Changes In Determinants Of Personal Earnings In People's Republic Of China In 1988 And In 1995

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Abstract

This paper uses cross-sectional data for 1988 and 1995 to examine the structural changes of wage determinations and inequality of urban individuals' earnings in China. Changes in return to education, experience and party membership and regional inequality are specially examined. Generally, there is more variation in individuals' earnings across regions during the economic reforms. Although previous studies suggest there is no premium to party membership, this study finds the opposite effect. What's more, it has stronger influences on earnings in 1995 relative in 1988.

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I. Introduction

Market-oriented economic reform, which began in 1978, has brought varied and substantial changes to the Chinese economy. Among which, the change in the wage system is the most noticeable and income inequality has become an important concern. The purpose of this research is to compare changes of earnings determinations and to examine the inequality of individuals' earnings in urban China. While the change in the wage system is widely credited with facilitating economic growth, it is also a major factor contributing to the growing economic inequality. The data used in this study is for 1988 and 1995, which allow us to observe the impact of the new economic policies in China.

Before the reform, China was in centrally planned economy in which the labor was bureaucratically allocated and wages were administratively regulated. The egalitarian wage system eliminated or minimized wage differences across regions, occupations and genders. However, things changed dramatically since the recent market-oriented economic reform and the inequalities in the distribution of income in China began to appear. This is partly due to the policy of 'allowing some to get rich earlier' on the premise that 'advanced and richer region could help less advanced and poorer region and both get rich together later'. According to Cao and Nee's market transition theory (1989), as the economy transits from redistributive economy to market economy, producers are paid more closely according to their individual productivity. So compared with the old government coordinated economy, more income disparity is expected under the more flexible wage system in the new market coordinated economy.

Being the world's largest developing country, China shares with the other developing countries the characteristic of dual economy, which is even more polarized in China. The modern capital-intensive sector is traditionally clustered around the cities and keeps growing, while the traditional manual agriculture in the rural China remains little changed. The coexisting modern industrial sector and backward agricultural sector result in a large gap in income between rural and urban areas. For example, according to State Statistical Bureau data, the income of the rural population is 545 yuan per capita in 1988, about 46 percent of the urban income of 1,192 yuan per capita (*Three Features during the transition*, Zhao Renwei, 1993). If one considers only the coastal regions, which received higher priority in the economic development, more economic freedom, and more financial assistance than the provinces in inland China at the beginning of the reform, these urban-rural differences would be much larger. Considering the uneven development throughout China, we restrict our study to urban areas of China.

The empirical analysis is based on the survey data collected in 1988, during the period of the stalled reforms when the economy was undergoing a comparatively high inflation, and 1995, when the pace of reform greatly accelerated after Deng Xiaoping's famous southeastern tour and 14th Communist Party Congress in 1992 and market economy burgeoned rapidly. The availability of the data in these two years allows us to examine the structural change in personal earnings determinations accompanying the structural changes of the economy and the improvement of the economic situation.

The paper will proceed as follows: Section I presents the theory of personal earnings differentials and discusses previous work examining personal earnings differentials. In Section II, the theory of human capital model of wages is addressed. The

data used in this study is described in detail in Section III and Section IV summarizes the results of the empirical analyses. The hypotheses tested include returns to education, returns to experience, and the wage gap between males and females. Finally, we consider the change in economic benefit from being a party member.

II. The Changes In Wage Determinations Literature: A Summary

Early research studying wage differentials used cross sectional data and the traditional human capital model to determine the effects of economic growth. Using the 1986 survey data of 800 adults in Nanjing, Byron and Manaloto find that the rate of return to education is as low as about 4 percent for each additional year of schooling, but is slightly higher than return to experience. They also find that gender plays a significant role in wage determinations.

Nee (1991) used data collected from two counties of Fujian Province during the summer of 1985 in his study of social inequalities under the partial reform in China and found that instead of "cadres" (officials), "entrepreneurs and former cadres", are better off after the reforms and concluded that inequality increased only slightly at the beginning of market reform.

Yusheng Peng (1992) used cross sectional data from "a survey of Chinese urban workers in state-owned firms" conducted in December 1988 and "a survey of nonagricultural employees in rural enterprises" conducted in March 1986 to examine wage determination in rural and urban China. He found evidence of "slightly concave" rate of return to education and the increasing rate of return to experience ("seniority") in

urban areas. What's more, his study shows that under the traditional Communist mode of mandated equality, the gender gap is as small as 5 percent.

Using data from a 1988 National Income Survey, Knight and Song (1993) carried out a study on the wage differentials in urban China. They observed slightly positive relationship between earnings and education and that a party member earns roughly 7 percent more than a non-party member, ceteris paribus. Gender also plays an important role in their model with male earnings 9.6 percent more than female earnings and approximately half of the differences could be attributed to the females' inferior human capital characteristics.

Using the same data, Xie and Hannum (1996) study the relationship between the economic growth and earnings determination in urban China. They find that as economy grows, the returns to education and work experience decrease while the wage differential between party-member and non-members and between males and females are not affected. They concluded that the average earnings inequality remains low and is only slightly affected by the economic growth.

Morduch and Sicular (2000) examined the relationship between being a party member and personal earnings. They used a panel data set of 1,036 observations (259 households) from Zhouping county (Shandong Province) interviewed in 1993 to estimate the benefit of political status in economic reforms. Their results show that a party member enjoys little political rents.

III. Data

The data used in this analysis come from the Chinese Household Income Project. This longitudinal study has been created to examine the dimensions of inequality in China and their causes in the undergoing major economic reforms. The data set consists of both samples of the urban and the rural populations of China. Each of the component consists of two data files, one in which the individual is the unit of analysis and a second in which the household is the unit of analysis.

The decision to use this survey for this analysis was based on two things. First, the survey is very comprehensive in the information provided on the respondent. Included in the survey are questions concerning general demographic characteristics as well as income and expenditure of individual/household. There are variables that indicate education, age, gender, ethnicity and other personal characteristics. All types and sources of income and expenditure information are collected. These types of questions are one of the reasons that this data is excellent to use when evaluating wage differentials with respect to the change of the economy.

The second reason these data are used is the significantly large sample size that comes from almost all the provinces of China. The 1988 data consists of 10,258 rural households (with 51,352 individual members) in 28 provinces and 9,009 urban households (with 31,827 individual members) in ten provinces. The 1995 data comes from the survey of 7,998 rural households (with 34,739 individual members) and 6,931 urban households (with 21,698 individual members). Hence, we believe the information provided by this data is representative of China as a whole.

The data in this paper have been constrained to meet the following conditions: urban individuals who were working at the time of the interview and aged between 20 and 59. This creates a data set with 17,007 observations for 1988 and 10,847 observations for 1995, respectively. The urban sample distributed over Beijing and 10 of the country's 30 provinces: Liaoning, Henan, Jiangsu, Anhui, Hubei, Guangdong, Shanxi, Gansu, Yunnan and Sichuan. Based on the geographical location and economic development, they could be classified into four regions: Liaoning and Henan are in the northern region; Jiansu and Guangdong are in the eastern and southern coastal regions, respectively; Hubei and Anhui are in the central region and Shanxi, Gansu, Yunnan and Sichuan are in the western region.

IV. Methodology

This study uses basic Mincerian earnings function to examine the determinations of personal earnings. Mincer's human capital model includes education, experience, experience squared and a gender dummy. In the case of China data, we focus principally on the relationship between education, experience and being a party member and personal earnings and the regional inequality. We modified the Mincerian model and the specified model is a function of these individual characteristics and an error term: [1]

$$\ln Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_2^{\,2} + \beta_4 x_3 + \beta_5 x_4 + \beta_6 x_1 x_4 + \beta_7 x_{5i} + \beta_8 x_1 x_3 + \beta_9 x_3 x_{5i} + u$$

where Y, the average monthly earning observed from each individual, is defined to include the regular wages, bonus, allowances, subsidies, welfare payments, and other

[1]To compare the result, we based on the baseline model used by Xie and Hannum (1996), who used the same 1988 data as us.

income from work unit, x_1 years of schooling, x_2 years of experience, x_3 and x_4 are both dummy variables that represent party affiliation and gender (1 = party member / female), respectively, x_{5i} (i =1 – 10) are a set of dummy variables that represent 10 provinces relative to Beijing. All β's are unknown parameters and u is the stochastic error term and is assumed to be normally distributed with a mean of zero and standard deviation of s^2 and uncorrelated with the variables in the vectors x's.

The years of schooling is calculated from the level of education completed and is defined as: less than three years of primary school = 1; three years or more of primary school = 4; primary school graduate = 6; junior middle school graduate = 9; senior middle school graduate = 12; professional school graduate = 13; community college (dazhuan) graduate = 15; college (daxue) graduate or above = 17. In the semi-log earning equation, the coefficient on the years of schooling approximates the rate of return in individual's earnings to each additional year of schooling.

As for experience, we followed Mincer's method and used potential experience here, that is, years of experience = age – years of schooling – 7. The coefficient on the experience squared is expected to be negative because of the law of diminishing returns. We also include the female dummy variable and an interaction term for female and years schooling to study the changes of gender earnings gap in the socialist market economic reform.

A party member identifier is specially included as we expect the party members to enjoy some special premium considering the importance of party membership in the socialist China. To study regional earning differential, we include a set of regional

dummy variables in our model, the coefficient on which indicates the earning differential between the specific region and the compared region, Beijing.

The first stage of analysis will include calculating means to give average demographic characteristics in the different year. Then earning equations will be estimated to examine the overall average earnings, we specially studied the magnitude and direction of changes in the interested demographic characteristics between two observed years. In estimation of the return to education and experience, we assume the regional homogeneity, therefore, β_7 and β_9 are set to zero. Then we drop this restriction and examined the effects of reform on wage structure across regions. In estimation of the party premium, the incomes of party members are estimated and compared by region and education level. All analyses use the specified semi-log wage equation.

V. Hypotheses

In the light of enormous changes in the economy during the economic reform, this paper tests for the changes in the wage distribution. To find out the impact of the economic evolution, following three hypotheses are examined.

Hypothesis 1. As the economy goes from socialism to market economy, the returns to both education and experiences increase. According to Nee's Market Transition Theory (1989), individuals would be more motivated in a market economy, where the egalitarian wage systems no longer exist, instead, people are paid according to their productivity. So we expect the returns to education and experience, two of the most important indicators of individual productivity, would increase thus predict increased coefficients on education and experience in 1995 relative to that in 1988.

Hypothesis 2 The gender earnings gap expands as the economy becomes more open. In state socialism, which emphasizes equality across gender and ethnic groups, salaries and wages are administratively set by the central government and gender earnings differences are very small. As the economy shifts from hierarchies to markets, such exogenous forces no longer exist and then the price in the labor market tends to be more sensitive to differential productivity as well as supply and demand. This possibly leads to a widening gender earnings gap since female could apparently benefit more from previous egalitarian wage system. If this is correct, we expect to see a smaller negative coefficient on female dummy in 1998 than in1995.

Hypothesis 3 Political rent for being a party member would become smaller as the economy shifts from central government controlled economy to the market-coordinated economy. The privileged party members enjoy more advantages in the centralized command economy and such advantages will be reduced after the reform. Nee's argues (1989) that it is those direct producers who gain as compared with the redistributors in the socialist economy during the economic reform. So we expect the economic benefit of being a party member to decrease, that is, the coefficient on party dummy to be smaller in 1995 than in 1988.

VI. Empirical Results

A. Summary Statistics

The sample composition and summary descriptive statistics for 1988 and 1995 are reported in Table 1. It is shown that the gender composition of 53 percent male and 47 percent female is roughly the same in each sample. The first noticeable change that could

be observed from Table 1 is the uniform increase in the individual's educational level during the observed period and Figure 1 gives the detailed information of this change. It is shown in Figure 1 that the number of people who graduated from senior middle school or the community college has increased substantially in 1995, the percentage of which increased approximate 17 percent in total. Correspondingly, the percentage of junior middle school educated or below shrank significantly to about 18 percent. This reflects the performance of the Nine-Year Compulsory Education policy that was adopted by Chinese government from the beginning of the reform. And it is also noticeable that in the senior middle school educated cohort the percentage of women increased a lot and exceeds the percentage of men.

The other significant change in the sample composition appears in the age profile. For example, there is an increase of 8 percentage points in 40 – 50 years cohort between 1988 and 1995. We can see from Figure 2 that 1988 data shows a larger young cohort. Consistent with changes in age composition, the composition of experience has also changed and there are nearly 4 percent more observations with 25 years of experience or more in 1995 sample. Figure 3 presents the experience profile of the two samples.

Table 1 also provides the average earnings by gender, age, education and experience. In 1988, average earnings were 182 yuan and increased by more than 150 percent to 494 yuan in 1995. For males, average monthly earnings increased from 205 yuan in 1988 to 532 yuan in 1995. Female earnings grow at almost the same rate rising from 167 yuan in 1988 to 451 yuan in 1995. Figures 4, 5 and 6 provide the earnings-education, earnings-age and earnings-experience profiles for 1988 and 1995. Figure 4 shows that the earnings-education profile has become steeper. For example, there was

nearly no variation between primary school and community college in 1988. By 1995, community college graduates were earning 110 percent of average earnings while primary school graduate earned only 87 percent of the average earnings. This steeper earning-education profile is consistent with expectation given the process of economic reform.

Figure 5 and 6 present the age-earnings and experience-earnings profile. It is shown that the peak earnings points for both years are in the 50 to 59 years old in Figure 5 and correspondingly more than 25 years of experiences in Figure 6. Compared with the traditional inverse-U shape with a peak in the mid 30s to 40s for the market economies, the continuous upward-sloping profile for China reflects both the culture and the bureaucracy that the old are more powerful in China and that seniority is a central aspect of the Chinese wage system. In another word, the steep age-earnings profile is mainly due to the close relationship between seniority and earnings and the lifetime employment, which is particularly the case in 1988 in China. Compared with the steep age-earnings profile in 1988, the experience-earnings profile in 1995 obviously flattened.

B. Baseline Earning Equation Results

Table 2 presents ordinary least squares (OLS) estimates of equation 1 described above for each sample. Three model estimations were performed and in all OLS wage equations, the dependent variable is the log of earnings and the independent variables include gender, experience, and education. We replicated Xie and Hannum (1996)'s study on 1988 data and extend it to 1995 data. Since they excluded the data that were thought of as

less reliable, there exist some differences* between our results and theirs and the explanatory power of their estimations is higher.

Model 1, the basic model, assumes the economic return to schooling is the same across genders, that is, β_6 is set to equal to zero. Model 2 is similar to Model 1 but allows differences in the return to education across genders. According to Model 1, the estimated return in monthly earnings to years of schooling is 3.3 percent, which is far below the average of 8 to 9 percent of western countries. This is consistent with the earlier research on return to education in China and could attribute to the egalitarian wage system throughout China that is insensitive to personal productivity. The coefficient on years of schooling almost doubles in Model 1 between 1988 and 1995 and this confirms our prediction of an increasing rate of return to schooling in a more open market economy.

Model 2 adds an interaction term of female and schooling, the coefficient on which represents the difference in the rate of return to education between men and women. Women received a greater return to the education relative to men and such premium increased slightly in 1995. This high return to education received by women, combined with a negative coefficient on the female variable implies that highly educated women are less disadvantaged in the labor market than their less educated female counterparts.

The change of return in earnings to each level of education is studied in Model 3 and the results are reported by column 3 of Table 2 as well as Figure 7 and Figure 8. The coefficients on the education represent the premium of each level of schooling above the

*The main differences between Xie and Hannum's estimation and our estimation are the coefficients on the junior high school cohort and the senior high school cohort, which are –0.008 and 0.07 in their estimation, respectively and –0.04 and –0.001 in our estimation. And the explanatory power of their estimations is higher.

primary level and it is shown that the highest level of education is most valuable: relative to primary education, college or above education increases individual's average earnings by about 25 percent in 1988 and this percentage reaches 51 percent in 1995. The steeper curves for 1995 that is shown in Figure 7 indicates the increasing rate of return to education and an expanding earnings gap among different-level educated cohorts in the market economy relative to the state socialist economy.

Figure 8 tells a different story about the rate of return to women's education. The flattened curve that starts from the point of technical school implies that the economic return to advanced education shrank for women. Meanwhile, it shows that the technical school graduated women gained the most during the period 1988 to 1995. As education becomes more and more important in the competitive labor market in China, such change is surprising. One alternative explanation could be attributed to education's historically important status in China. Degrees and certificates served in screening for ability as well as in indicating personal productivity. The higher the degree, the more likely a person could enter the bureaucracy, obtain high status and wealth positions, particularly in 1988, when China is in centralized planning economy stage. So the well-educated women have better opportunity to work in the government, bureaucracy and state-owned enterprise, where the gender discrimination is smaller because of the "equal work, equal pay" administrative wage scale there. After the reform, this part of women could no longer enjoy such additional protection from the government thus the education premium decreased for them as compared with their counterpart in the sample.

As for the gender gap, according to the coefficient on the female dummy in Model 1, it narrowed in 1995 under the assumption of parallel rate of return to education for men

and women. One of possible explanations is given by women's improvement in human capital characteristics, which has been known from Table 1. However, after we allow the effect of schooling to vary across the genders in Model 2, the negative coefficient on female dummy increased substantially. Since the positive β_6 indicates the more favorable return in earnings to education of women, the significant change of the size of gender gap could be explained by the differences in education premium across and within the gender. Relative to less educated women in China, better educated women enjoy large premiums on their education as compared to their male counterparts. The comparatively higher premium obtained by these better educated women covered some of the gender earnings differential that is observed in Model 1, where educational effect is forced to be parallel between male and female and the same for everyone within the same gender. Therefore, the gender earnings gap is underestimated in Model 1 and we consider the Model 2 the reasonable one. That is, gender-earning gap widened during the reforms if considering the factor of education.

Whereas the positive coefficient on female's schooling, together with the other positive coefficients on the interaction terms of female and educational levels in Model 3, give rise to another question: despite the fact that women are discriminated against in the labor market in most of the societies, why could women in China enjoy some advantage on their education relative to men? The answer should be that advanced education allows women better access to the jobs that have less discrimination, hence, women benefit more from the same additional year of education relative to men and the coefficient on female-education is higher for women than for men.

Table 2 shows that instead of increasing as predicted, the coefficients on experience declined in 1995. So we look back to re-consider Nee's market transition theory, which suggest that the return to experience should have increased as the economy becomes more open because the producers' own productivity characteristics are more directly related to their earnings in the labor market. The underlying assumption here is that these marketable skills earn their marginal products in the market economy, which is not the case for the experience in the transition of economy. The experiences the workers accumulated from the old socialist sector are relatively obsolete and may not satisfy the requirement of the new market conditions. That is, the marginal productivity of these experiences tends to decrease after the reform and hence the rate of return to such experience tends to decline in a transitory economy. It reflects the depreciation of the experiences that were accumulated in the previous socialist state planned economy and such depreciation leads to the less important role of the experience in the earnings function, which has been observed from the change of the coefficient on experience in the above analysis.

C. Regional Analysis

We start the examination on the regional inequality by looking at the earnings region profile in two different years. As Figure 9 shows, the regional earnings differences increased substantially during the reforms. In 1988, the lowest monthly earning is about 77 percent of the average level and the highest 146 percent. In 1995, this ratio is 75 percent versus 178 percent. It represents a greater variation in the economic development across the regions as the central government allows more freedom in the local economic

development policy. And it is partly due to the policy that encourages some regions to get rich first. In the early stage of the reform, according to the unbalanced economy situation across the whole county, Chinese government adopted some favorable policy in those regions with better economic foundations, and the originally big regional gap is exacerbated. For example, three of the first four special economic zones established in 1980, Shenzhen, Zhuhai and Shantou are all in Guangdong, a southern coastal province that opened the earliest to the foreign investors and is near Hong Kong. Various favorable policy, financial support from both the central government and in-pouring foreign funds and special location enabled Guangdong to develop at a much higher speed relative to other provinces and cities in China, particularly in the 1980s and early 1990s.

Table 3 reports the average income as well as related human capital characteristics in every observed province or city for each year. It is shown that regions with the lowest average monthly income were mostly inland provinces and the situation worsened for them in 1995. And the average education level is not positively related to the region's income level. For instance, Shanxi and Henan had the lowest average income, whereas the education levels of these two provinces, 10.6 and 10.7 in 1988, 12.2 and 12 in 1995, respectively, are both above the average level*. Table 3 also shows that as being expected, Beijing and the coastal provinces including Guangdong and Jiangsu ranked among the highest in average income, and large variation in income levels exist among these developed provinces as well as between the developed provinces and typically underdeveloped provinces. For example, Guangdong and Beijing had average monthly income of 273 and 203 yuan in 1988 and 880 and 635 yuan in 1995,

*Average years of schooling are 10.61 in 1988 and 11.96 in 1995.

respectively. Figure 9 reports the normalized earnings ratio for these regions for two years. It is shown that, except Guangdong, the average earnings of all the other provinces decreased in 1995 relative to Beijing, which indicates a widened regional earnings gap.

Similar results have been observed from the regression analysis. To further study the regional earnings inequality, we added a series of dummy variables for regions in Model 2, the coefficients of which represent the regional earning differential relative to Beijing. Table 4 reports the result and Figure 10 represents the change of the coefficients. The uniform negative coefficients on all the provinces but Guangdong imply that all these provinces had a lower average income level relative to Beijing. What's more, the coefficients on these provinces all dropped in 1995 and some of them dropped considerably, such as coefficients on Gansu and Henan. This means that the economic development of these provinces lagged further behind that of Beijng during the observed period. In another words, Beijing's economy developed at a higher rate than economy of these provinces. In the contrast, the coefficient on Guangdong is the only positive one and it almost doubled in 1995. The main reason for such much higher development rate could be attributed to Deng Xiaoping's famous southeastern tour and the 14th Communist Party Congress in 1992, when development was unambiguously set to be the top priority and fast-paced economic reform will be endorse for 100 years without wavering (*The Measure Of Deng's Influence* U.S. News & World Report 3/23/92, Vol. 112 Issue 11, p17). This has been seen as a turning point on the way of Chinese reform, and the economy burgeoned at a faster speed since then.

D. Return to Party Membership

In this section, we discuss the role of party in the earning determinations in China and it's change during the reforms. Table 5 reports the mean characteristics for party members and non-party members. Generally, the party members are older, more experienced and better educated relative to non-party members. The difference between mean characteristics of these two groups doesn't change much over time except that party member gained more in community college education while non-party member gained more in technical school education during the period 1988 to 1995. The earning ratio of non-party member to party member is roughly 81 percent in 1988 and decreased slightly to 79 percent in 1995. Therefore, earnings gap expanded between party member and non-party member during the reforms. Further study is needed to find out whether this is because of the average superior human capital characteristics of the party members or because the political privilege they possess brought them greater benefit in a more prosperous economy.

Figure 11 gives average party participation rate in each region. It is shown that instead in Beijing, capital and political center of China, party participation in Yunnan, Hubei and Gansu is the highest in 1988. This might because that in inland China where economy is less open, individuals' political status is emphasized as well as their productivity characteristics in the work unit. Generally, party participation increased in 1995 and it is the highest in Beijing and Guangdong after a highest increase that both exceed 8 percent. In contrast to the overall increase of the party participation, the percentage of party members in Liaoning, Gansu and Yunan dropped considerably.

Especially in Liaoning, party membership falls from 27 percent to 21 percent. The possible reason is that these provinces are the traditional concentrations of machinery and manufactures, whose performances has not been very good during the economy transition. So there are a large number of laid-off workers in these areas, which decreased people's interest in political life and hence lower participation rate in party.

According to Model 2, the party premium increased slightly in 1995 as compared in 1988, which is again to the contrary of our prediction. To further study the party effect and its change, we relax the restriction of zero β_8 and β_9 in Model 2 and the regression results are given by Table 6. The coefficients on these interaction terms, β_8 and β_9, represent the party rent enjoyed by the specific group relative to the omitted group. For example, coefficient 0.16 on the Primary school indicates that ceteris paribus, compared with the college graduated party members, those primary or less educated party members earn 16 percent more, which is the highest and identifies this lowest educated group the one that benefits the greatest from their party affiliation. Figure 12 represents the various political rents across the education levels. The downward curve indicates that party premium decreases as the education level increases, that is, the less educated, the more people benefit from their party membership. It is shown that it is the college graduates that benefit the least from their party membership, especially in 1995, and generally returns to party membership increased 1995.

It is also shown in Table 6 that party effect varies across regions and these differences increased during the observed period. According to Figure 13, the advantage of being a party member is the greatest in Guangdong, one of the richest provinces of China. And it is the least or negative in Henan, Shanxi and Gansu, all of which are less

developed and in inland China. One of the alternative explanations is that in the economic developed regions, the local government is able to offer more generous welfare and higher income to the cadres and government employees, many of whom are party members, therefore, raise the average level of the income of party members, whereas the party members in those poor regions couldn't enjoy such benefit.

VII.Conclusion

This paper has attempted to present an overview of the change of earnings determination in the Chinese economy, focusing on urban China after economic reform. The methodology of this paper is the basic Mincerian earnings function.

Nee's market transition theory (1989) predicts that the direct producers are paid more closely related to their productivity in the market-coordinated economy and we find evidence of productivity-enhancing wage effects in urban China. The rate of return to education raised substantially: rate of return to per additional year of education almost doubles during the period 1988 to 1995 and reaches 6 percent in 1995. However, as for another indicator of important individual productivity, experience, it is to the contrary that the rate of return to experience falls. The reasoning is that the experience that was accumulated in the old economy becomes obsolete in the new market conditions.

The curve of rate of return to education for women flattened in 1995 relative to men, it suggests that the better educated women, who received more protection from the "equal work, equal pay" egalitarian wage system in the socialism state planned economy, were worse off during the reforms. Taking into account of education factor, we find that the gender earnings gap grows in the economy transition. In addition, our results also

show an increasing regional inequality, mainly the inland-coastal disparities, in urban China.

Though previous studies show that returns to party membership decline or change little during the reforms, our results show that party membership is an important determinant of urban individual earnings and the premium increased in 1995. What's more, a negative relationship between the return to party membership and the education level is observed: the less educated party members enjoyed higher political rents. Furthermore, we find that return to party membership is positively related with the economic development: party members in the developed regions benefit more from their party affiliation relative to their counterpart in the less developed regions.

In conclusion, as Chinese economy becomes more open and the control on the egalitarian wage system is loosed, individual's earnings tend to be more closely related to their productivity and hence more variation in individual earnings has been observed. Accompanying such variation, gender gap widened and regional inequality increased. However, it should be noticed that Chinese economy could not be treated as simple as market economy or capitalist economy, further research should address on such Chinese characteristics.

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Table 1 Summary Statistics

Categories	Sample Composition						Average Monthly Earnings					
	1988			1995			1988			1995		
		Male (%)	Female (%)		Male (%)	Female (%)		Male	Female		Male	Female
Total (Obs)	17,007			10,847			186.5			493.75		
Male		52.13			53.18			204.49			531.80	
Female			47.87			46.82			166.90			450.54
Educational Level												
Primary school or below	12.99	5.57	7.42	4.67	2.16	2.52	187.48	225.01	159.30	428.60	486.85	378.66
Junior middle school or above	37.97	19.10	18.87	28.49	14.18	14.31	181.80	197.56	165.85	457.21	507.36	407.52
Senior middle or above	35.88	18.32	17.56	41.72	20.82	20.90	180.13	195.42	164.18	482.62	511.74	453.61
Community college and technical school	6.89	4.46	2.43	16.64	10.20	6.44	194.46	198.83	186.45	542.92	556.96	520.70
College or above	6.27	4.68	1.59	8.48	5.83	2.66	240.54	249.23	215.00	610.69	635.60	556.03
Years of Experience												
0 - 5 years	3.39	1.68	1.71	5.35	2.70	2.65	130.30	135.12	125.57	379.62	396.45	362.44
5 - 10 years	11.03	5.63	5.40	10.04	5.24	4.80	137.18	147.40	126.54	405.17	418.59	390.54
10 - 15 years	13.01	6.27	6.74	11.58	6.21	5.37	166.87	183.34	151.53	436.00	458.73	409.68
15 - 20 years	15.43	7.57	7.86	14.80	7.14	7.65	185.01	199.36	171.18	471.12	499.09	445.00
20 - 25 years	22.87	11.28	11.59	20.33	9.95	10.38	198.18	216.51	180.34	534.00	572.16	497.44
More than 25 years	34.27	19.69	14.58	37.91	21.93	15.98	208.26	228.56	180.83	538.20	588.56	469.06
Age												
20 - 30 years old	22.36	10.57	11.79	17.80	8.70	9.10	140.99	152.34	130.82	363.98	377.53	351.01
30 - 40 years old	36.52	17.55	18.97	33.42	16.23	17.19	185.98	199.55	173.43	473.98	502.15	447.40
40 - 50 years old	27.68	13.85	13.83	36.30	18.81	17.49	205.44	228.55	182.30	535.99	573.72	495.41
50 - 59 years old	13.44	10.15	3.29	12.48	9.44	3.04	224.57	234.52	193.84	608.96	641.50	508.00

*According to the information from both China Statistical Information Network (http://www.stats.gov.cn/sjjw/ndsj/information/zh1/i021a) and Penn World Tables, the price level in 1995 declined slightly relative to that in 1988, therefore, we report incomes in nominal terms only.

Table 2 Three Regression Models For Total Earnings

Variable	Model 1		Model 2		Model 3	
	1988	1995	1988	1995	1988	1995
Intercept	4.182 (0.022)	7.262 (0.036)	4.285 (0.024)	7.404 (0.040)	4.508 (0.021)	7.772 (0.045)
Years of schooling	0.033 (0.001)	0.063 (0.002)	0.022 (0.002)	0.051 (0.003)		
Female	-0.137 (0.007)	-0.109 (0.010)	-0.388 (0.025)	-0.457 (0.043)	-0.354 (0.020)	-0.333 (0.047)
Experience	0.045 (0.001)	0.037 (0.002)	0.047 (0.001)	0.038 (0.0020)	0.048 (0.001)	0.040 (0.002)
Experience Squared	$(-6.6)\ 10^{-4}$ $(3.07)\ 10^{-5}$	$(-4.3)\ 10^{-4}$ $(3.06)\ 10^{-5}$	$(-6.9)\ 10^{-4}$ $(3.08)\ 10^{-5}$	$(-4.5)\ 10^{-4}$ $(3.06)\ 10^{-5}$	$(-7.3)\ 10^{-4}$ $(3.1)\ 10^{-5}$	$(-5.1)\ 10^{-4}$ $(4)\ 10^{-5}$
Party	0.075 (0.00918)	0.085 (0.012)	0.078 (0.009)	0.087 (0.012)	0.070 (0.009)	0.081 (0.012)
Level of education					0.252	0.508
College or above					(0.023)	(0.051)
Community college					0.133 (0.023)	0.396 (0.050)
Technical School					0.050 (0.021)	0.275 (0.049)
Senior Middle School					-0.001 (0.018)	0.170 (0.048)
Junior Middle School					-0.042 (0.017)	0.099 (0.046)
Interaction of gender and level of education			0.024 (0.002)	0.029 (0.004)		
Four-year college or above					0.328 (0.038)	0.311 (0.059)
Community college					0.357 (0.034)	0.326 (0.053)
Technical school					0.299 (0.029)	0.324 (0.052)
Senior middle school					0.250 (0.024)	0.207 (0.050)

	Model 1		Model 2		Model 3	
	1988	1995	1988	1995	1988	1995
Junior middle school					0.200 (0.023)	0.130 (0.050)
Sum of squares error	3,526.56	2,903.19	3,503.01	2,885.01	3,483.90	2,867.91
df	17,001	10,841	17,000	10,840	16,992	10,832
R^2 (%)	17.99	17.13	18.54	17.68	18.98	18.17

1.Dependent variable is natural logarithm of monthly earnings (yuan) and there are 17,006 observations.
2.Years of schooling: less than three years of primary = 1; three years or more of primary school = 4; primary school graduate = 6; lower middle school graduate = 9; upper middle school graduate = 12; professional school graduate = 13; community college graduate = 15; college graduate or above = 17.
3.Experience = age – years of schooling – 7.
4.Omitted education group is primary school or below.
5. Standard errors are reported in parentheses.

Table3.A Mean Characteristics By Region in 1988

Region (Obs)			Monthly Income	Age	Years of schooling	Years of experience	College	Community college	Technical School	Senior Middle School	Junior Middle School	Primary school
Beijing	(n=828)	Mean	202.74	37.58	11.41	20.62	0.1087	0.0845	0.1232	0.2971	0.3056	0.0725
		Std	142.27	10.49	3.28	10.76	0.3114	0.2784	0.3289	0.4573	0.4609	0.2594
Liaoning	(n=1,785)	Mean	176.47	37.25	10.84	21.01	0.0633	0.0980	0.0947	0.1765	0.5160	0.0515
		Std	131.23	8.75	2.81	9.02	0.2436	0.2975	0.2929	0.3813	0.4999	0.2212
Henan	(n=1,966)	Mean	150.14	37.61	10.74	21.25	0.0651	0.0778	0.1053	0.2798	0.3499	0.1089
		Std	127.45	10.27	3.29	10.61	0.2468	0.2680	0.3070	0.4490	0.4771	0.3115
Jiangshu	(n=2,166)	Mean	187.35	37.04	10.49	20.98	0.0554	0.0628	0.0933	0.2729	0.3878	0.1256
		Std	124.37	9.88	3.18	10.04	0.2288	0.2426	0.2909	0.4455	0.4874	0.3314
Anhui	(n=1,658)	Mean	175.08	36.50	10.27	20.49	0.0579	0.0633	0.0947	0.2310	0.4017	0.1454
		Std	219.63	9.85	3.36	10.11	0.2336	0.2436	0.2929	0.4216	0.4904	0.3526
Hubei	(n=1,866)	Mean	170.28	37.96	10.99	21.39	0.0579	0.1002	0.1388	0.2471	0.3532	0.0986
		Std	97.32	8.89	3.06	9.21	0.2336	0.3004	0.3458	0.4314	0.4781	0.2982
Guangdong	(n=2,0107)	Mean	272.86	37.49	10.53	21.38	0.0617	0.0507	0.1005	0.2980	0.3269	0.1617
		Std	344.59	9.75	3.15	9.95	0.2407	0.2195	0.3007	0.4575	0.4692	0.3683
Shanxi	(n=1,038)	Mean	150.25	37.51	10.64	21.26	0.0599	0.0692	0.1253	0.2360	0.3809	0.1232
		Std	126.30	10.15	3.13	10.49	0.2375	0.2539	0.3312	0.4247	0.4857	0.3287
Gansu	(n=1,121)	Mean	169.75	38.56	10.51	22.34	0.0847	0.0196	0.1347	0.2694	0.3283	0.1490
		Std	103.53	10.67	3.40	11.00	0.2786	0.1388	0.3416	0.4438	0.4698	0.3562
Yunan	(n=1,746)	Mean	206.66	38.57	10.06	22.66	0.0475	0.0538	0.1300	0.1775	0.3963	0.1930
		Std	177.03	9.07	3.23	9.39	0.2128	0.2258	0.3364	0.3822	0.4893	0.3948
Other	(n=26)	Mean	177.52	37.04	9.12	22.23	0.0000	0.0000	0.1154	0.1154	0.5385	0.2308
		Std	108.52	10.05	2.27	9.71	0.0000	0.0000	0.3258	0.3258	0.5084	0.4297

Table 3.B Mean Characteristics By Region in 1995

Region (Obs)		Monthly Income	Age	Years of schooling	Years of experience	College	Community college	Technical School	Senior Middle School	Junior Middle School	Primary school
Beijing (n=803)	Mean	634.98	40.55	12.65	22.69	0.1200	0.2200	0.1900	0.2000	0.2600	0.0000
	Std	291.80	9.24	2.70	9.94	0.3261	0.4139	0.3959	0.4025	0.4377	0.0704
Liaoning (n=1,146)	Mean	451.23	39.09	11.91	21.90	0.0733	0.2173	0.1222	0.1955	0.3726	0.0192
	Std	205.61	8.87	2.82	10.04	0.2607	0.4126	0.3276	0.3967	0.4837	0.1373
Henan (n=863)	Mean	378.95	37.41	12.03	20.47	0.0881	0.1541	0.1680	0.2874	0.2607	0.0417
	Std	179.02	9.64	2.77	11.12	0.2836	0.3613	0.3741	0.4528	0.4393	0.2001
Jiangshu (n=1,186)	Mean	546.27	38.53	11.65	22.11	0.0691	0.1400	0.1442	0.2791	0.3204	0.0472
	Std	246.09	9.40	2.80	10.97	0.2538	0.3471	0.3514	0.4487	0.4668	0.2122
Anhui (n=752)	Mean	395.90	38.16	11.55	21.84	0.0638	0.1436	0.1556	0.2407	0.3444	0.0519
	Std	172.78	9.01	2.82	10.75	0.2446	0.3509	0.3627	0.4278	0.4755	0.2219
Hubei (n=1,145)	Mean	468.05	39.13	12.29	21.75	0.0917	0.1747	0.1843	0.2873	0.2314	0.0306
	Std	204.74	8.62	2.68	10.17	0.2887	0.3799	0.3879	0.4527	0.4219	0.1722
Guangdong (n=876)	Mean	880.11	39.41	11.70	23.38	0.0742	0.1575	0.1507	0.2785	0.2477	0.0913
	Std	491.12	9.15	2.99	11.74	0.2622	0.3645	0.3579	0.4485	0.4319	0.2882
Shanxi (n=1,038)	Mean	393.03	36.58	12.15	19.35	0.0983	0.1561	0.1927	0.2524	0.2669	0.0337
	Std	197.03	9.75	2.78	11.68	0.2978	0.3631	0.3946	0.4346	0.4425	0.1806
Gansu (n=617)	Mean	367.84	37.35	11.98	20.65	0.1053	0.1345	0.1410	0.3144	0.2512	0.0535
	Std	157.28	9.40	2.91	11.71	0.3073	0.3415	0.3483	0.4647	0.4341	0.2252
Yunan (n=1,052)	Mean	469.30	39.01	11.86	22.43	0.0732	0.1597	0.2510	0.1797	0.2624	0.4401
	Std	179.12	8.56	2.93	11.17	0.2606	0.3665	0.4338	0.3841	0.0741	0.2621
Sichuan (n=1,369)	Mean	453.30	39.32	11.83	22.74	0.0869	0.1622	0.1826	0.2096	0.2936	0.0650
	Std	229.67	8.98	2.97	11.07	0.2818	0.3687	0.3865	0.4072	0.4556	0.2466

Table 4 Estimation of Regional Differences

Variable	1988		1995	
	Parameter	Standard error	Parameter	Standard error
Intercept	4.407	0.0267	5.210	0.0403
School year	0.022	0.0015	0.048	0.0024
Female	-0.387	0.0231	-0.461	0.0394
Experience	0.045	0.0013	0.036	0.0014
Experience squared	$(-6.5)\ 10^{-4}$	$(2.91)\ 10^{-5}$	$(-4.4)\ 10^{-4}$	$(2.79)\ 10^{-5}$
Party	0.089	0.0086	0.084	0.0113
Interaction of female and school year	0.024	0.0021	0.029	0.0032
Regional Dummy variables [1]				
Liaoning	-0.120	0.0178	-0.288	0.0216
Henan	-0.299	0.0175	-0.459	0.0231
Jiangsu	-0.030	0.0173	-0.063	0.0215
Anhui	-0.163	0.0180	-0.379	0.0239
Hubei	-0.166	0.0177	-0.264	0.0216
Guangdong	0.213	0.0175	0.356	0.0230
Shanxi	-0.312	0.0177	-0.404	0.0222
Sichuan	-0.209	0.0194	-0.288	0.0209
Gansu	-0.065	0.3020	-0.452	0.0252
Yunnan	-0.026	0.0179	-0.200	0.0220
Sum of squares error	3,090.86		2,377.61	
df	16,989		10,829	
R^2 (%)	28.12		32.16	

1. Omitted region category is Beijing

Table 5 Mean Characteristics of Party Members and Nonparty Members

Variable	1988		1995	
	Non-party member (n=12,904)	Party member (n=4,103)	Non-party member (n=8,006)	Party member (n=2,841)
Income	176.46	218.05	461.45	584.78
Age	35.62	43.68	37.00	43.29
School year	10.25	11.75	11.58	13.01
Experience	19.82	26.09	20.75	24.69
Primary school	13.72%	8.60%	5.52%	2.29%
Junior middle school	40.95%	28.59%	31.69%	19.46%
Senior middle school	26.34%	19.35%	26.94%	17.42%
Technical school	9.59%	16.38%	16.44%	19.61%
Community college	4.87%	13.23%	13.27%	26.15%
College or above	4.05%	13.28%	6.15%	15.07%

Table 6 Party Premiums

Variable[1]	1988				1995			
	Model 4		Model 5[2]		Model 4		Model 5[2]	
Intercept	4.759	0.023	4.322	0.027	5.863	0.027	5.077	0.039
Party	0.059	0.027	0.020	0.034	-0.008	0.035	0.088	0.036
Years of schooling			0.033	0.001			0.061	0.002
Female	-0.141	0.007	-0.134	0.007	-0.110	0.010	-0.117	0.009
Experience	0.0474	0.00145	0.043	0.001	0.04044	0.0018	0.035	0.001
Experience squared	$(-7.3)\ 10^{-4}$	$(3.2)\ 10^{-5}$	$(-6.17)\ 10^{-4}$	$(2.9)\ 10^{-5}$	$(-5.1)\ 10^{-4}$	$(4.06)10^{-5}$	$(-4.21)\ 10^{-4}$	$(2.8)\ 10^{-5}$
Educational Level[3]								
Primary	-0.378	0.022			-0.722	0.043		
Junior middle school	-0.296	0.020			-0.537	0.027		
Senior middle school	-0.226	0.020			-0.426	0.026		
Technical school	-0.122	0.023			-0.225	0.027		
Community college	-0.038	0.026			-0.126	0.028		
Interaction of education levels and party								
Primary	0.159	0.038			0.276	0.078		
Junior middle school	0.045	0.031			0.156	0.042		
Senior middle school	0.006	0.032			0.149	0.043		
Technical school	-0.071	0.035			-0.004	0.043		
Community college	-0.040	0.038			0.053	0.042		
Interaction of region and party[4]								
Liaoning			0.039	0.041			-0.009	0.049
Henan			0.092	0.040			0.046	0.050
1. Jiangsu			0.053	0.041			-0.021	0.048
2. 3. Anhui			0.067	0.042			0.012	0.053
4. Hubei			0.005	0.040			0.041	0.047
5. Guangdong			0.067	0.041			-0.002	0.050
Shanxi			0.096	0.041			-0.019	0.050

6.

Variable	1988			1995		
	Model 4	Model 5^2		Model 4	Model 5^2	
Gansu		0.211	0.044		0.036	0.056
Yunan		0.059	0.041		-0.068	0.047
Sichuan		-0.183	0.606		-0.038	0.046
Sum of squares error	3534.75	3,106.85		2,880.72	2,393.05	
df	16,992	16,980		10,832	10,820	
R^2 (%)	17.80	27.75		17.81	31.72	

1. Dependent variable is natural logarithm of monthly earnings (yuan).
2. Other included variables in Model 5 are ten dummy variables for region.
3. Omitted education group is college graduate or above.
4. Omitted interaction term is Beijing and party.

Figure 1. Education Profiles

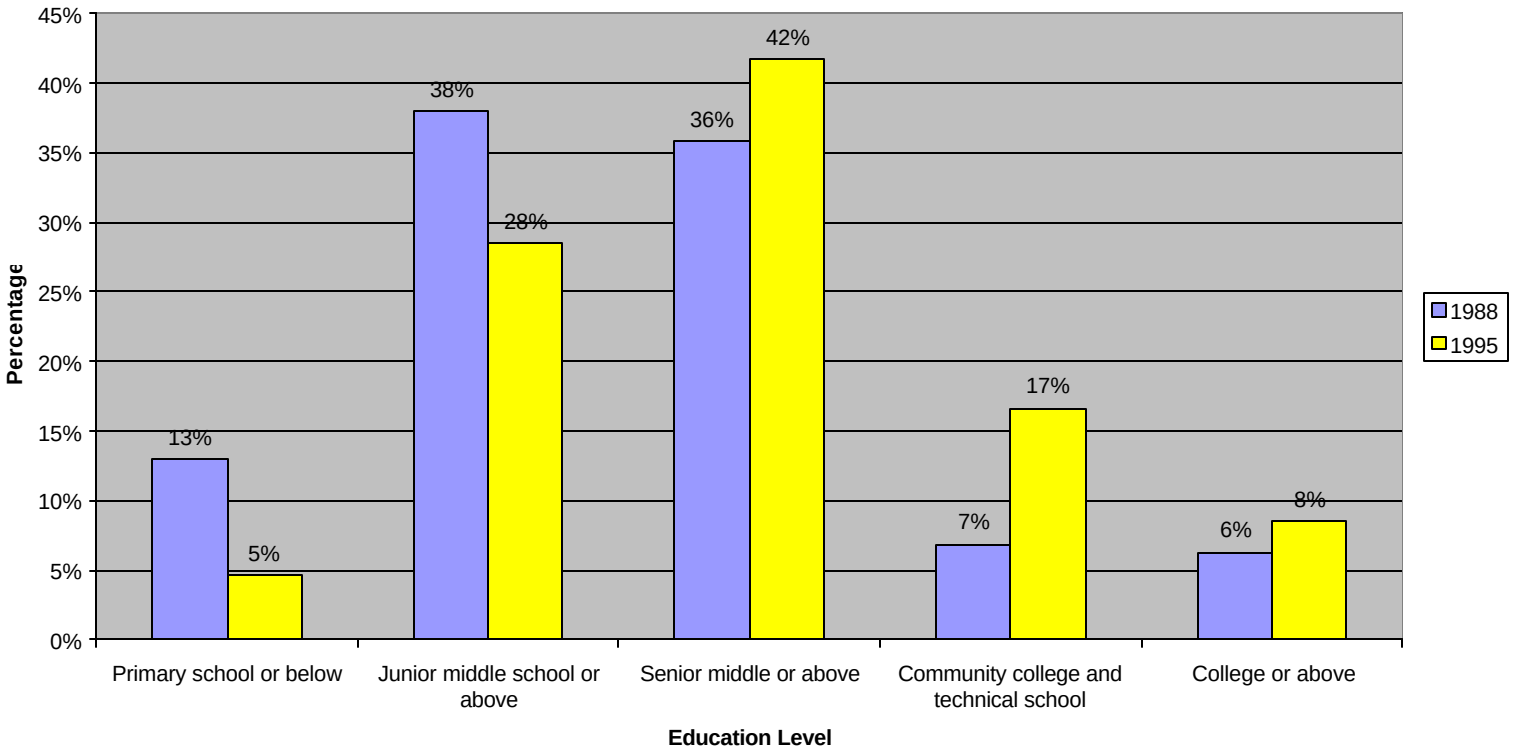


Figure 2. Age Composition

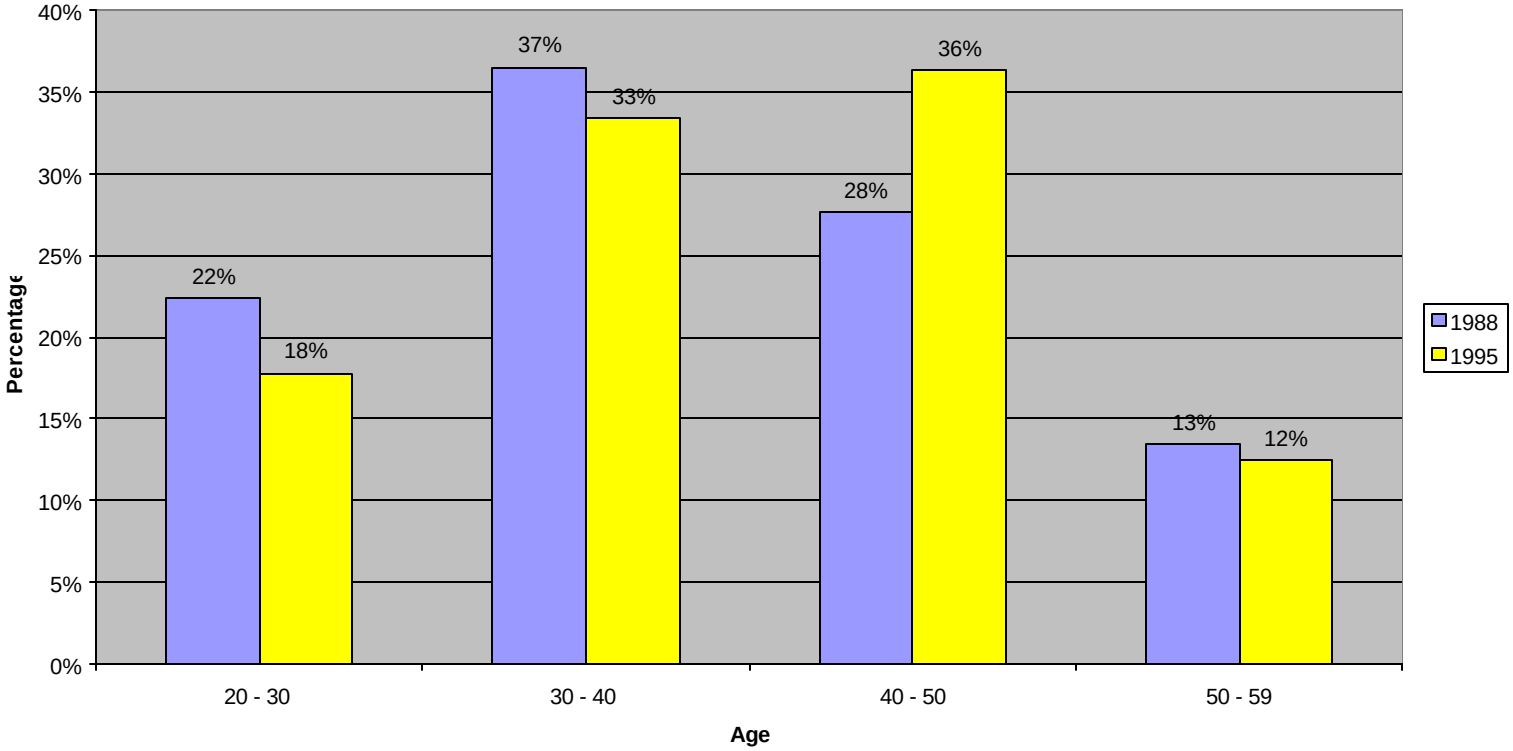


Figure 3. Experience Composition

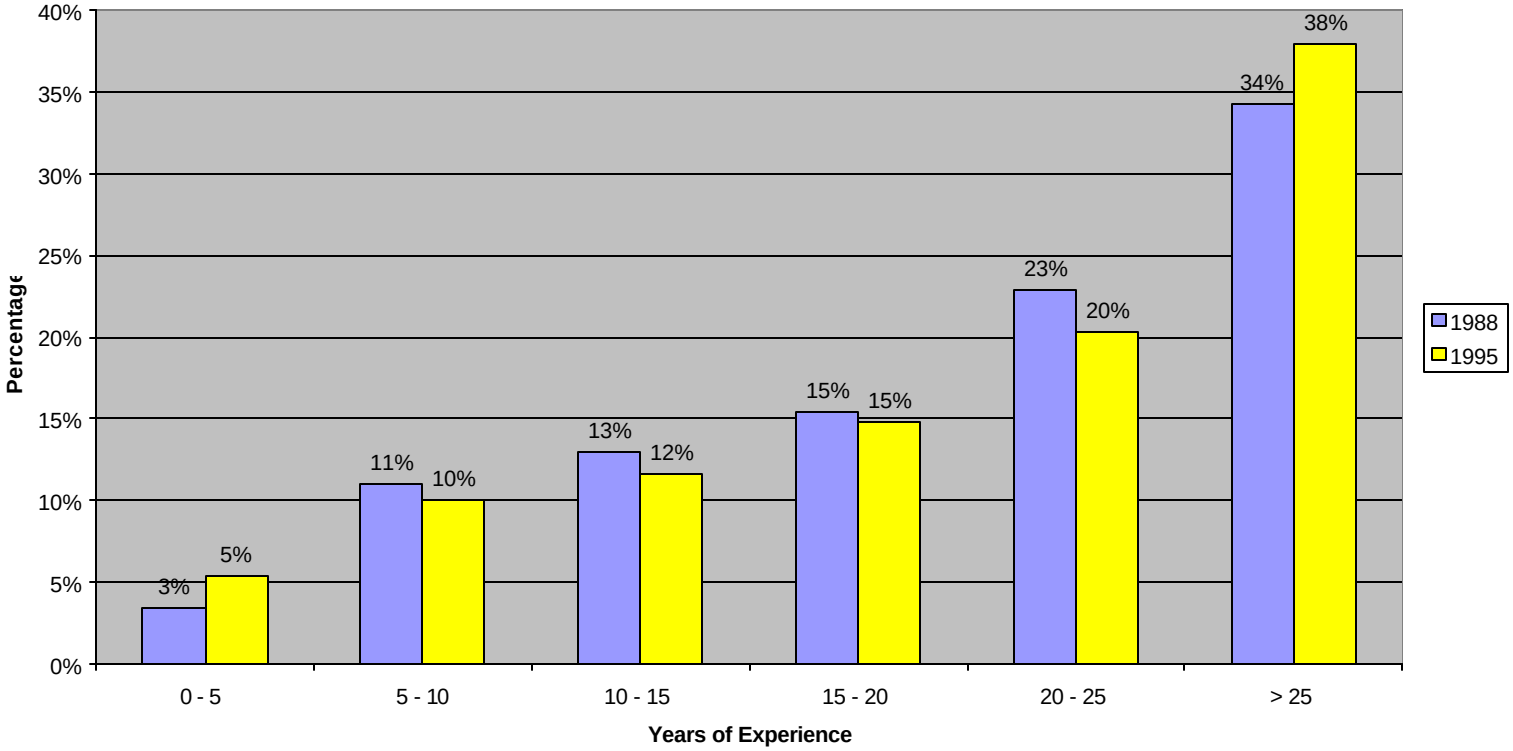


Figure 4. Earnings Profiles By Education Levels

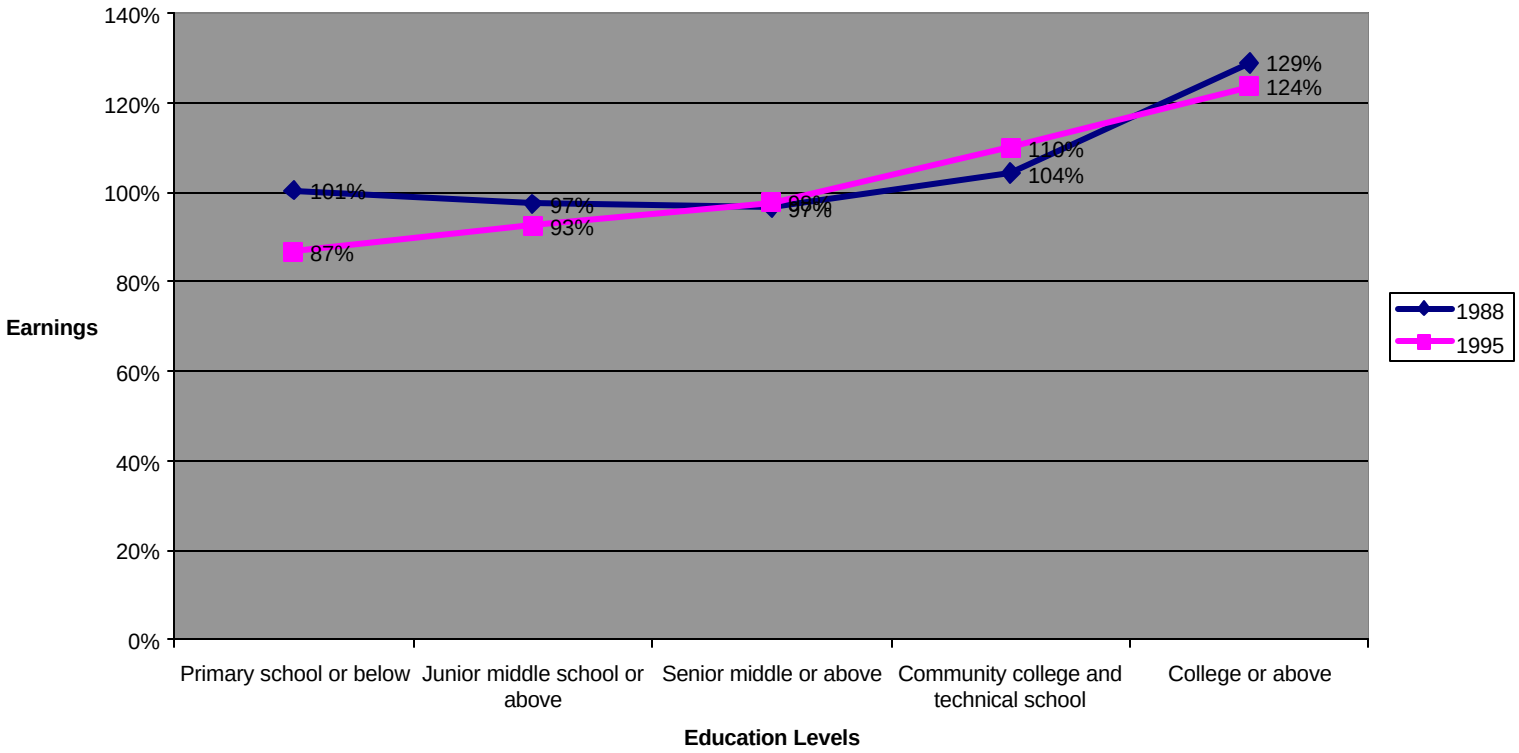


Figure 5. Earnings Profile by Age Group

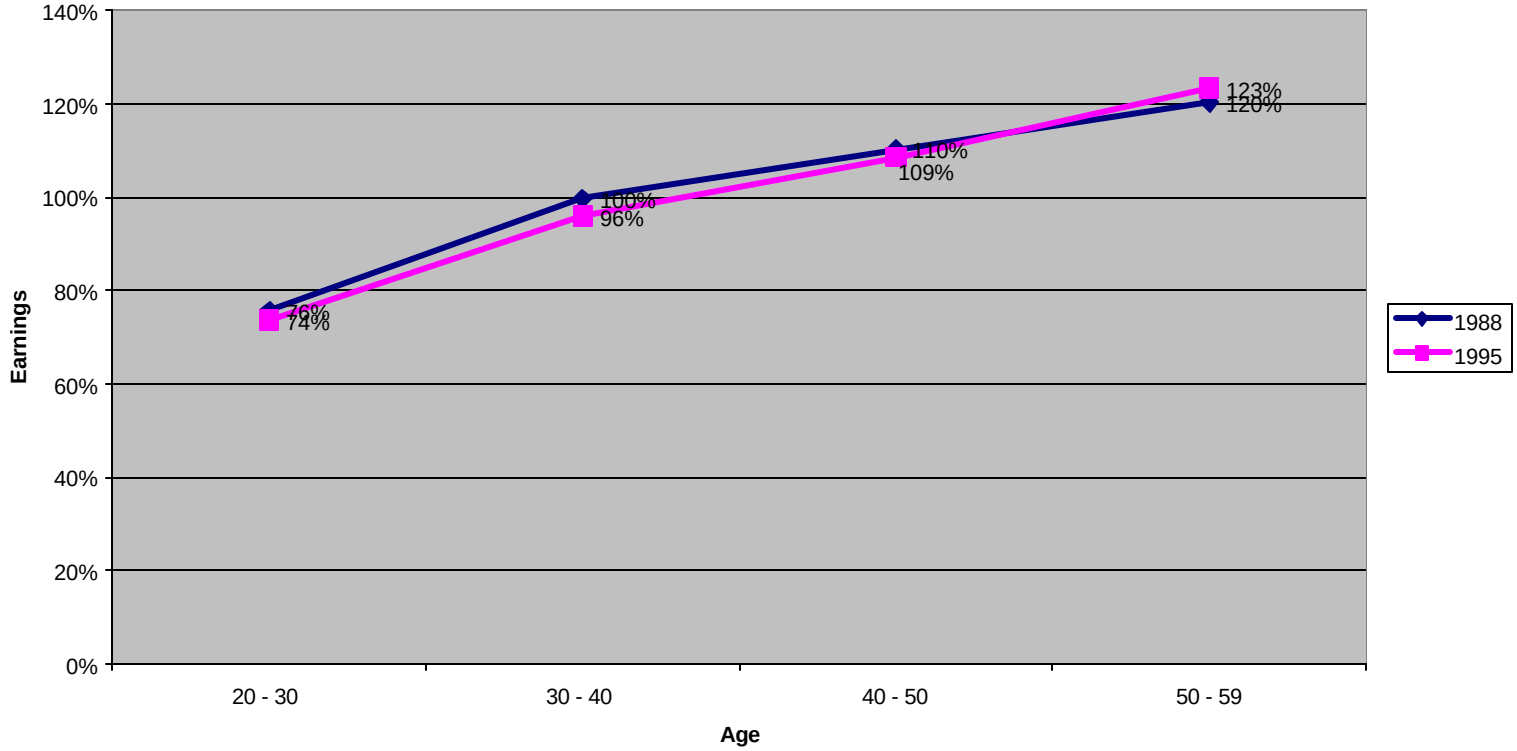


Figure 6. Earnings Profile by Experience

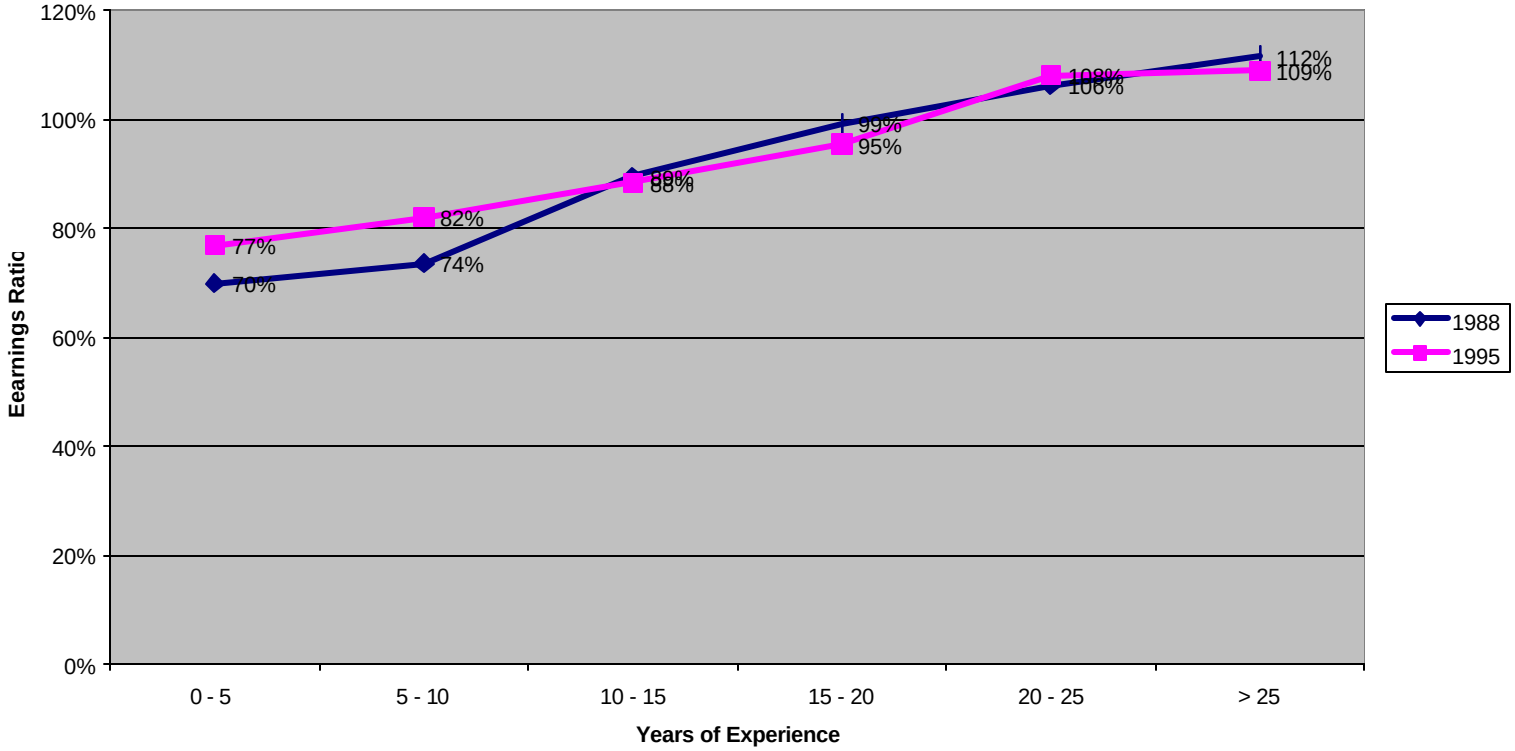


Figure 7. Rate of Return to Education

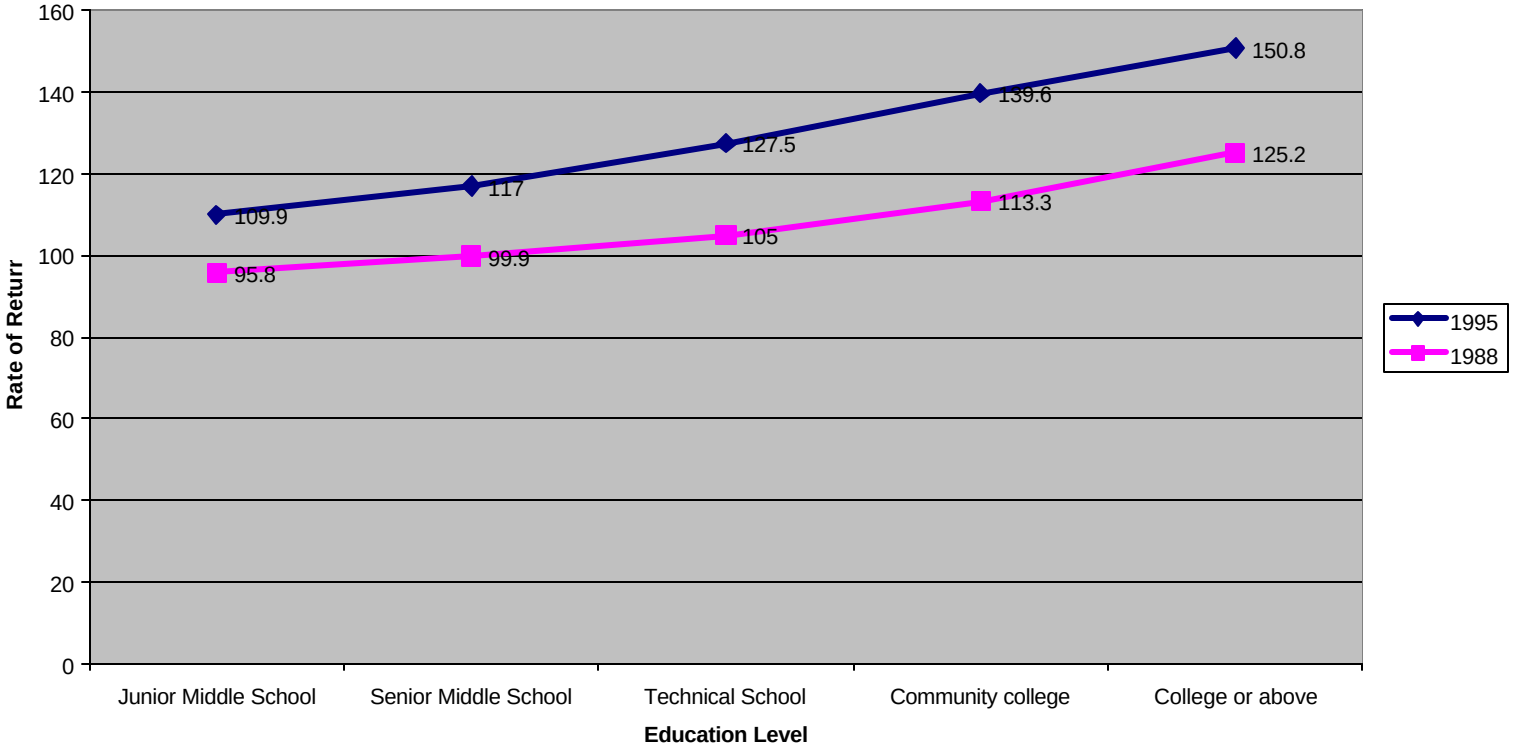


Figure 8. Rate of Return to Education for Women

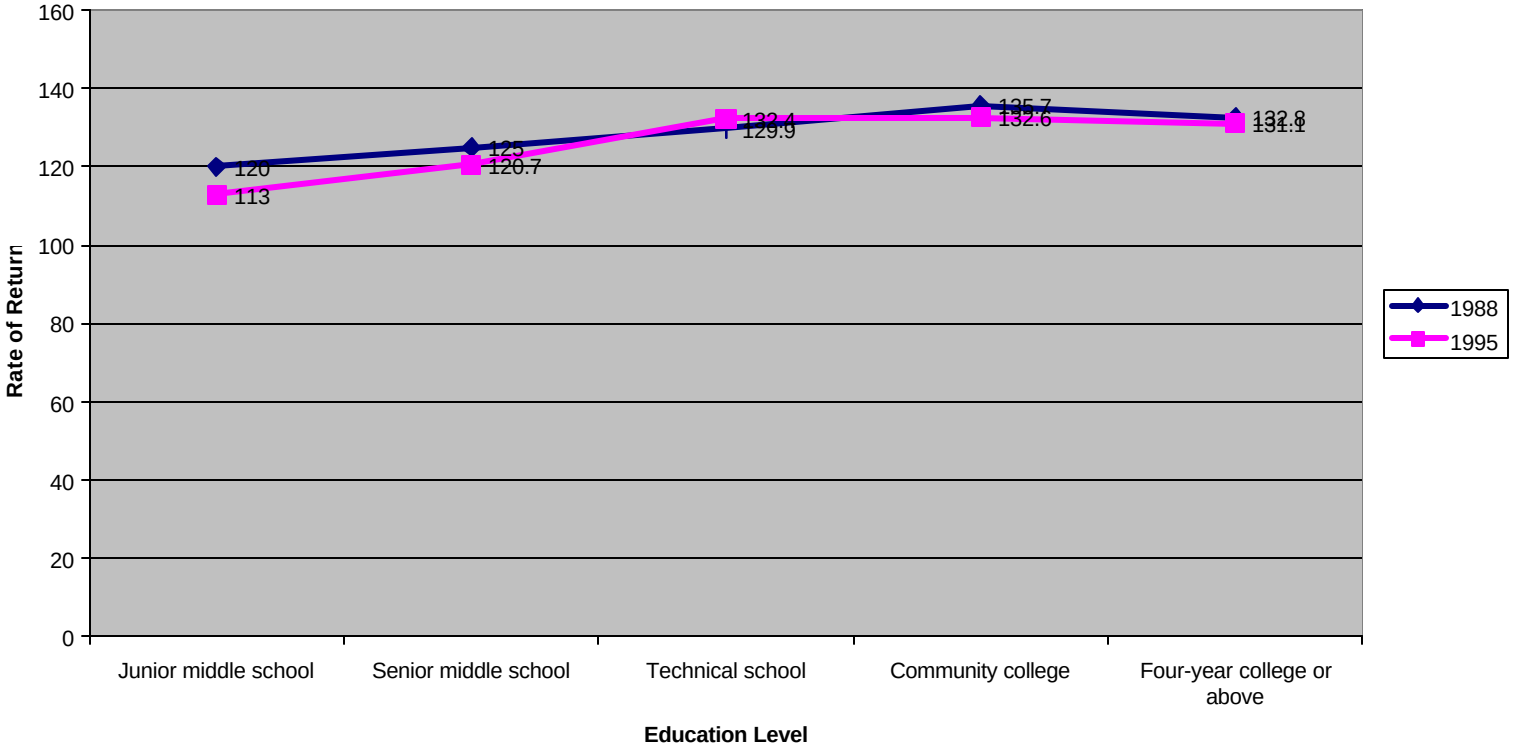


Figure 9. Regional Earnings Gap

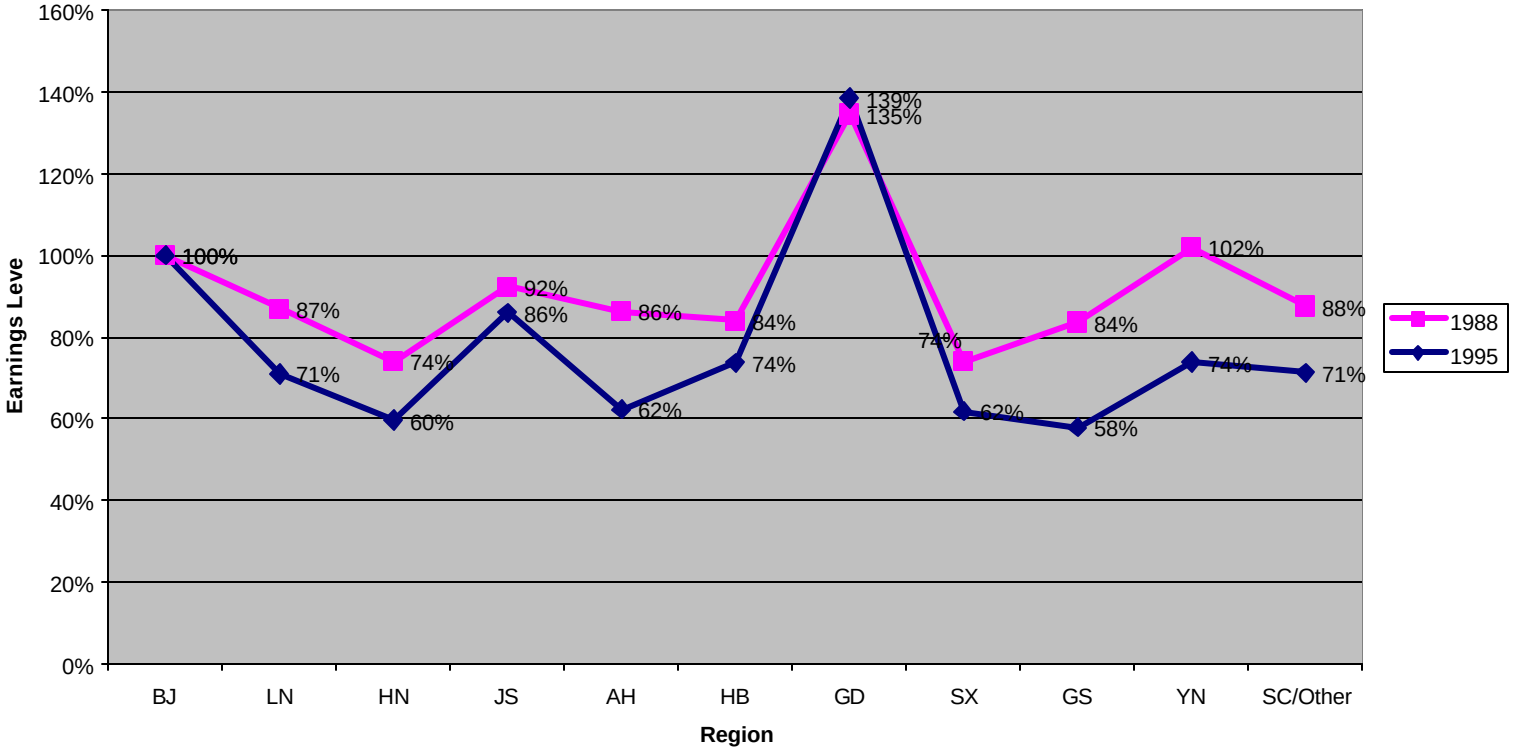


Figure 10.Estimated Regional Differences

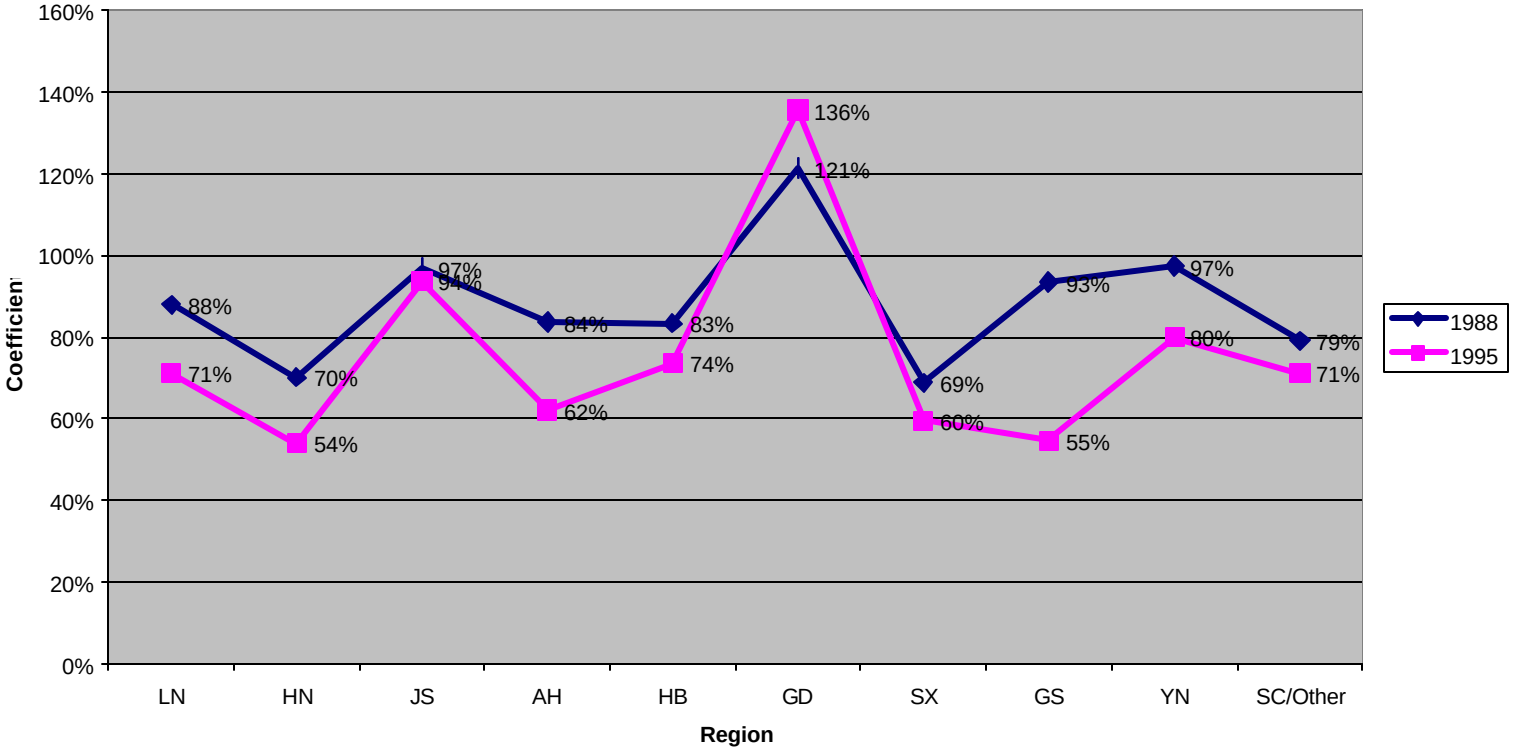


Figure 11. Party Participation

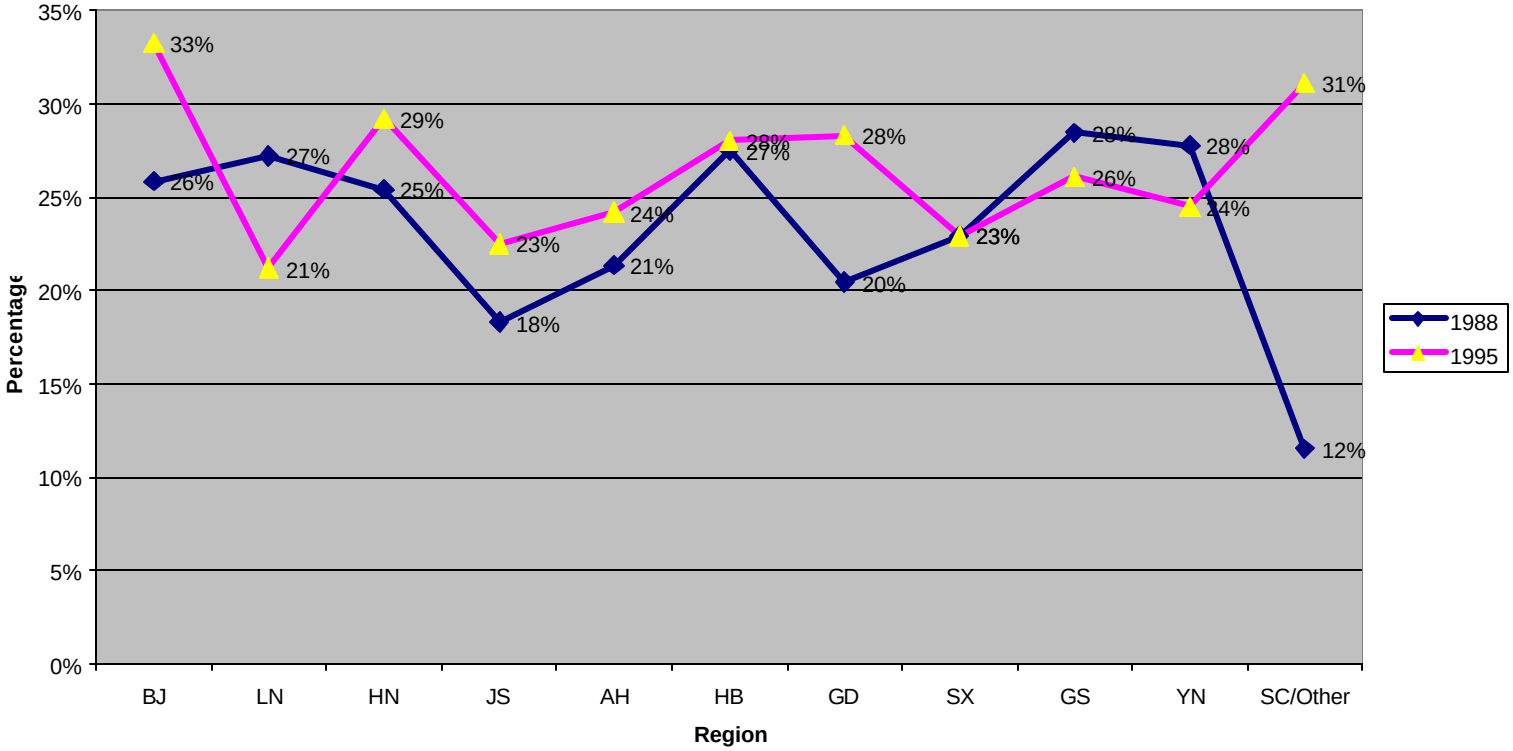


Figure 12. Party Premium for Different Education Level

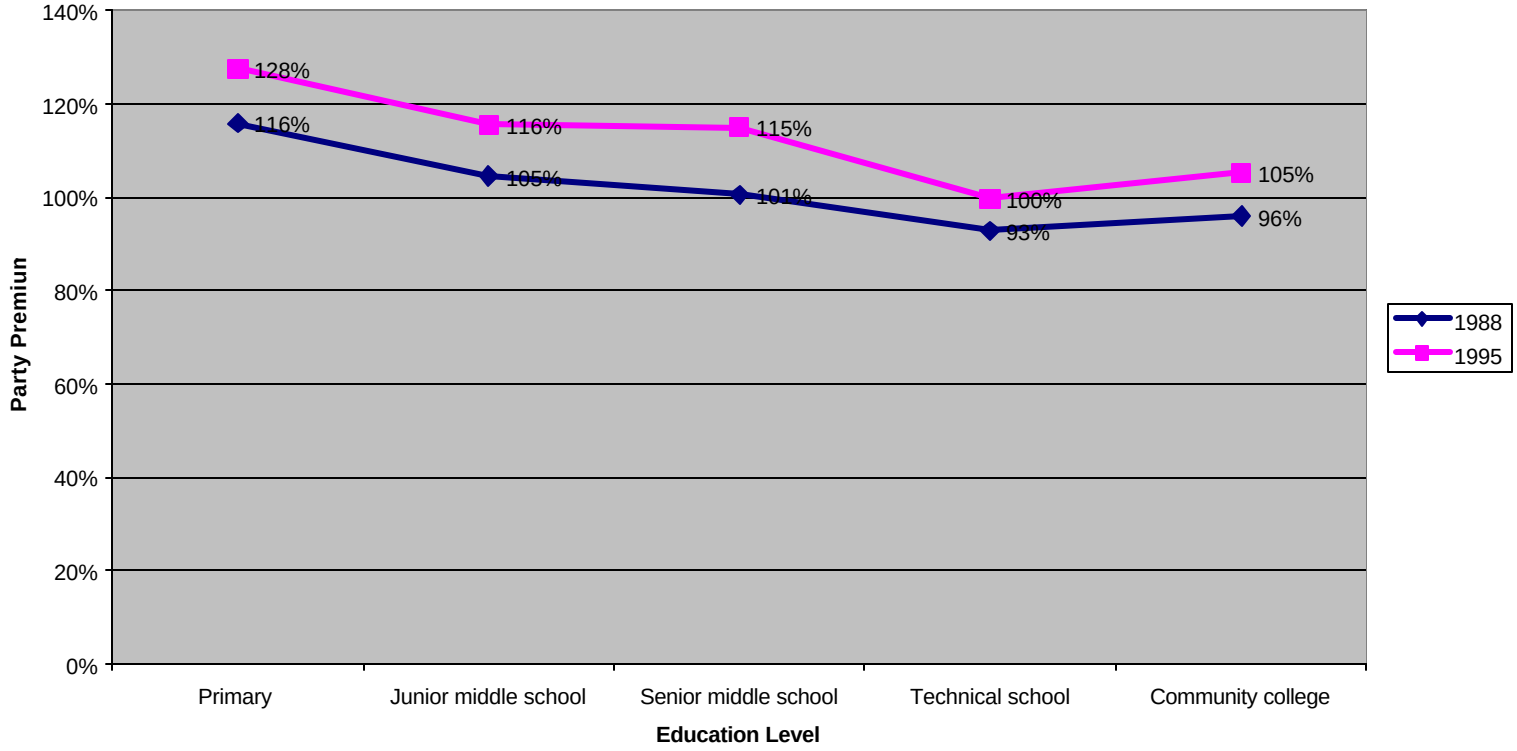
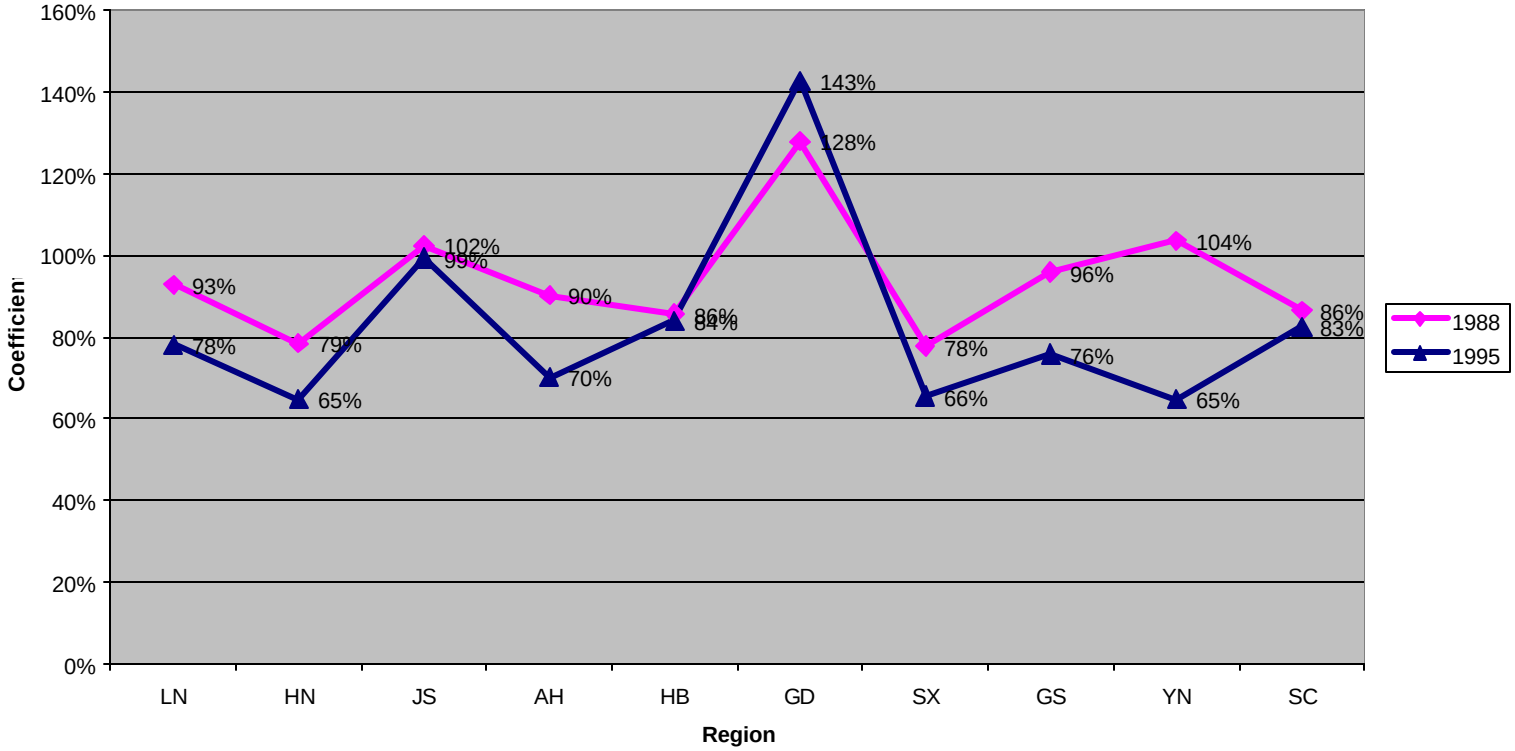


Figure 13. Party Premium Across Region



Appendix A.

Table 1 Three Regression Models For Earnings Assuming Regional Homogeneity

Independent variable	Model 1		Model 2		Model 3	
	Parameter	SE	Parameter	SE	Parameter	SE
Intercept ($\hat{a}_0$)	6.591	0.017	6.685	0.019	6.870	0.017
Years of schooling ($\hat{a}_1$)	0.031	0.001	0.022	0.001		
Level of education*:						
Junior high school					-0.008	0.015
Senior high school					0.071	0.016
Technical school					0.082	0.018
Community college					0.137	0.020
Four-year college and above					0.226	0.019
Experience ($\hat{a}_2$)	0.044	0.001	0.046	0.001	0.047	0.001
Experience^2 ($\hat{a}_3$)	$(-6.63)\ 10^{-4}$	$(2.54)\ 10^{-5}$	$(-6.93)\ 10^{-4}$	$(2.54)\ 10^{-5}$	$(-7.25)\ 10^{-4}$	$(2.61)\ 10^{-5}$
Party member (1= yes) ($\hat{a}_4$)	0.071	0.008	0.073	0.008	0.074	0.008
Gender (1= female) ($\hat{a}_5$)	-0.114	0.006	-0.344	0.021	-0.302	0.017
Gender * years of schooling ($\hat{a}_6$)			0.022	0.002		
Interaction of gender and level of education:						
Junior high school					0.173	0.019
Senior high school					0.217	0.021
Technical school					0.265	0.024
Community college					0.281	0.029
Four-year college and above					0.272	0.031
Sum of squares error	2,179.2		2,161.8		2,160.0	
df	15,856		15,855		15,847	
R^2	26.14		26.73		26.79	

NOTE. – N = 15,862. The dependent variable (T) is the natural logrithm of total annual earnings (yuan). â's refer to ordinary least squares estimates of eq. (1)

*Excluded = primary or less

Source: Yu Xie and Emily Hannum 1996 "Regional Variation in Earnings Inequality in Reform-Era Urban China" *AJS* Vol101 No.4 P950 - 992

Appendix B Estimation of Guangdong

Variable	Model 1				Model 2				Model 3			
	1988		1995		1988		1995		1988		1995	
	Parameter	Standard error	Parameter	Standard error	Parameter	Standard error	Parameter	Standard error	Parameter	Standard error	Parameter	Standard error
Intercept	4.548	0.0776	5.690	0.1355	4.649	0.0861	5.859	0.1493	4.815	0.0751	6.263	0.1477
Years of schooling	0.025	0.0044	0.050	0.0085	0.015	0.0059	0.035	0.0101				
Female	-0.152	0.0256	-0.088	0.0372	-0.375	0.0867	-0.460	0.1454	-0.322	0.0637	-0.344	0.1267
Experience	0.054	0.0050	0.026	0.0052	0.055	0.0050	0.027	0.0052	0.057	0.0050	0.036	0.0060
Experience squared	-0.00093	0.00011	-0.00036	0.0001	-0.00097	0.00011	-0.00036	0.0001	-0.00102	0.0001	-0.00061	0.0001
Party	0.114	0.0335	0.131	0.04456	0.115	0.0334	0.134	0.04442	0.104	0.03374	0.115	0.04408
Level of education												
College									0.184	0.0780	0.115	0.1688
Community college									0.052	0.0884	0.167	0.1582
Technical school									0.000	0.0761	0.019	0.1562
Senior middle school									-0.015	0.0620	-0.190	0.1503
Junior middle school									-0.056	0.0592	-0.091	0.1426
Interaction of gender and level of education					0.021	0.0079	0.03208	0.0121				
College									0.204	0.1303	0.385	0.1860
Community college									0.460	0.1281	0.375	0.1555
Technical school									0.245	0.0995	0.398	0.1556
Senior middle school									0.214	0.0771	0.237	0.1419
Junior middle school									0.119	0.0756	0.112	0.1435
Sum of squares error	596.02		243.90		593.87		241.95		588.69		231.71	
df	2,003		869		2,002		868		1,994		860	
R^2 (%)	12.54		12.07		12.86		12.77		13.62		16.47	