuses gradually became a main source of income, indeed constituting more than half of the total income on average in the late 1980s and early 1990s.[34] While base salaries remained largely regulated by the government, the ability to generate bonus funds and to reward employees varied considerably from one firm to another.[35] Therefore, variation in bonuses had become a main source of inter-firm income inequality in reform-era China.[36] Finally, the incentive system that originated in the industrial sector began to be emulated by work units in all other sectors, even in those where profitability either cannot be meaningfully measured or is simply not meaningful, such as government branch offices, schools, hospitals, and research institutions.

When the state-mandated salaries became only a small proportion of workers' total compensations in the industrial sectors, workers in other sectors lagging behind pressured their *danwei* to generate extra revenues and to upgrade their living standards. Such institutional competitions had

transformed all Chinese *danwei* to generate extra revenue (*chuangshou* 创收) via a subsidiary business (*sanchan* 三产) so that it could pay bonuses/living stipends to their employees, and this payout was dependent more on membership in a *danwei* than on direct participation in revenue generation. For example, a high school might open a restaurant that hires migrant workers as contract-employees. Income from the business would provide financial resources for the welfare of teachers at the high school.

As a result, under the economic reform, Chinese work organizations became less dependent on the state. Paradoxically, however, in the mean time, worker's dependency on *danwei* for their financial well-being increased, as an increasingly large share of a worker's income became discretionary and dependent on funds generated by *danwei*. Thus, as in pre-reform China, cadres and employees at the same *danwei* shared a common interest in confronting the state to protect the extraction of resources from the *danwei* by the state. *Danwei* had two avenues to expanding their disposable resources – improve their efficiency and/or hide their discretionary revenues. A typical strategy was to establish new subsidiary firms (essentially with the state-owned assets) under legitimate excuses.[37] Factories could lease empty offices for rent and could run shops, restaurants, and even hotels (commonly called tertiary industries or *sanchan*). The revenues from these sources were often unaccountable to supervising agencies and largely retained at the work units' discretion.[38]

This practice of generating extra revenues for the financial benefit of employees extended to all types of *danwei* (including government agencies and non-profit institutions), in the form of collective moonlighting (*chuangshou*), that diverted themselves from their designated organizational functions. Many government bureaus abused their regulatory powers to benefit their own staff by imposing unauthorized surcharges and fines.[39] Primary and middle schools began to charge students miscellaneous fees under different covers to generate extra funds to pay teachers. Even academic departments in universities had to run businesses/training programs completely unrelated to their teaching and research missions. In short, all *danwei* tried to take advantage of their own structural positions and generate

revenues for their employees, transformed from "*rank*-seeking" under the old redistributive system to "*rent*-seeking" in the socialist mixed economy.[40]

Some of the work units' economic activities mentioned above were legal and some were illegal, but most simply lacked transparency, accountability, and regulations. The involvement of state-owned factories in service industries was seen as part of their diversification strategy when facing increasing environmental uncertainties,[41] whereas government agencies' arbitrary fines and fees were termed as "organizational corruptions".[42] All in all, the widespread *danwei* revenue-generating activities should be understood in the context of the need and the opportunity during the economic reform for *danwei* to provide financial benefits to their own employees. This change has tightened the relationship between the workers and their work units. Chinese work units have thus developed their distinctive organizational interests and become welfare entities with great autonomy. As a result, within-*danwei* inequality is held at a low level relative to between-*danwei* inequality, which has substantially increased in the reform era. *Danweis'* financial situations, or "profitability," has become a key factor of social stratification in contemporary China.

During the economic reform period, a newly expanding private sector became an alternative provider of resources and life chances outside the redistributive sector. While this change means the declining importance of state-regulated bureaucratic coordination, it does not mean the end of *danwei* as a persistent agent of stratification in Chinese society. Given the historical importance and the cultural expectation of *danwei* as a unique linkage between the state and society, *danwei* as an institution could be reproduced themselves even in the market economy. For instance, *danwei-like* institutional features could be observed even in newly emerging sectors such as privately owned high-tech firms in urban China,[43] or even industrialized villages in rural China.[44] One important difference between *danwei-like* private firms and state-owned or state-controlled *danwei* is that income redistribution in the former is directly reflected in salaries and wages rather than hidden in bonuses and other forms of welfare benefits as in the latter.

Danwei Profitability and Income Distribution

Early studies on social consequences of the market transition in China have largely been focused on the changing effects of human capital and political capital on income distribution among individual workers.[45] Controversial findings on those effects have been used to support different theoretical arguments on whether redistribution as the mechanism of social stratification has been changed in China.[46] Recent research in this field demonstrates that the transition to a market economy has no intrinsic implications for returns to either human or political capital.[47] The effect of individual characteristics is mediated by concrete institutions, among which the Chinese urban work unit is important.[48] In this context, the transformation of *danwei* and its role in affecting economic outcomes need to be brought back into the center stage of social stratification research on contemporary urban China. Without a proper understanding of this institution, we cannot fully understand urban social inequalities in reform-era China.

To understand the role of *danwei*, it is important to realize that maximization of profits is not the only objective of *danwei*, most of which are owned by the state. Otherwise, highly profitable *danwei* would be interested in keeping labor costs low by not redistributing the profit among employees, as they could easily replace their workers at lower remunerations at the market level. In fact, workers' remunerations have been heavily shaped by the internal structure and management-labor relationship within work units. Despite policies in early years of the economic reform targeted at breaking the "big pot rice" (*da guo fan* 大锅饭), distributions of bonuses and other welfare benefits had become a major part of the internal politics within work units.[49]

Structurally, *danwei* managers served as intermediaries between the state and workers in contemporary China. In the pre-reform era, a dependency relationship developed between managers and workers[50]: managers needed cooperation from their workers, whereas workers depended on their shop floor leaders and managers for evaluation and promotion. This patron-client relationship enabled workers to exercise pressures on their managers in the process of wage reforms. After the decentralization during the economic reform, contradictory demands were placed on *danwei* managers, as they were expected to

make workers more productive while at the same time take responsibility for the well-being of the workers. More often than not, managers chose to side with workers, at least in the early years of reform. Bonuses were often allocated relatively equally within work units to avoid disputes and to keep everyone happy, and extra fringe benefits were used as a means to enhance work unit identity and harmony.[51] Moreover, it became the common expectation that managers would secure the retained funds and use them to upgrade workers' living standards. The better they fulfilled the expectation, the more legitimacy and popularity they would gain as *danwei* leaders. This expectation of a *danwei* manager is reminiscent of the "father and mother" image of an ideal local official in imperial China.[52]

Indeed, to escape from the state's regulations, it has been a popular practice among Chinese work units to establish a secret account for extra revenues from the collective moonlighting activities (small golden coffer, or *xiao jinku* 小金库).[53] The retained revenues were used to pay workers (including managers) in bonuses directly and fringe benefits and other welfare indirectly. After the economic reform, workers and staff became increasingly dependent upon extra income distributed openly or secretly by their work units. It has been estimated that such irregular earnings accounted for about one-third to 40 percent of workers' total income in the 1980s, and overtook normal salaries in the mid-1990s.[54] To overcome limits set by the state on bonus payout, work units were also creative in providing substantial fringe benefits to employees, ranging from daily necessities, such as meals, children's education fees, and home electronics to apartments. Prior to the economic reform, collective consumption had been a key characteristic of Chinese work units.[55] In an economy of scarcity, such in-kind goods and services were unavailable outside the work unit system; although in the reform era those goods also became available from the market, work units continued these practices to circumvent restrictions imposed by the state on the distribution of cash incomes.

Due to the differences in work units' abilities to generate bonuses, income inequality across work units became more pronounced.[56] Consequently, earnings determination became more dependent on the organizational attributes of the employer than on the characteristics of individual employees. Earnings

might vary significantly among people with the same level of education working at the same occupations solely because of their affiliations with organizations with different revenue-generating ability.[57] In other words, there was a substantial premium for workers in a good work unit, and this premium was not market-driven or productivity-based but rather an entitlement. As a result, the economic relationship between workers and *danwei* has been strengthened since the late 1980s.[58]

The Research Question

The fundamental changes that are brought by the economic reform in China raise important questions regarding the continuing relevance of *danwei* in determining earnings among urban Chinese workers in the late reform era. After over two decades of reforms, as the labor market has gradually matured, and voluntary and involuntary labor mobility increased, does the work unit continue to serve as a major agent of social stratification in urban China?

We attempt to answer this question in the following analysis of the survey data that we collected in three Chinese cities – Shanghai, Wuhan, and Xi'an -- in 1999. Most previous studies of work units are based on evidence from the late 1980s and early 1990s. Our data from 1999 provide us with a better opportunity to examine the continuing relevance of *danwei* in determining earnings among urban Chinese workers at a time when fundamental changes in employment policy and labor relationships began to take place and the country moved toward a more marketized economy. Without longitudinal data, we approximate the three intentionally-picked cities into a sequence based on degree of reform, from the most reformed Shanghai, to the moderately reformed Wuhan, to the least reformed Xi'an, and examine cross-city variations to address the impact of reform on the work unit in urban China. Appendix A presents three demographic and economic indicators for the three cities in 1999. By both the per-capita gross industrial output and the average wage level, intended to measure overall economic development and/or marketization, we observe the expected order of Shanghai-Wuhan-Xi'an. Capitalizing on these large geographic differences, we study the variation in the importance of *danwei* across employment sectors to test the idea that *danwei* is less important for workers in the more marketized sectors (such as

the private sector) than for workers in less marketized sectors (such as the government administrative/service sector).

Data and Methods

In this study, we use data from a survey, "Study of Family Life in Urban China," which we conducted in the summer of 1999 in three Chinese cities: Shanghai, Wuhan, and Xi'an. We also refer to the study as the "Three-City Survey." In the Three-City Survey, we designed a few items that specifically allowed us to address our research question.

At each of the research sites, the Three-City Study initially targeted a probability sample of 1,000 households, with a two-stage probability sampling method. At the first stage, 50 neighborhood communities were randomly chosen in proportion to size. Within each selected neighborhood community, 20 households were randomly chosen. A Kish table was used to select an adult respondent (18 years or older) within each selected household. If the person being interviewed was younger than 60, we first interviewed the person with Questionnaire A. We then interviewed one of his/her parents with Questionnaire A+, which was specifically tailored to the elderly. If the person initially selected was 60 years or older, we interviewed the person with Questionnaire B, which is similar to Questionnaire A+ for elderly respondents. We then randomly selected one of his/her children for an interview with Questionnaire B+, which is very similar in content to Questionnaire A for adult respondents.

We pool all respondents across the forms between age 20 and age 60. We further restrict the analysis to respondents who earned at least 1000 *yuan* renminbi in 1998 regular salary and had valid responses to other variables to be discussed below, regardless of whether they worked in the public or the private sectors. A focus on earnings as the outcome variable is appropriate, given its increasing prominence in the social stratification system in today's China.[59] After the restriction, we have a total of 1,771 cases.

The dependent variable in our statistical analysis is the natural logarithm of total annual earnings in 1998. The earnings are composed of three parts: monthly salary from regular job, monthly bonus, and

year-end bonus. The monthly salary and monthly bonus were multiplied by 12 to convert to annual salary and annual bonus. The independent variables in this study include the following: city in which the respondent resided and interviewed, the highest education level attended, years of work experience, gender, cadre status for the job worked at the survey time in 1999, sector of the job worked at the survey time in 1999, and *danwei's* financial situation for the job worked at the survey time in 1999. We present the descriptive statistics of the variables used in the study in Appendix B.

The cities are Shanghai (reference category), Wuhan, and Xi'an. There were six categories of the highest education level attended: no schooling, primary school, junior high school, senior high school or technical senior high school, junior college, and four-year college or graduate school. This variable was obtained from a sequence of questions of respondents' education history. Work experience was measured in years and was calculated by subtracting the year beginning the first job from the year ending the last job or from the survey year, 1999, for those who were still working. If the year ending the last job was missing, the year retired was used. For those who never worked before, year of work experience was coded 0. Gender is a dichotomous variable, with male as the reference group. Cadre status is a dichotomous variable and was coded 1 if one's job rank at the survey time was a cadre at the rank of department level (*ke ji* 科级) or above, and 0 if the rank was below *ke ji* or not a cadre. Sector is a categorical variable with four groups: government or public sector (reference category), state owned enterprise, collectively owned enterprise, and privately owned enterprise. There were a few cases (three) of peasant work or doing odd jobs without a unit, and these were excluded from this study. The information for work experience, cadre status, and sector was obtained from questions about respondent's job history.

The key explanatory variable in this study pertains to a measure of *danwei* profitability. On the questionnaire, we asked the respondent to answer the question: "Is the economic situation of your work unit much better, better, about the same, worse, or much worse than that of other work units of this city?" The respondent was given five options: "Much better," "Better," "About the same," "Worse," and "Much

Worse." Note that the respondent was instructed to interpret *danwei* broadly, as the work unit that issued "worker's card" (*gongzuo zheng* 工作证). It thus covers all types of work organizations, including government agencies, institutions, state firms, collective firms, and private firms, for which there is no single objective measure of extra revenue generated. Obviously, the measure employed here is a very crude way to assess a *danwei*'s financial situation, as it is no more than a subjective assessment on the part of the respondent. To make things worse, it is possible that the respondent's subjective assessment of the *danwei*'s financial situation could be influenced by the amount of earnings he/she receives, our dependent variable in this study. We will refer to this variable as "*danwei* profitability," which was really about the financial condition of *danwei*, because a government/party agency is not supposed to generate profits. We reverse coded the variable so that a higher number/category represents more profitability. We used the measures in two specifications, as a set of dummy variables (with "Much Worse" as the reference category) and as an interval variable from 1 to 5.

We hasten to admit that the respondent's subjective assessment of the *danwei*'s financial situation is very crude. Two methodological issues are at stake. First, our subjective measure is prone to error. Second, the measurement error in our case may not be innocuous, as it could be influenced by the amount of earnings he/she receives, our dependent variable in this study. While we realize the limitations of the measure, we believe that it provides useful information that will shed light on our research question. Let us comment on the two methodological issues. First, while social scientists are often skeptical about subjective measures, empirical research has shown their validity. One good example is subjectively rated health, which is usually implemented with a question similar to our *danwei* profitability: "Would you say that your health in general is excellent, very good, good, fair, or poor?" A recent study[60] shows that this subjective measure is a very strong predictor of cause-specific mortality resulting from poor health. Second, while we cannot pin down the potential endogeneity problem of this measure, we think that it is the best measure currently available to us, and to our knowledge, this paper is the first empirical study that examines how a *danwei*'s financial situation affects workers' earnings. We believe that endogeneity

could not be so large as to account for all the observed association, and thus our analysis will provide some new information about the importance of a *danwei*'s financial situation to its workers' earnings. Future research can confirm or refine the results we report in the paper if better data become available.

The statistical analyses proceed in three stages. In the first stage, we examine the amount of variance in earnings that can be explained by the *danwei* profitability measure, relative to amounts of variance explained by other variables. We do this both separately (i.e., variable by variable) and jointly in a regression analysis. Second, we examine the impact of the *danwei* profitability on earnings, *relative* to those of other variables, in a regression framework. Third, we test the interaction effects of the *danwei* profitability with city and sector of employment. The tests will reveal whether *danwei* profitability matters more in a more marketized region/sector than in a less marketized region/sector. However, we caution that, if the measurement bias of our *danwei* profitability measure varies by city or sector, the results from this exercise are subject to alternative interpretations.

Results

We first present results that compare the explanatory power of different determinants of earnings. Table 1 contains entries for each of the main determinants of earnings considered in our study, given in four separate columns. The first column, labeled "DF," is the degrees of freedom for a particular parameterization of an earnings determinant. A higher number represents a conservative parameterization and is expected to be associated with greater explanatory power. For example, we use *danwei* profitability both as a linear function (1 DF) and as a set of dummies (4 DF). The second column, labeled as "R^2," is the proportion of the variance in logged earnings that is explained by a determinant, without control of any other variables. In the third column, "$\Delta R^2(1)$," we give the net proportion of the variance explained by a determinant after the inclusion of *danwei* profitability in its linear form. Finally, the fourth column, "$\Delta R^2(2)$," represents the net proportion of the variance explained by a determinant after the inclusion of *danwei* profitability in its linear form and all the other predictors considered in the study.

Table 1 about Here

The first line of Table 1 confirms the earlier finding of Xie and Hannum[61] and Hauser and Xie[62] that there is a large regional variation in earnings. In the Three-City Study, the average differences across the three cities (represented by two dummy variables) explain the largest amount of variance. They alone account for 17.47 percent of the variance. Furthermore, the large explanatory power of city is not attributable to any other variables, as both $\Delta R^2(1)$ and $\Delta R^2(2)$ are larger, rather than smaller, than the bivariate R^2 reported in the second column.

The second most powerful explanatory determinant is *danwei* profitability. With the dummy variable specification, it alone accounts for 12.89 percent of the variance. With the (1 DF) linear specification, it alone accounts for 12.52 percent of the variance. Part of the explanatory power is attributable to other variables considered here. In the last column, where we control for all the other predictors, the incremental explanatory power, $\Delta R^2(2)$, is 9.30 percent. This is expected, as workers with higher human capital endowments are likely to be employed by more profitable *danwei*. However, even in the last column, which controls for all the other covariates, *danwei* profitability remains the second most important determinant after city.

The very large portions of the variance in logged earnings explained by city and *danwei* profitability are particularly striking when compared to those determinants of earnings in a conventional Mincer-type[63] human capital model discussed extensively for the Chinese context by Xie and Hannum.[64] Education level, gender, cadre status, and sector all hold explanatory power, with that of education most significant. The five dummy variables representing different levels of education explain 7.82 percent of the variance alone, and 4.46 percent of the variance net of the other variables. Surprisingly, work experience does not contribute to the explanation of earnings. Gender, cadre status, and sector all have modest explanatory power, ranging between 2 and 5 percent.

To ascertain the magnitudes of the various determinants of earnings, we present linear regression results with logged earnings as the dependent variable, in two sets of columns in Table 2. In the first set, labeled “Observed Effects,” we give the estimated coefficients and standard errors for separate

regressions in which a determinant is the only predictor. In the second set, labeled "Adjusted Effects," we give the estimated regression coefficients and standard errors for different determinants in a single, multivariate regression. The comparison between the two sets tells us whether some of the observed effects in the bivariate models may work through other determinants. Given that the dependent variable is logged earnings, the exponential transformation of a coefficient indicates the change in earnings in ratio associated with one unit change in the predictor. For a dummy variable predictor, the exponential transformation of the coefficient indicates the ratio in earnings of the included category relative to the excluded category.

Table 2 about Here

Let us interpret the results from the bivariate models first. As expected, workers earn much less in Wuhan and Xi'an than in Shanghai. The earnings ratio between Wuhan and Shanghai is 0.628 (i.e., exp(-0.465), and that between Xi'an and Shanghai is 0.534 (i.e., exp(-0.628)). This pattern confirms our prior expectation that Shanghai is more developed than Wuhan, and Wuhan is more developed than Xi'an. The estimated education coefficients also confirm the expectation, as higher earnings are associated with higher levels of education. Relative to workers without former education, those with a senior high school education earn 2.16 times as much, and those with a college education earn 3.5 times as much. Women workers face a disadvantage of about 24 percent, whereas cadres enjoy an advantage of 45 percent. The sector differences favor workers in the government and public sectors, as well as those in the private sector, with workers in collectively-owned firms at a severe disadvantage (33 percent), and those in state-owned firms at a smaller disadvantage (12 percent).

Of particular interest in Table 2 are the coefficients of *danwei* profitability. We use two specifications, a dummy variable specification (which is conservative) and a linear specification (which is parsimonious). The F-test between the two specifications is 2.56 (for 3, 1,766 degrees of freedom), which is statistically insignificant. The results of the linear specification show that a one-unit increase in the *danwei* profitability scale (which varies from 1 to 5) is associated with a 30 percent increase in earnings.

This number is close to the separate increments associated with the dummy variable coefficients for the *danwei* profitability measure. In the multivariate model of Table 2 and interactive models of Table 3, we will use the linear specification for simplicity.

Because the various predictors of earnings are correlated, they do not exert independent effects. Thus, we include all the predictors in a multivariate model. We call the coefficients of the model "adjusted effects" and present them in the second set of columns in Table 2. There are differences between observed effects and adjusted effects. One surprise is that the estimated differences between Shanghai and the other two cities are enhanced rather than diminished in the multivariate case. The pattern associated with education levels remains strong but becomes less pronounced in the multivariate model. The gender difference is also narrowed. So are disadvantages associated with working in collectively-owned and state-owned firms. One notable change is the sharp decline in the estimated advantage of cadre status, more than halved from 45 percent to 20 percent. This shows that most of the observed advantage of cadres in the bivariate model is due to their possession of attributes associated with higher earnings, such as higher levels of education. Net of other factors, we now observe an advantage of working in the private sector (at 12 percent). Finally, the advantage associated with working in a more profitable *danwei* declines only slightly from 29 percent (exp(0.256)) to 25 percent (exp(0.227)). This means that most of the earnings premium associated with working in profitable *danwei* cannot be accounted for by workers' observed attributes commonly associated with productivity (such as education and work experience). If we change the *danwei* profitability scale from 1 to 5, earnings increase by 2.5 times. Thus, the *danwei* profitability effect is very large.

As a final step of the data analysis, we go on to test the interaction effects between *danwei* profitability and two structural measures that approximate marketization: city and sector. We hypothesize that Shanghai is more marketized than Wuhan, and Wuhan is more marketized than Xi'an (see Appendix A). If marketization weakens the importance of *danwei* in earnings determination, we would expect a significant difference in the effect of *danwei*'s profitability across the three cities. Similarly, we expect

the following order from more marketization to less marketization among the sectors: privately owned, collectively owned, state-owned, and government/public. Again, if marketization weakens the role of *danwei*, we would expect the significant interaction terms between *danwei* profitability and sector. We enter the two sets of interaction effects separately to the last multivariate model in Table 2. The coefficients of the interactive models are presented in Table 3. We observe that neither of the hypothesized interactions is significant. F-tests reveal that the interactions do not significantly improve the previous additive model. Taken together, the results show that *danwei* continues to play a strong role in determining earnings among Chinese workers, irrespective of city and sector. In particular, they negate the hypothesis that *danwei* is much less important in a more developed city than in a less developed city, or less important in a more marketized sector than in a less marketized sector.

Table 3 about Here

Discussion: The Declining Significance of *Danwei*?

As we discussed earlier, the *danwei* premium can only be sustained when labor mobility is limited.[65] This was the case until recent years. Not until the late 1990s did the Chinese government begin to change social conditions so as to facilitate labor mobility. One major impediment to labor mobility in the redistributive economy was housing. The housing allocation in pre-reform urban China was mainly tied to work units.[66] The differentiation in resources across work units was also reflected in their employees' housing conditions.[67] In the 1980s, the government tried to reform the public housing system by raising rents and encouraging workers to purchase their apartments with subsidized payments. Changes were slow, and privatization of housing was limited.[68] Most employees in the state sector continued to count on work units for apartments or improvements in their living conditions.[69] Another impediment to labor mobility was the provision of social security through work units under the old redistributive system. Without a socialized security system, work units could not effectively fire employees, and employees were reluctant to risk leaving work units.[70]

In the late 1990s, the Chinese economic reform began to change these conditions by weakening workers' organizational dependence on their work units. First, housing allocation began rapid marketization and privatization, starting in 1998. A nationwide policy to commercialize the urban housing sector was implemented, and most public housing units were sold to their current occupants at discounted prices. Direct allocation of new housing units by *danwei* ceased. Workers had to use their own savings and bank mortgages to purchase apartments. The four largest banks in China provided at least 75 millions home loans in 1998. Work units' housing benefits, if provided, were incorporated into wages, from a few hundred *yuan* renminbi to a few thousand *yuan* renminbi per month.[71] Meanwhile, the delivery of other in-kind benefits and services increasingly took the form of lump-sum cash payments, as the state further lifted its salary control on work units.[72]

Social security (pension and medical care) has now been detached from the work unit and unified at the provincial level, and the coverage has been further extended to the private sector. Both employers and employees are required to make contributions to the pension and medical care funds, with individuals maintaining separate accounts. When workers change jobs, the accounts remain the same. This reform has removed the hurdle for labor mobility, particularly into the private sector. Furthermore, the social security reform has also paved the road for state work units to lay off workers. Since the mid-1990s, with the rapid growth of the private sector and foreign investment, the state-owned enterprises, as the work units that shouldered "social responsibilities" on behalf of the state, barely have been able to sustain themselves in the market competition. As the Chinese government has increased its tolerance for unemployment, enterprises and managers now are granted more power to lay off workers or cut payments and benefits.[73] The massive layoff of state workers caused many workers to leave work units involuntarily, indicating that work units no longer served as patrons to protect workers' interests. Management-labor relationships have worsened, and the patron-client relationship that once characterized the Chinese unique work unit institutions has been turned into what some scholars have called "managerial despotism" in the late reform era.[74]

Nevertheless, scholars continued to observe the prominent role played by work units in urban China's stratification during the reform era.[75] Indeed, it has been argued that the importance of work units has increased, and the relationship between workers and their work units has been ironically strengthened since the later 1980s.[76] Two explanations compete for the continuing importance of *danwei* in contemporary China. First, the continuing and perhaps increasing importance of work units was due to the "partial" status of economic reforms: while the decentralization policy has allowed work units to retain more resources, and the labor market and the social security systems are not yet fully functional, workers naturally rely more on their work units to upgrade their living standards.[77] According to this view, in the long run, as the reform proceeds and labor mobility increases, the significance of *danwei* is expected to decline. Alternatively, it has been argued that the *danwei* system may be deeply rooted in Chinese history and culture, as well as the broader structure of socialist political economy.[78]

Earlier studies of urban China in the 1980s revealed that employees' *danwei* mattered a great deal in earnings stratification in terms of organizational ownership, type, and rank, which together determine the level of resources a *danwei* receives from the state.[79] As the economic relationship between the state and *danwei* is further restructured, the way *danwei* affects earnings distribution is no long necessarily tied to its position in the socialist redistributive hierarchy; instead, financial performance of *danwei* plays a direct role in determining earnings. Our survey data do not contain measures of *danwei* bureaucratic rank. However, we did measure *danwei*'s ownership and type by the variable "employment sector," and our results show that *danwei*'s ownership and type are much less important than *danwei* profitability in explaining earnings inequality in urban China (see Table 1). Hence, we show that *danwei* still plays an important role in social stratification in contemporary China, but via a modified mechanism in the era of further economic reform.

Danwei's continued importance in determining income has been well known to policy makers in China. For example, an article calling for "Establishing an Income Distribution System in a Society that is Scientifically Fair and Just" was published in the Chinese government's official news outlet, Xinhua

Net.[80] In its opening paragraph, it states: "'Too large income disparity outside the system' leads to income imbalances as well as psychological imbalances across regions, across industries, and across *danwei*, triggering certain unstable and insecure factors and interfering with the construction of a harmonious society."

Viewed comparatively, the existing effect of work organization on income inequality may not be unique to transitional urban China. The relationship between work organizations and social stratification in market economies has been well documented in previous literature.[81] Economic rewards and career opportunities are found to be associated with specific organizational attributes, typically size and sector.[82] What is perhaps distinctive in the Chinese case is our observation that *danwei's* financial situation has an unusually large effect, second only to region/city. The extremely important roles of both *danwei* and region suggest that earnings in urban China are not determined exclusively by a labor market, but that unique structural factors external to the market serve to shape the social stratification of Chinese workers.

Conclusion

In this paper, we argue that *danwei*, the work unit, is still a main agent of social stratification in contemporary China. Specifically, using data from a 1999 survey we conducted in three large Chinese cities, Wuhan, Shanghai, and Xi'an, we find that workers' earnings depend heavily on their *danwei*'s profitability. Workers who are employed in highly profitable *danwei* earn as much as 2.5 times those who are otherwise comparable but employed in relatively unprofitable *danwei.* Further, we do not find that the importance of *danwei* profitability differs by city or by sector of employment, suggesting that this is a widespread phenomenon in contemporary urban China.

Why does *danwei*, a legacy of the Chinese socialist economy, still remain an important agent of stratification in post-reform China? We do not have a satisfactory answer but are willing to offer a conjecture. We think that the key is that the Chinese economy is not necessarily moving to a true capitalist-market economy, which indeed does not exist even in the West. Economic reform in China has been heavily shaped by the pre-existing institutions prior to the reform. For one thing, there are millions

of cadres – professional, life-time bureaucrats who are part of an enormous state apparatus – who constitute the upper, or middle-upper, class.[83] For another, many firms, regardless of ownership, as well as many individuals, make use of certain structural advantages for financial returns. There are no transparent ways to compete for such structural advantages.[84] One way to mitigate and to justify the perceived unfairness resulting from structural advantages is to stratify income on the basis of *danwei*, a unit of economic entity.

Danwei's continued importance has both a social and an economic basis. The social basis is that workers can rationally accept *danwei* as a stratifying agent that affects their lives. When a *danwei* has economic resources, workers expect the *danwei* to provide welfare. When a *danwei* does not have economic resources, workers seem to accept their ill fate in being paid poorly; otherwise they would change jobs to a more profitable d*anwei* if they could. Because the link between *danwei* profitability and one's economic welfare is commonly accepted, potential for public protest is mitigated if a particular *danwei* fails and causes its workers economically poor. The economic basis for *danwei*-based stratification is the continuing growth of the Chinese economy. The unequal redistributions generated by *danwei* in the past were mostly due to differential growth rather than to the unequal distribution of existing resources. Given the growth trajectory, it seems fair to workers to derive benefits from wealth generation that occurs at the local level by means of *danwei*.

In sum, the *danwei* continues to play a very important role in determining the economic well-being of workers in urban China. It is used effectively by the Chinese government as a buffer, on the one hand against bleeding in money-losing state-owned firms and on the other hand against national-level redistribution of wealth and resources generated by business and administrative organizations. The widespread mass layoffs in state-owned enterprises in the 2000s may have weakened the traditional life-time dependency of employees on *danwei*. However, this recent change may have only changed the boundaries of who should be sheltered by *danwei* rather than making *danwei* irrelevant altogether. For those who remain in state-owned enterprises, the patron-client relationship may well persist into the

future. As Chinese observers have commented,[85] *danwei* serve an important function of bridging the gap between individuals and the very large society of China as a whole. One possible scenario in the future is that a combination of social institutions, including *danwei* and local governments as key components, will serve the needed function of intermediaries between the state on the one hand and individuals on the other hand. In this sense, the continuing importance of *danwei* in contemporary China has a political dimension to characterize the Chinese economic transition. Thus, one cannot truly understand social stratification in China without properly understanding the important role played by *danwei*.

Table 1: Percent Variance Explained in Logged Earnings

Variables	DF	R^2	$\Delta R^2(1)$	$\Delta R^2(2)$
City	2	17.47***	18.11***	19.12***
Education Level	5	7.82***	5.49***	4.46***
Experience+Experience^2	2	0. 23	0.17	0.05
Gender	1	4.78***	4.84***	3.05***
Cadre Status	1	3.08***	2.27***	0.63***
Sector	3	3.54***	2.18***	1.80***
Danwei Profitability (linear)	1	12.52***		9.30***
Danwei Profitability (dummies)	4	12.89***		

N = 1771

Note: DF refers to degrees of freedom.

$\Delta R^2(1)$ refers to the incremental R^2 after the inclusion of Danwei's financial situation (linear).

$\Delta R^2(2)$ refers to the incremental R^2 after the inclusion of all the other variables.

*** p< 0.001, ** p<0.01, * p<0.05, based on F-tests.

Source: 1999 Three-City Survey.

Table 2: Estimated Regression Coefficients on Logged Earnings

Variables	Observed Effects β	Observed Effects SE(β)	Adjusted Effects β	Adjusted Effects SE(β)
City (Shanghai=excluded)				
Wuhan	-0.465***	0.033	-0.539***	0.028
Xi'an	-0.628***	0.034	-0.658***	0.028
Constant	9.402***	0.024		
Education Level (no schooling=excluded)				
Primary	0.536*	0.216	0.414*	0.170
Junior high	0.737***	0.202	0.447**	0.161
Senior high	0.770***	0.201	0.592***	0.161
Junior college	1.049***	0.203	0.778***	0.162
College	1.253***	0.207	0.923***	0.166
Constant	8.120***	0.210		
Experience+Experience^2				
Experience (x1000)	-11.235	6.029	2.421	4.775
Experience2 (x1000)	0.288*	0.144	-0.017	0.114
Constant	9.113***	0.059		
Gender (male=excluded)				
Female	-0.276***	0.029	-0.225***	0.023
Constant	9.144***	0.019		
Cadre Status (non-cadre=excluded)				
Cadre	0.375***	0.050	0.185***	0.042
Constant	8.992***	0.015		
Sector (government+public=excluded)				
State owned	-0.133***	0.037	-0.043	0.030
Collectively owned	-0.397***	0.057	-0.224***	0.045
Privately owned	0.027	0.047	0.114**	0.037
Constant	9.129***	0.031		
Danwei Profitability (linear)	0.256***	0.016	0.227***	0.013
Constant	8.270***	0.050		
Danwei Profitability (dummies) (very poor=excluded)				
Relatively poor	0.100	0.062		
Average	0.405***	0.054		
Fairly good	0.702***	0.059		
Very good	0.918***	0.108		
Constant	8.624***	0.050		
Constant			8.237***	0.171
R^2 (N = 1771)			43.92%	

Note: Observed effects on logged earnings are derived from bivariate models. Adjusted effects are derived from a multivariate model including all variables.

*** p< 0.001, ** p<0.01, * p<0.5, based on two-sided t-tests.

Table 3: Estimated Regression Coefficients on Logged Earnings Models with One Interaction

Variables	*Danwei* Profitability*City		*Danwei* Profitability*Sector	
	β	SE(β)	β	SE(β)
Constant	8.180***	0.179	8.368***	0.196
City (Shanghai=excluded)				
Wuhan	-0.498***	0.099	-0.538***	0.028
Xi'an	-0.495***	0.100	-0.659***	0.028
Education Level (no schooling=excluded)				
Primary	0.401*	0.171	0.418*	0.171
Junior high	0.438**	0.161	0.449**	0.161
Senior high	0.580***	0.161	0.594***	0.161
Junior college	0.768***	0.162	0.781***	0.163
College	0.911***	0.166	0.926***	0.166
Experience+Experience^2				
Experience (x1000)	2.186	4.776	2.506	4.789
Experience2 (x1000)	-0.015	0.114	-0.018	0.114
Gender (male=excluded)				
Female	-0.225***	0.023	-0.226***	0.023
Cadre Status (non-cadre=excluded)				
Cadre	0.186***	0.042	0.186***	0.042
Sector (government+public=excluded)				
State owned	-0.042	0.030	-0.202	0.122
Collectively owned	-0.223***	0.045	-0.402*	0.161
Privately owned	0.112**	0.024	-0.024	0.142
Danwei Profitability (linear)	0.251***	0.024	0.184***	0.034
Danwei Profitability (linear)*City				
*Wuhan	-0.014	0.032		
*Xi'an	-0.055	0.033		
Danwei Profitability (linear)*Sector				
*State owned			0.052	0.038
*Collectively owned			0.059	0.053
*Privately owned			0.044	0.045
R^2 (N = 1771)	44.02%		43.98%	

Note: Coefficients are estimated from a multivariate model including all variables.
*** p< 0.001, ** p<0.01, * p<0.5, based on two-sided t-tests.

Appendix A: Selected Demographic and Economic Indicators in Shanghai, Wuhan and Xi'an, 1999

	1999 Population (million)	1999 Per-Capita Gross Industrial Output (renminbi)	1999 Average Wage (renminbi)
Shanghai	13.13	30,728	16,641
Wuhan	7.40	14,667	8,812
Xi'an	6.75	9,099	7,764

Source: China Data Online (2007).

Appendix B: Descriptive Statistics for Variables in the Model (N=1771)

Variable	Mean	Std. Dev.
Logged Earnings	9.027	0.624
City		
Shanghai	0.312	0.463
Wuhan	0.353	0.478
Xi'an	0.335	0.472
Education Level		
No schooling	0.005	0.071
Primary School	0.030	0.170
Junior high	0.298	0.457
Senior high	0.439	0.496
Junior college	0.158	0.365
College	0.071	0.256
Experience+Experience2		
Experience	20.107	8.973
experience squared	484.752	375.857
Gender		
Male	0.577	0.494
Female	0.423	0.494
Cadre Status		
cadre	0.094	0.292
Sector		
Government & public	0.219	0.414
State owned	0.516	0.500
Collectively owned	0.094	0.292
Privately owned	0.172	0.377
Danwei Profitability (linear)	2.954	0.862
Danwei Profitability (dummies)		
Very poor	0.076	0.265
Relatively poor	0.147	0.355
Average	0.545	0.498
Fairly good	0.211	0.408
Very good	0.021	0.143

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