Income Disparity and Discrimination in Shenzhen

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Abstract

In this paper we look at income disparity by analyzing the effect of human capital on personal income and income disparity in Shenzhen. We choose Shenzhen because it is one of the most advanced, fastest growing and capitalistic cities in China. Shenzhen can be regarded as a general example for one of the most successful but also fierce transformation processes in the world. Therefore, studying the conditions of the Shenzhen model of development seems very important to understand development more general. In our approach we use the standard Mincer-Becker model to calculate the returns to education. We add social norm and policy indicating variables as well as interaction terms for a rural and migration background of the individuals to shed light on the importance of these factors on income and income disparity compared to the standard return to human capital approach. Further, to find out more about the extent discrimination and endowment effects are relevant for income determination and disparity we apply the Oxaca-Blinder decomposition. The sample we employ for our analysis is based on a household survey conducted by an independent research project in 2006 in Shenzhen City collecting data for 2005. Our results show that the standard human capital approach holds even for such an exceptional region like Shenzhen. However, we find strong evidence for a significant influence of social norms and policy measures on income determination and income disparities, even if the relative importance of social factors depends on the completed education level. Especially the hukou registration system has a huge impact on the personal income situation and discriminates people with a rural background. Other factors which are in Theory relevant for income determination in a developing country (i.e. gender, social status) also appear to be of great importance in one of the most advanced and capitalist cities in China. The current position in the process of development and transition to a modern society still shows strong discriminating factors. We regard this identified strong impact of social norms and political restrictions on income determination as indicator for a still ongoing process of transition.

JEL classification: O15, O18, I21
Key words: Shenzhen, Income distribution, Education, Development process

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Introduction

Shenzhen is one of the fastest growing urban agglomerations in mainland China. It can be regarded as highly developed and integrated into the world market. Exactly this fact is the reason why we chose Shenzhen for our area of study.
On the one hand, for Shenzhen market forces can be expected to be important determinants of income. On the other hand discriminating factors either from policies or from social norms and traditions must also be expected to play a still significant role. While market forces on the labour market lead to returns to education we are not only interested in identifying these market forces by determining returns to education but also in the non market forces which play a role for income determination. These non market forces are often labelled (wage) discrimination.
It is our aim to estimate the amount of income/wage discrimination and inequalities in this highly developed city to explore how important social norm and policy oriented discriminatory factors still are in a Chinese city which can be identified as one of the most developed ones in the whole mainland country. In most highly developed countries human capital can be identified as the most important factor for income determination. The extent of the impact of more social norm or policy oriented factors on income can be an indicator for the socio-economic development towards an economy mainly driven by market forces since developing and transition countries mostly display a higher impact of these factors on income as stated by Tanzi (1998). Furthermore we want to analyse which (discrimination) factors are most important for the personal income situation to be able to derive policy implications for reducing the impact of discrimination and thereby lowering income inequalities. For our analysis we employ a household survey which was conducted in 2005 in Shenzhen city. We use standard econometric methods to judge the impact of various factors on income and on the return to education. A Oxaca-Blinder decomposition analysis is used to get an estimate of the overall amount of discrimination between rural and urban registered inhabitants of Shenzhen.
In our analysis we take different income determination factors into consideration. Besides human capital other social norms and attitudes as well as the special economic policy pursued by the government still seem to be of importance in explaining income differentials in China. In general, Jian et al. (1996) or Meng (2004) have spotted growing inequalities within China that work along certain geographic patterns and are mainly a consequence of economic reforms and urban- or costal-biased policies.
One important factor appears to be the gender. Ng (2004), Shu (2005) and Ng (2007) find that women with comparable education earn less than men as a consequence of gender discrimination rather than differences in productivity. These results are similar to findings by Knight and Song (2003) while Hughes and Maurer-Fazio (2002) state that the gender discrimination declines with rising education levels of women. Another of their findings is that marital status also affects the gender wage gap as married women in China experience a more pronounced absolute wage gap compared to unmarried ones. Furthermore it is shown by Bishop et al. (2005) that women generally experience smaller returns to marriage than men, especially for men with only small incomes. Here, it is argued that this marriage income-gap is caused by gender-related different effects arising from marriage: Married men usually work harder and are more productive in their role as a family's provider while married women may reduce their working efforts, perhaps as a result of concentrating on raising a family. This argument is stressed by Li et al. (2006) who show that husbands contribute more

to family earnings than wives. The argument that marriage enhances the productivity and commitment of men may also explain possible earning differentials between married and unmarried men. A different social status associated with marriage may be another explanation. Also Membership in the Communist Party still seems to influence income positively as shown by studies from Knight and Song (2003) and Cao and Nee (2005). Whereas it should be noted that Party membership could not be only a discriminatory factors based on connections but could also signal ambition or ability as stated by Gerber (2000) and Lam (2003). One of the most important discrimination factors appears to be the registration status. Migration from the rather poor rural areas[1] to the large cities driven by economic incentives leads to a huge presence of people with rural registration (hukou) in the urban areas [Chen and Coulson (2002), Du et al. (2005) or Lu and Song (2006)]. The hukou registration system was intended to control and limit migration but with limited success and the rigidness of the system was relaxed in recent times. Studies from Lu and Song (2006) Fan (2001) or Wan (2006) show the existence of significant income differences between the migrant population and the inhabitants with an urban registration. These differentials cannot be explained by a higher endowment of productive skills by the urban registered population alone and are in part a consequence of discrimination. The hukou system also restricts social services such as education to local inhabitants [Liu (2005)] and the possibility to receive an urban hukou appears to be positively correlated with the amount of education. Also time of residence is positively correlated with income as analysed by Fan (2001), Liu et al. (2004) and Wan (2006) especially for the Hong Kong urban area which would stress a positive influence of the assimilation process. The migrant can accumulate city specific human capital or job skills, and adapt to local labour markets, thus improving job matching, enhancing productivity the longer he resides in the city. This may ultimately justify a rise in payments. Still, one cannot expect wage convergence towards native wage levels as a result of this process, i.e. discriminatory earning differentials may shrink but persist.

In a somewhat related topic, migratory background may also influence income determination due to its influence on mobility and job changes. Here, it is argued by Yueh (2004) that labour mobility of migrants strongly exceeds the mobility of urban residents, with migrants usually earning less. In this context, lower wages for individuals that often change their occupation may reflect a general lack of human capital, or firm-specific human capital that is destroyed with a job change respectively. For the Chinese case, Knight and Song (2003) suggest that the sector of one's occupation also affects wage fixation. Here, state-owned enterprises that usually employ urban residents pay better than private sector companies where most migrants work. Thus, the wage gap between urban residents and migrants may also partially be explained by the correlation of migration and mobility and labour market segmentation. In general, this labour market segmentation will affect all citizens of a Chinese urban area: Employment in state-owned enterprises strongly reduces mobility as it leads to better payments and social benefits. Employment in the private sector results in significantly higher labour mobility as a consequence of labour market developments. This may negatively affect wages accordingly.

Also social networking should be considered as a relevant determinant. Here, theory as e.g. assembled by Mouw (2003) suggests that a higher social capital endowment, i.e. social networks of friends and acquaintances, positively affects wage determination through increased information and influence. In China, social networks (guanxi) are commonly believed to influence economic and political behaviour. For example, Bian and Ang (1997) find that guanxi networks influence the mobility of workers and their success in finding occupation with higher status. As pointed out by Chen and Sun (2006) urban social networks influence an individual's access to better jobs, higher wages or the bureaucratic decision

[1] Also labled the rural urban income gap by e.g. Sicular et al. (2007) or suggested by Lu and Song (2006).

process. Thus, social capital may be closely connected with wage determination, whereas its impact should be positive. Still, Chen and Sun (2006) find that the overall influence of urban social networks on income diminishes over time, particularly as the reform and growth process continues. Thereby, the influence of social capital on income may be more closely correlated with less-paid jobs where market and productivity considerations do not matter to that extent.
Summarizing the results it seems evident that besides Human Capital other more social norm and policy oriented factors most likely still play an important role in income determination in China. To assess the magnitude of this impact in a particularly high developed urban centre in China we employ a regression analysis using the Shenzhen 2006 household dataset

The first section gives a brief description of the used dataset. In the next section the Theil index is explained followed by its application to our dataset concerning the question of inequalities among education groups. This is followed by an overview of the literature concerning various discriminatory factors which might have an impact on personal income determination. In consideration of these aspects an empirical analysis is carried out to quantify the impact the various factors have on income. The last section concludes.

Dataset

The dataset we use for our analysis is based on a household survey conducted in March 2006 collecting data for 2005 in Shenzhen. The survey was conducted using random sampling taking into account the registration status of the residents. According to official data [Shenzhen Statistical Yearbook 2005] one third of the inhabitants had a rural registration (hukou) and two thirds inhibit an urban registration. This structure reflected in the sample. The sample was drawn from three of the six districts of Shenzhen: Luohu, Nanshan and Baoan. A total of 1056 households and 3256 individuals were survived. For our analysis we restricted the sample to the working age population (between 16 and 65) and excluded any income which was reported to be below zero or above 1250000 which should be considered as too high to be correctly reported and is thereby removed as an outlier.

Inequality and Disparity in Shenzhen

To get a general impression the income inequality in Shenzhen we use the Theil. Economic disparity can be measured in different ways. The most common instruments and indicators are the Lorenz Curve, the Gini coefficient, or the Generalized Entropy (GE) family of indices [Cowell, 1995; Cowell and Kuga 1981], with the Theil indices being members of this class of indices. The general formula for the general entropy class of indices is:

$$GE(c) = \frac{1}{c^2 - c}\left[\frac{1}{n}\sum\left(\left(\frac{y_i}{\mu_y}\right)^c - 1\right)\right]$$

The parameter c captures the sensitivity of a specific GE index to different parts of the income distribution [Cowell, 1981, 2000]. For a given income distribution, a negative value of c gives more weight and sensitivity to gaps in the lower (income) tail of the distribution and for large and positive values of c, proportionally more weight is given to the upper (income) end of the distribution. It is thus adequate to pick a rather low or negative value for

c if one is more interested in inequalities amongst the "poor", and a positive and high value for c if the interest is more focused on the "rich". The variable n represents the population size, y_i the individual's income and μ_y the mean income of the population subject to measurement.

The inequality indices proposed by Theil [Theil 1967] can be derived as special cases of the general entropy class of indices [Cowell, 1995, 2000; Cowell and Kuga 1981]. Using L'Hopitals rule, the GE index converts [Cowell, 1977, 2000; Cowell and Kuga 1981] into the Theil (T) index, with individual income share weights $s_i = \frac{y_i}{n\mu_y}$, for $c = 1$. In this case the Theil (T) index applies approximately equal weight to all parts of the distribution.

$$GE(1) = \left[\frac{1}{n}\sum\left\{\left(\frac{y_i}{\mu_y}\right)\ln\frac{y_i}{\mu_y}\right\}\right] = \sum s_i \ \ln s_i = T$$

A major advantage of the general entropy class of inequality measures and specifically the Theil indices, is that they are the only inequality indices to satisfy the axioms [Bourguignon, 1979; Cowell 1980; Shorrocks 1980] of additive decomposability, symmetry (anonymity), population homogeneity (population replication), are income homogeneous of degree zero (scale invariance), continuous and differentiable in all individual incomes, additively decomposable and satisfy the Pigou-Dalton principle of transfer (strong principle of transfers). We are particularly interested in the property of additive decomposability, meaning that an overall inequality measure can be additively decomposed into the subgroup inequality contributions. It should be noted, however, that because of the property of additive decomposability the GE index is not normalized and comparisons between different studies or different populations may appear difficult. The GE class of inequality indices is able to decompose the contributions of disparity between the groups and disparities within the groups to overall inequality, while being the only indices [Cowell, 2000] where the weighting coefficients always sum to unity.

We chose to use the Theil index in our study since we are particularly interested in the economic aspects and importance of disparities and not so much in the solely distributional dimension. Furthermore we prefer an equal weighting of the whole income distribution. Both speak for income share weights and thereby the use of the regular Theil index.

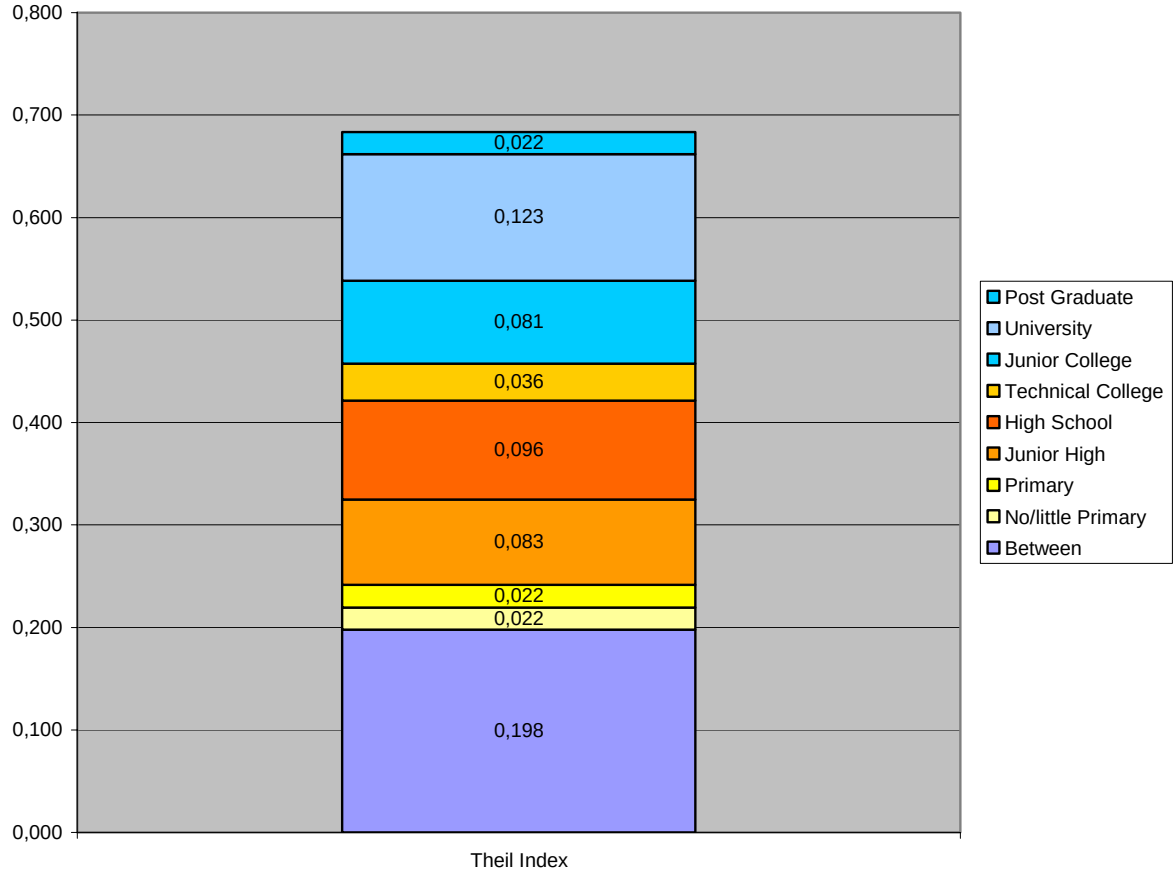
The decomposition of the Theil Index is as follows [Bourguignon 1979; Cowell 1980; Shorroks 1980]:

$$T = \sum s_g T_g + \sum s_g \ln\frac{\mu_g}{\mu_y}, \ \ with \ \ s_g = \frac{n_g\mu_g}{n\mu_y}$$

The total inequality is then composed of the first term which describes the income share weighted inequality within each of the g subgroups, and the second term which captures the inequality between the different subgroups. The variable μ_g is the mean income in subgroup g and s_g the share of total income of subgroup g. This decomposition allows us to have a more detailed look at the driving forces of inequality in a population. It gives a deeper insight and more detailed facts about the phenomenon of disparity between and within different groups.

We then apply this to our Shenzhen dataset and using the different education levels as groups. We choose education levels as groups since in developed countries human capital is in general regarded to be the most important discriminatory factor [Tanzi 1998]. For our dataset

we calculate a between group Theil of 0.198 and a within group Theil of 0.486. It becomes from these results that a large part of the income inequalities can not be explained by different endowments with human capital alone. Other discriminatory factors seem to have a large influence on the income distribution.



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The impact of the various discrimination factors on income

To be able to quantify the impact and importance of the various discriminatory factors we employ a regression analysis. We start with the simplest form of the regression model and augment our equation stepwise to illustrate the importance of the various factors. For our analysis we employ the standard Mincer-Becker [Mincer (1958, 1962, 1974), Becker (1962) or Becker and Chiswick (1966) and Chiswick (2006)] Equation to estimate the returns to education and judge the impact of other discriminatory factors on personal income. We use the age of the individuals and its squared value[2] as proxies for the potential experience and it

[2]The additional use of its squared value in traditional Mincer type estimations of the earnings function captures the mentioned decreasing returns over lifetime.

should be noted that the impact of these variables can be expected to be lower than in the original Mincer Equation as described in Harmon et al. (2005). Although econometric problems as discussed by Griliches (1977), Murphy and Welch (1990) or Card (2001) may occur when estimating returns to education, Lemieux (2006) argues that the Mincer equation generally remains valid and robust for the estimation of educational effects on earnings. As Card (1999) points out the estimation of the causal effect of education on earnings using the traditional method faces only a small upward (ability) bias compared to identical twin studies and Psacharopoulos and Patrinos (2002) concede that these findings are on average very similar to the ones presented in their world wide compilation and state that the method of estimation makes little difference on the returns to education. To correct for the heteroskedasticity in the dataset due to an increase in the variance in earnings with an increase in the age of the individuals we employ White-corrected standard errors.

Starting point of the analysis is the standard Mincer equation. We use it as a Reference Point for the quality of our augmented Mincer model:

$$\ln y_i = \alpha + \beta_1 Age + \beta_2 Age^2 + \beta_3 \ln workingtime + \beta_4 low + \beta_5 \sec + \beta_6 high + \epsilon_i \qquad \text{(model 1)}$$

On the left side of our estimation equation is the logarithm of the yearly income. On the right side we start with the constant followed by the standard mincerian variables, namely the age of the individual and its squared value, yearly working hours and dummy variables for completed school levels. The dummy variables *low, sec* and *high* represent the corresponding completed education levels and are equivalent to an average amount of 6.0, 10.5 and 16.6 school years.

To be able to quantify the effect of other discriminatory more social norm and attitude dependant factors we add further *X* variables to the basic mincer regression. They are a set of variables with a suspected influence on the personal income which are:

The *rural* dummy; it is true if the individual has a rural hukou registration status. Interrelated with this status is the *stay* variable which gives us the amount of years the migrant is staying in Shenzhen as of now. The *male, married and commi* dummies are true if the individual is a male, married or a member of the communist party. If the individual received his job through a friend or relative the *friendjob* dummy is true. This is done to analyse if some kind of social networking provides a benefit in the job matching process leading to a higher income in the end. If the person lives in one of the districts of Shenzhen which became a special economic zone in 1980 the *sez* dummy is true. The *infedu* dummy variable does not capture any social norm based determinants but is nevertheless included here because it is not part of the standard Mincer equation. It is another way of taking informal experience into account and is true if the individual received any kind of informal education like on the job training or privately financed informal education etc. The same remains true of the *variable job_changes.* It represents the number of times an individual already had to or voluntarily changed his job. Also included is the *stateshare* which is true if the company is owned or partly owned by the government. The suspected high impact of the rural dummy leads us to add an interaction term for rural registration status and schooling levels since the results for both groups may be very different. *Lowrural, secrural* and *highrural* represent the interaction terms of the rural dummy and the specific completed education level. This leads us to the following estimation equation (model 3):

$$\ln y_i = \alpha + \beta_1 Age + \beta_2 Age^2 + \beta_3 \ln workingtime + \beta_4 low + \beta_5 lowrural + \beta_6 \sec + \beta_7 \sec rural + \beta_8 high + \beta_9 highrural + \beta_n X_n + \epsilon_i \quad \text{(model 3)}$$

To be able to compare the explanatory quality of our augmented Mincer model to a basic version without any explanatory variables accounting for social norms and attitudes and policy measures (model 1) we calculated the Akaike information criterion for both classes of models as well as for the full model without interaction terms (model 2). After it became evident that the interaction terms for the low and secondary education level were highly insignificant we removed them from our model and we received the following results:

	model1			model2			model3		
	b	Sig. Level	SE	b	Sig. Level	SE	b	Sig. Level	SE
Age	0.124	(***)	(0.016)	0.060	(***)	(0.017)	0.061	(***)	(0.017)
agesq	-0.001	(***)	(0.000)	-0.001	(***)	(0.000)	-0.001	(***)	(0.000)
low	0.022	()	(0.110)	-0.032	()	(0.087)	-0.031	()	(0.087)
sec	0.668	(***)	(0.101)	0.259	(**)	(0.081)	0.252	(**)	(0.081)
high	1.914	(***)	(0.105)	1.082	(***)	(0.099)	1.033	(***)	(0.104)
lnworkingtime	0.105	()	(0.064)	0.186	(**)	(0.059)	0.185	(**)	(0.059)
male				0.408	(***)	(0.036)	0.408	(***)	(0.036)
infedu				0.168	(**)	(0.054)	0.171	(**)	(0.054)
commi				0.157	(*)	(0.071)	0.160	(*)	(0.071)
sez				0.158	(***)	(0.038)	0.165	(***)	(0.039)
job_changes				-0.030	(**)	(0.011)	-0.030	(**)	(0.011)
married				0.359	(***)	(0.065)	0.359	(***)	(0.065)
friendjob				-0.158	(***)	(0.044)	-0.162	(***)	(0.044)
stateshare				0.077	()	(0.111)	0.077	()	(0.109)
stay				0.022	(***)	(0.003)	0.022	(***)	(0.003)
rural				-0.622	(***)	(0.052)	-0.656	(***)	(0.057)
highrural							0.275	(*)	(0.134)
_cons	5.970	(***)	(0.598)	6.732	(***)	(0.545)	6.746	(***)	(0.547)
rmse	0.861			0.756			0.755		
N	1891.000			1879.000			1879.000		
r2_a	0.400			0.537			0.538		
aic	4808.527			4295.805			4293.386		

They differences between the basic model and the regression with variables capturing the other discriminatory variables are significant and the goodness of fit of the full model is better than for the simple one. This implies a huge impact of the other factors on the personal earnings situation. We also tested the block wise significance of all the variables in the vector *X*, and they proved to be significant at the 1% level. The interaction terms were also jointly significant at the 5% level but their individual high insignificance of the lowrural and highrural interaction terms lead us as mentioned to their removal from model 3. The R^2 of 53% shows a relatively high explanatory power for the full model.

From our results we calculated the marginal return to education for each year of education within the different schooling levels, for higher education we report the differing values for urban and rural registered people:

Method	**Sec**	**High**
Absolute return per level	25%	103% (urban) / 130% (rural)
Marginal return per year in education level	5,8%	13,7%(urban) / 18,9%(rural)

We furthermore employ the Oaxaca-Blinder [Oaxaca (1973) and Blinder (1973)] decomposition method to estimate the amount of discrimination by estimating the amount of income differences which is due to differences in the endowments and which can not be explained by differing endowments (thereby unexplained differences in returns) which is an estimate for the existing income discrimination.

We use the decomposition method on the full regression model to investigate the differences in returns and endowments for people with rural registration (*r)* and people with an urban registration (*u*). The general formula used for the decomposition is [Oaxaca and Ransom 1994]:

$$\bar{Y}_u - \bar{Y}_r = \left(\bar{X}_u - \bar{X}_r\right)\beta^* + \bar{X}_u\left(\hat{\beta}_u - \beta^*\right) + \bar{X}_r\left(\beta^* - \hat{\beta}_r\right)$$
$$with: \beta^* = \Omega\hat{\beta}_u + (I - \Omega)\hat{\beta}_r$$

For $\Omega = 0$ (taking the group *u* as reference category) this becomes:

$$\bar{Y}_u - \bar{Y}_r = \left(\bar{X}_u - \bar{X}_r\right)\hat{\beta}_r + \bar{X}_u\left(\hat{\beta}_u - \hat{\beta}_r\right)$$

Transforming the term yields:

$$\bar{Y}_u - \bar{Y}_r = \left(\bar{X}_u - \bar{X}_r\right)\frac{\left(\hat{\beta}_u + \hat{\beta}_r\right)}{2} + \frac{\left(\bar{X}_r + \bar{X}_u\right)}{2}\left(\hat{\beta}_u - \hat{\beta}_r\right)$$

The difference in mean income $\bar{Y}_u - \bar{Y}_r$ between rural *r* and urban *u* is explained by the difference in endowments (first term) and the difference in returns to those endowments (second term).

Omega	**Endowment**	**Return**
0	47%	52%
1	54%	45%

We get the following results: We calculate 52% for the returns and 47% for the endowments. This means that other things equal people with an urban registration have a 52% higher

income than people with a rural registration due to higher returns to the different factors and 47% more income due to higher endowments. This would imply an amount of income discrimination of 52% of the income differences between both groups. The respective values are 54% endowments and 45% returns if we change the reference group to the rural registered people $\Omega = 1$.

Education vs. Social Norms and Attitudes

All the social norm and policy oriented variables except the *stateshare* dummy prove to be significant. The direction of the impact on income of the social norm dependent variables is mixed. Frequent job changes and job provision by friends or relatives do have a negative impact; all other factors influence personal income in a positive way.
It is unclear if the impact of marriage is mostly due to traditional views or higher motivation and need as discussed above. Furthermore it can be seen that time of residence in Shenzhen for migrants has a positive impact on earnings, albeit a relatively small one which would support the thesis of assimilation. Also the membership in the communist party still seems to be of importance in determining income. But from the data we can also see that share of people with membership in the communist party in each education group drastically increases the higher the education group. Nearly half of the people with post graduate status are members of the party whilst only compromising 10% of the whole sample. The influence of help in job finding by relatives or friends is interestingly negative. In our sample the people with the highest mean income found their job through the newspaper or it was provided by the government which would speak for a rather efficient job market in which unofficial job provision practices seem to be not of much importance at least in the higher income areas.
People who reside in the districts which became a special economic zone in 1980 have a significantly higher income than people who do not as clearly indicated by the *sez* dummy variable. This would imply that the city districts which became a SEZ in 1980 show a significant impact of this policy measure on the personal income distribution of the individuals.
As to be expected from human capital theory, informal education has a positive influence but a rather small one compared to the higher formal education levels. This can be linked with the stated dependency of this informal education on real increases in the individual's productivity as observed by Xiao (2002).
The results for the different education levels are mixed. While secondary and higher education have a significant and large influence on the average earnings, primary education seems to be insignificant. The positive impact of education increases with the education level as observed i.e. by Zhang et. al. (2005) for urban China in general. The returns to formal education from the basic model come close to the estimates Zhang et.al. (2005) whereas they divide the educational levels into more groups and their latest observed year is 2001, so a direct comparison seems difficult. If the gender dummy is added to the simple equation like in their model our estimated returns to higher education appear significantly lower. The reason why only the return to higher education is affected is due to the fact that the relative amount of males who attained the education level rises significantly after secondary education in our sample. So the gender dummy reduces the overall return significantly at this level. In general the use of the full specification added a lot of explanatory power to the model and does point out that many other discriminatory factors besides human capital are still relevant for income determination in Shenzhen. Especially the coefficients for the rural interaction terms are very large.

Hukou discrimination

It becomes evident that people with a rural background receive lower returns for education. The rural dummy (absolute level effect) has a large influence on income. The interaction terms for people with a rural registration are insignificant except for higher education where the interaction effect is positive. This means that for people with a rural registration the incentive to complete higher education levels is large since differences diminish and it enables them to compensate a bit for the negative absolute effect. The higher the completed education level the lower the relative negative influence of the rural registration on the returns to education.
That primary education seems to be so unimportant would speak for a rather ineffective primary education. Primary education alone does not offer any positive return to education so the incentive to stay in the school system and complete more than just primary education seems evident. The decomposition analysis also supports the argument that there is significant discrimination of people with a rural registration. Only 47%-54% of the income differences are due to differing endowments the left over unexplained amount of income difference is an estimate of discrimination. Since we identified higher education as especially important for income determination and since the positive interaction term shows that the marginal return to higher education for rural people is higher than for urban registered ones encouraging rural people to attain higher education seems to be a very effective policy measure. It would narrow the gap caused by differing endowments and would decrease income differences in general. Further policy measures to reduce general discrimination would be needed to close the gap caused by the higher returns to their endowments for urban registered people.

Conclusion

The aim of our study was to estimate the amount of income/wage discrimination and inequalities in one of the most highly developed cities in mainland China to identify the importance of social norm and policy oriented discriminatory factors for income determination. The relative importance of these factors compared to human capital helps to identify the position in the transition process towards a market economy and allows to derive advice for policy measures.
We used an augmented Mincer-Becker equation to judge the relative impact of those factors on income and on the return to education. Furthermore an Oxaca-Blinder decomposition analysis was employed to estimate of the overall amount of discrimination between rural and urban registered inhabitants of Shenzhen.
The results of our estimation show that there exist social norm and policy oriented determinants apart from human capital which help explain the income differentials, inequality and earnings. Especially the rural interaction term for higher education and rural dummy - characterizing people which have a rural background (hukou) -, male and married dummies are significant with comparatively high impact on the income and add to the explanatory power of the model. Only higher education has a higher impact on earnings than any of those factors. It seems apparent that gender discrimination as well as the consequences of the hukou system are still very important in the determination of individual income and for the presence of high income disparities, also when education discrepancies are controlled for, even in one of the most developed urban centres of China. This shows that this urban centre has not fully completed the transition process towards a market economy concerning the influence of market forces on income. It becomes clear that higher education has an equalizing effect on

the present income discrimination of people with a rural registration due a positive interaction term. The decomposition analysis stresses the problem of discrimination and shows nearly half of the income differences are due to discrimination. A policy to reduce both discrimination and enlarge the endowments (especially with human capital) of people with a rural registration is needed to reduce income inequalities. A very effective way appears to be to encourage people with a rural hukou to complete higher education levels.

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