

City-Biased Economic Policies, Urbanization, and Urban - Rural Market Segmentation in China

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1. Introduction

Since the introduction of market reform in the late 1970s China has had the fastest-growing major economy for the past 30 years with an average annual GDP growth rate above 10%. In tandem with the rapid developments, however, China's market has maintained many of the dual features for a prolonged period. Among the dual features, spatial separation of urban and rural markets is, if not the only, a main form and its disadvantages have been gradually affecting the long-term economic development of China. A large literature has been analyzing the patterns of market behavior between urban and rural regions and attempting to draw conclusions from that behavior about the nature of the underlying market. In particular, many analysts have attempted to draw conclusions about the degree of market segmentation and the causes for it.

Dual Characteristics between urban and rural markets have been analyzed in a variety of contexts. Earliest documents about dual market problems date from the development theories since the 1950s. In 1954, Lewis developed a basic analytical framework of dualistic development (Lewis W.A., 1954). Although Lewis did not define the traditional (subsistence) and modern (capitalist) sectors as specific occupations, the former is often identified empirically as agricultural and the latter as the industrial sector, which marked the beginning study of dual urban-rural markets.

China adopted the economic strategy of giving priority to heavy industry since the foundation of the new country in 1949. The leading agricultural sector remained somewhat subservient to heavy industry and acted mainly as a source of funds for industry, which strengthened the dual characteristic in industrial aspects (Bhalla A. S. & Yue Ma, 1990 Ravi Kanbur, Xiaobo Zhang ,2005). The concept of dual urban -rural markets has been mainly examined in market demand factors, such as income disparity (Siang, Yew-Kwang, 2000) and labor segmentation (John Knight, Linda Yueh, 2009), which in turns restricts product markets, thus contributing to unexploited increasing returns to scale (Belton M. Fleisher, Xiaojun Wang, 2004). It has been suggested, for example, that market disparity between urban and rural is a

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fundamental problem facing China.

Determinants for the distinction between urban and rural markets have aroused the attention of numerous researches. Besides the transportation cost, lack of market competition, lack of market information, enforcement difficulties of contracts, lack of credit, and even lack of infrastructure for trade would all give rise to inefficiency in the development of urban and rural markets (Awudu Abdula 2000, Boselie and Weatherspoon 2003). The free mobility of factors for trading requires the guarantee of a corresponding institutional system. The relationship between urban and rural areas in developing countries is that urban people use their urban preferential political power, so that the resources of society flow into their own interests. The results not only make the poor poorer, but also cause inequality within rural areas (Lipton, Michael, 1984). The immature of the rural market mechanism is worse in developing countries, including lagging behind health, education and other infrastructure facilities in rural areas.

There are two problems within the aforementioned researches on the study of urban-rural market segmentation. Firstly, system research on urban and market segmentation is weak. Existing related literature focused only partially, such as dual labor markets, or dual financial markets on the case of urban-rural market segmentation. Few scholars explore Chinese urban-rural market segmentation from the perspective of commodity markets as a whole, not to say an explicit measurement of the degree of it. Secondly, the relationship between urbanization, city-biased economic policies and urban-rural market segmentation are not clear. Although some studies concerned with the city preference's effect on urban-rural market segmentation, seldom brought forth systematic research on city-oriented policy from institutional economics, let alone an empirical study. In this paper, we will use the relative price method to measure the degree of urban-rural market segmentation, and we will also construct a model to study the relationship between urbanization, city-biased policy and urban-rural market segmentation.

In this paper, we adopt the comparative price method to measure the degree of urban-rural market segmentation and construct a data set of 24 years between 1983 and 2007¹. By using these data, we study not only the overall time trends but also the determinants of urban-rural market segmentation in China. The results show that for a long time, the urban-rural market has increasingly become more integrated. But segmentation always exists between urban and rural markets, mainly because the implementation of urbanization and a series of city-biased economic policies.

The remainder of the paper is organized as follows. In Section 2, we discuss the theories of dual economic structure in more detail and develop hypotheses based on them. In Section 3, we choose the reasonable variables and construct a model to test various hypotheses discussed above. Descriptive statistics of key variables are offered and compared with some of the findings in the

¹ The reform of Household Contract Responsibility System in the early 1980s marks the real beginning of reform, from which the gap between urban and rural areas was beginning to arise and gradually expand, thus, the data will begin from 1983. What's more, considering the availability of the data, the data continue only to 2007.

existing literature. Section 4 presents econometric testing of the hypotheses and assesses the relevance of various theories in the context of China. The paper concludes with Section 5.

2. Theories and Hypothesis

According to the theory of dual economic structure, unlimited labor supply will provide labor resources for the development of a city, and the dual economic structure, at last, will vanish away when the urban sector absorbs all the surplus labor in agriculture (Lewis, 1954). If surplus rural labor can not freely shift to urban markets, then the economic structure will turn into a segmented one. In general, there is free mobility of surplus labor between agricultural and industrial sectors, the degree of mobility, however, depends on the severity of related economic policies. Therefore, economic policies of restricting free mobility of surplus labor will bring about a segmented urban-rural market.

Since the foundation of People's Republic of China in 1949, the State has been carrying out an economic strategy of giving priority to the development of industry due to underdeveloped economic and deficiency employment opportunities. To ensure the development of city areas and guarantee enough employment, a series of policies restricting the regular flow of the labors have formulated, through both direct administrative regulations (such as the household registration system) and related policies. These regulations and policies have three characteristics: planned, isolated and city biased. This kind of isolated and city-biased economic polices has increased the income gap, sacrificed the interest of agriculture, rural areas and farmers, broadened the market demand disparity, and thus formed a dual market structure between urban and rural areas.

Under the current system, there are mainly three city-biased policies that restrict free shift of rural surplus labor: household registration policy (or 'hukou' policy), social security policy and employment policy. In the household registration system, each resident has to register with the local government as either an agricultural hukou or a nonagricultural hukou, in which people with agricultural hukou in rural areas are strictly restricted to change to nonagricultural hukou except studying or joining the army. Although the hukou system have been being relaxed to some extent since the reform in the late 1980s, the change of nonagricultural registry still do not open substantially for farmers with agricultural hukou. The household registration policy is an indispensable factor for disparity between urban and rural markets. In the disequilibrium social security system, urban residents with agricultural hukou share much more allocation of resources and benefits in the process of economic development. The social security system brings about remarkable real and expected income disparity between urban and rural residents by different social welfare, social insurance, and social medical insurance policy. Most of all, it is important to note that the social security system works out based on the household registration system, together with which the social security system separates the market into two different parts, and indirectly discourages the willingness of working in urban markets for rural surplus labor due to surplus farmers without nonagricultural hukou are precluded from the social security system.

The employment policy separates urban and rural markets as well, but its effects on the free mobility of surplus farm labor are much less than the two systems discussed above because China has implemented a so-called centralized placement employment system in its early period and most of its people were employed in the public ownership sector. The degree of disparity in employment, to a large extent, depends on the intensity of the household registration system as well. Urban sectors must first consider non-farm hukou holders for employment. As a result of these compulsory restrictions, surplus labor cannot flow freely, and the segmentation between urban and rural market is increasingly enhanced. We thus summarize our above discussion with the following hypothesis.

Hypothesis 1. The household registration system strictly controls the free flow of labor, and it plays a positive role in the gap between urban and rural markets.

Hypothesis 2. Employment policy expands the disparity between urban and rural markets by excluding farmers from the employment system.

Hypothesis 3. Social security policy is negatively correlated to the segmentation between urban and rural markets.

City-biased economic policies include two parts: the compulsory one that restricts the free shift of surplus farm labor and the inductive one that guides the flow direction of capital, and technology. Besides the policy of restricting the free shift of surplus farm labor discussed above, city preferential policies that induce the flow of market factors (such as capital, technology etc.) also influence the degree of urban-rural market segmentation. The first one is the power of government market intervention. It should be pointed out that local governments play an important role in the economic development of China, the more fiscal power the local governments have, the more likely the government will intervene in markets. Especially since fiscal decentralization has been introduced in the 1980s', which allows the local governments to retain a percentage of the revenue collected, and therefore, provides them with a strong incentive to invest more in their industries in the urban market. This is because local governments rely on their local industries for tax revenue. In addition, industries offer more stable employment opportunity for the local people who are crucial for economically developed economies and for social stability in transition economies (Bai et al., 2000). To ensure a solid tax base, and a high employment rate, the faster the economy developed, the greater the economic intervention the government would involve in and the more city preferred market investment it would adopt as a result. The second is economic reform and opening up policy. Inframarginal analysis of new classical economics have explained the formation of the dual economic structure from the social division of labor and trade efficiency in globalization, and pointed out that the division of labor and specialization change transaction efficiency, thus changing the dual economic structure (Sachs et al., 2000). The third is the difference of infrastructure construction development between urban and rural markets. City preferential infrastructure development policy would lead to a better commercial facility for urban markets, and thus broaden the gap between urban and rural

markets. Therefore, we hypothesize that,

Hypothesis 4. Government market interventions will lead more resources to agglomerate in urban areas and increase the disparity of urban and rural markets.

Hypothesis 5. Economic reform and the opening up policy positively correlate to the urban-rural market segmentation.

Hypothesis 6. A better infrastructure system will shrink the gap between urban and rural markets.

City-biased economic policy plays an important role in segmented urban-rural markets. The relationship between urbanization and markets is a main concern in development economics and has received considerable attention in the study of economic structure's restructuring and transition. As early as Lewis (1954) put forward the theory of dual economic structure, he realized the importance of urbanization for elimination of a dual economy structure. In the Lewis transition, the small urban modern sector absorbs a vast supply of low-skilled labor from the large traditional agricultural sector in order to grow out of backwardness and to move on to a higher level of modernization (Lewis 1954, Todaro 1969). The process of absorbing low-skilled labor is exactly the so-called urbanization. Urbanization promotes the development of the modern industrial urban sector, accelerates the shifts of surplus farmer population, and guides the evolution of an industrial structure until the dual structure economy eventually becomes integrated. The development path of early developed countries has proved this point. Thus, we have,

Hypothesis 7. urbanization negatively correlates to the market segmentation of rural-urban markets.

Besides urbanization and city-biased economic policies, non-policy determinants also work on the formation of urban-rural market segmentation. One important non-policy factor that we must not overlook when we study segmentation of regional markets is trading distance. Internal merchandise trading distances explain the urban-rural market segmentation from the geographical aspects. The farther away a market is, the higher transportation costs it will have, and the greater segmentation it will have. This is especially true in China, in which 55.06% of its rural population lives in its 74.5%² national area, most of which are mountainous areas. Thus, we have

Hypothesis 8. Trading Distance will broaden the market segmentation between urban and rural markets.

² Data are come from China Statistical Yearbook of 2007 and China City Statistical Yearbook of 2007.

3. Data and Measurement

In this section, we first discuss how to construct a measure of market segmentation. In particular, we discuss the time trend of urban-rural market segmentation in China. Then we define and measure other variables that will be used for testing those hypotheses discussed in the previous section.

3.1 Measurement of urban-rural market segmentation

One way to analyze the degree of market integration is to quantify the interregional trade (Naughton B. 1999). This approach is widely adopted for studying division of labor and specialization in the global economy. Compared with trade among different countries, data on interregional trade within a country are difficult to collect (Chong-En Bai, Yingjuan Du, 2004). To avoid the defect of interregional trade methods and given that prices are often the only available data, many economists study market segmentation by analyzing co-movement of prices. Parsley and Wei (1996, 2001) studied the change of relative price variance $Var(p_i / p_j)$, and pointed out that if $Var(p_i / p_j)$ was decreasing along the time, the relative price's fluctuation was decreasing at the same time, and the two markets were becoming more integrated; if not, the other side holds. We follow the model proposed by Parsley and Wei (1996, 2001) and measure the rates of market segmentation by comparing the convergence trend of price difference between urban and rural markets, and it is defined as

$$SEG_{urt} = Var \left| \Delta \ln(P_{ut}^k / P_{rt}^k) \right|$$

Where P_{ut} is the retail price index of province k 's urban market in year t , and P_{rt} is the retail price index of province k 's rural market in year t ³. Based on the law of one price (LOP)⁴, the trend of the variance will run the full gamut, from fairly high, to nearly zero (David C. Parsley and Shang Jin Wei, 1996). If SEG_{urt} is greater than 0, then urban market u has a higher price than that of rural market r , and thus segmentation exists between them. To calculate $var(P_i / P_j)$ there are two ways: one is to sum up variance of (P_i / P_j) between different years when fixing time t and goods k ; the other is to sum up variance of (P_i / P_j) between different goods by fixing time and fixing year. The former get a cross-section data but sacrifices the time dimension and loses data's dynamic characteristics (multi-year time series can only figure out one variance), while the latter one, can get a time series data of the variance which is convenient for us to observe the trend and degree of market segmentation over time. Following Parsley and Wei, we choose the latter method, but what is different from them is we use different provinces but not

³ The sample includes 25 provinces, and autonomous regions of China. For missing data, Hainan and Tibet are not included in the sample. Four municipalities (Beijing, Tianjin, Shanghai, and Chongqing) are also excluded from it since they are cities and do not have the data of rural markets.

⁴ The law of one price is an economic law and it means that all identical goods must have only one price in an efficient market.

goods as a basic data for variance since the provincial data are more useful for regional analysis. Specifically, measuring the degree of urban-rural market segmentation includes four steps: Firstly, we sum the logarithm $Q_{urt}^k = \ln(p_{ut}^k / p_{rt}^k)$ of retail price index between urban and rural areas in province k of year t ; Secondly, in considering a retail index is a chain index⁵, use a different form of ΔQ_{urt}^k to construct the index of market segmentation since a different form of grid chain retail index could be used; Thirdly, use the absolute value of relative prices $|\Delta Q_{ur}^k|$ to represent a different form, because of which could eliminate the reverse change between places i and j when the numerator and denominator change its position mutually. At last, calculate $Var|\Delta Q_{urt}|$ between urban and rural over 25 provinces in year t , and get the nation wide variance of $\ln(p_{ut} / p_{rt})$ between urban and rural market in each year. As the variance is too small, we expand the data here to 100 times.

As described above, the degree of urban-rural market segmentation is calculated using retail price indices of the 25 provinces and autonomous regions over the period of 1983–2007. The data are collected from the China Economic Information Network (CEINET). Fig.1 shows the time trend of average price variance across 25 provinces or autonomous regions in China. As shown in Fig.1, the variance is gradually decreasing, which means that China’s urban-rural market is getting increasingly integrated. The trend of integration, however, was not quite smooth and it showed some relatively sharp fluctuations in certain years. In 1983, the price variance across the country was 0.0079, it rose up quickly and reached to 0.0461 in 1986, but it went down sharply in the next three years, and it went up again in 1989. After experiencing a long time of fluctuation, the degree of market segmentation rose to its peak in 1993, and then experienced its troughs in 1998, since then it went into a stable period. The change tendency clearly indicates that: Firstly, over the 24-year period of 1983–2007, markets between urban and rural in China have improved quite substantially; Secondly, the improvement, however, was not very smooth, which means some external factors have influenced the trend.

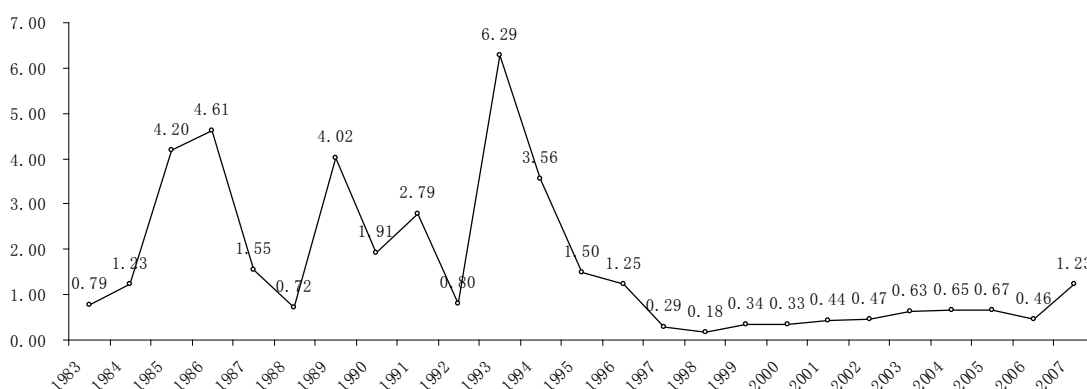


Fig 1 Time trend of average price variance of province

⁵ (statistics) An index number derived by relating the value at any given period to the value in the previous period rather than to a fixed base.

3.2 City- biased economic policy

As hypothesis in section 2, city- biased economic policies that affect the degree of urban-rural market segmentation have two parts: compulsory city-biased policies of restricting the free shift of surplus farmer labor; and inductive city preferential policies of guiding the flow direction of capital, technology. Next we will turn to the challenge of finding variables for testing the hypotheses of city- biased economic policy from those two sides respectively.

To test the hypothesis of first part city-biased economic policies, we have three variables required to measure: Household registration policy (or Hukou policy), employment policy and social security policy. About household registration policy, we have difficulty in finding direct data to measure this system, but mechanical population is usually used as an alternative way of measuring the degree of the household registration system (Lu & Chen, 2004). Mechanical population is the net population of inflows and outflows in a country or a region during a fixed period of time (usually one year). Household registration policy is a system of limiting the free flow of its population, thus, it is conceivable that the less the mechanical growth of population, the stricter the household registration would be. The degree of household registration policy is defined as the proportion of increased mechanical population to total increased population, in which increased mechanical population is obtained by subtracting natural growth population from total population growth. Data on the number of natural growth rate and total population are obtained from the *China Statistical Yearbook* for 1983–2007.

To test the hypothesis of employment policy, we use variable of EMPL, the ratio of rural employment in township and village enterprises (TVEs) to total rural employment, to measure it. Before the 1980s, a centralized labor allocation employment policy was carried out, and the strict control of free flow of labor seriously segmented the urban and rural market employment system. Over the past 30 years since the introduction of reform and opening-up, especially the introduction of the household contract responsibility system since, the policy of unified job assignment has been gradually, of its own accord, stepped down from the history stage. With the vanishing of centralized labor allocation, a lot of surplus labor has been released from the agriculture sector and flown to non-agricultural industries in rural areas or non-state-owned industries in urban areas for seeking more working opportunities. In the early 1980s, the agricultural surplus labor flocked to township and village enterprises (TVEs), and marked the beginning of the transformation from agriculture to rural non-farm sectors. In the late 1980s, due to non-agricultural sectors in rural areas not being able to absorb completely the growing number of surplus labor released from the agriculture sector, a large number of the rural labor force began to move into urban areas to seek employment opportunities. This made the employment scale of rural labor force in non-agricultural and non-state-owned industries expand greatly. Thus the rural employment rate in TVEs of non-agricultural industries, private enterprises and self-employed individuals of non-state-owned industries could be a precise index to measure the hypothesis of employment policy. Because of lacking the rural employment data in the private and individual sectors prior to 1990, we will use the rate of TVEs only. The number of rural employment persons in TVEs and its total employment persons is collected from the *China Statistical Yearbook*.

The social security system will be measured by SOSE, the operating costs of civil affairs. Since there are no precise data about social security expenditure on urban and rural areas respectively, we will define this variable by the operating costs of civil affairs. Although not equal to the real development of social security, operating costs of civil affairs can partly reflect the development trend of the social security system. Data on operating costs of civil affairs are collected from the *China Civil Affairs Statistic Yearbook* for 1983–2007.

With respect to the hypothesis of inductive city-biased economic policies that guide the flow direction of capital, technology and city, there are three variables to measure as well. To test the government intervention in the market we use the proportion of local fiscal expenditures to GDP. Although we cannot isolate clearly the data of how much the proportion of local expenditure for urban economic development was, but we could suspect that the local government must adopt city-oriented economic policy in industry since it can return higher output than agriculture. As a result, the higher the proportion of local government fiscal expenditure in GDP, the more city biased the policy will be, and the higher the gap between urban and rural markets. To test the hypothesis that urban-rural market segmentation is characterized by open economic policy, we use foreign direct investment (FDI) to measure it. To see its position in the economy of a country, we use the proportion of FDI to GDP. Besides the two policies discussed above, the amount of government investment on infrastructure facilities (INST) also plays an important role on the process of market segmentation. The infrastructure facilities for a market are the prerequisite for the development of a market. Since lacking data on the rural market infrastructure facilities, we will use the rural mail delivery routes to measure it indirectly. Data on fiscal expenditure, GDP, FDI, and rural mail delivery routes for 1983–2007 will be collected from the *China Statistical Yearbook*.

3.3 Urbanization

Urbanization has always been measured by the ratio of urban residents in the total population. We will also use this way to measure hypothesis 8. Data on population are collected from the China Statistical Yearbook. As a typical socialist developing country, China has been urbanizing at a pace and in a manner unparalleled in its economic period t. In 1983, the urbanization rate was only 21.62%.

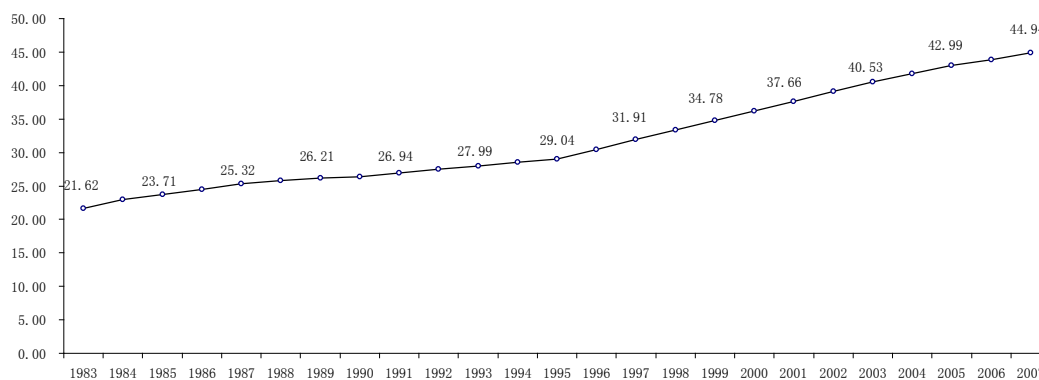


Fig. 2 Time trend of urbanization (%)

More than 20 years later, the rate of urbanization has embarked on rapid growth in the reform epoch. According to official statistics, urban population growth from 1983 to 2007 was on average at 4 to 5% per year and the urbanization rate increased by nearly 1% annually. By 2008 the urban population had increased to 606.67 million, amounting to 45.68% of the total population. As shown in Fig.2, China's urbanization trend could be divided into two sub-processes. The first one is the period of stable increase from 1983 to 1994. Dual-track is the main characteristic of this period, which combines the growth of spontaneous, rural-based town growth with state-authorized and metropolitan-based growth. One of these two tracks, known as rural urbanization, is mainly driven by the growth of township and village enterprises. During the 1980s and much of the 1990s, township and village enterprises generated one-third of the country's GDP, contributed 40% of the country's exports, and provided over 90% of rural non-agricultural employment⁶. The second sub-process is the period of rapid growth starting from 1996 to the present. In 2007, the urbanization grew to 44.94%, and increased 54.8% compared to that in 1995. In this period, government adopted a series of policies to accelerate the process of urbanization. A lot of people flocked to cities with the relaxation of some polices and the increase of job opportunities. The dual-track of rural-to-urban migration of this period changed into the mobility through government channels and the one through individual preferences without official permission.

3.4 Distance

Distance between two markets has been extensively researched in the theory of international trade. Generally speaking, geographical distance is usually measured by circle air distance (in km) between countries or cities. However, Geographical distance is not precise enough in this way, for neglecting the economic importance of different regions. To solve the problem, John F. Helliwell and Geneviève Verdier (2001) improved on earlier efforts by taking a more complete account of the distribution of population within each province or country. They treated each province as a single rural area with a number of cities located within it, and took the population density of the remaining rural population to be evenly distributed. Following their method, we will also measure the trade distance between rural and urban markets by weighting population. The trade distance from urban to rural area in each province is computed as follows:

$$d_{ur} = \left(\sum_{i=1}^n d_{uri} p_{ui} p_{ri} \right) / \left(\sum_{i=1}^n p_{ui} p_{ri} \right)$$

Where d_{uri} is the distance for urban and rural market in province i , it is defined as the square root of the surface of province i multiplied by a constant k ⁷, p_{ui} and p_{ri} is the population of

⁶ Data come from China Statistical Yearbook.

⁷ Constant k is the distance-to-width ratio of a province. According to John F. Helliwell and Geneviève Verdier (2001), which assumes that each province to be represented by a square, city is located in the centre of the square, and consumers are uniformly distributed within it, then, the ratio of the distance between any two points in a $c \times c$ grid could converge to a constant k . For city-to-outback, the distance-to-width ration converged to the constant $k = 0.38252$ for $c = 10,000$.

the urban market and rural market in province i respectively. In view of lacking data on urban and rural population in each province, we will use agricultural and non-agricultural population as a substitute. Data on the number of agricultural and non-agricultural population are obtained for the 25 provinces from the *China Statistical Yearbook*. Data on the surface of each province are collected from the official website of each province.

4. Model and Regression Analysis

In this section, we will carry out econometric tests of our hypotheses. As discussed in Sections 3, time series data for 24 years (1983–2007) have been constructed for the following variables: degree of market segmentation (SEG), employment policy (EMPI), social security policy (SOSE), government market intervention (GOV), economic open policy (OPEN), infrastructure construction (INST), urbanization (URBA) and trading distance (DIST). Using these data, we estimate how market segmentation of urban-rural market in China is determined by the remaining variables in the data set, that is, we use the following structure:

$$SEG_{ur} = \alpha + \sum_{i=1}^n \beta_i \chi_i + \delta URBA + \theta DIST + \xi_i$$

In what, χ_i means the city-biased economic policies including compulsory one that restricts the free shift of surplus farm labor and the inductive one that guides the flow direction of capital, technology. β_i is the coefficient of city-biased policy and market segmentation. Then α is the constant, and the variable of URBA is the urbanization, DIST is the trading distance. ξ_i is the error of other factors that are not included in this equation.

Using Eviews 6, we come to the following results as table 1, model 1 is the regression model of city-biased economic policies, model 2 is the regression model included urbanization, and model 3 is the total regression model included economic policies and non economic policy variables.

As shown in table 1, the goodness of fit of the model is high with an adjusted R square of 0.7148 for model 1, 0.8174 for model 2, and 0.8568 for model 3, indication that the model's variables together explain more than 71.5, 81.7 and 85.7 percent of the total variance of the degree of urban-rural market segmentation, respectively. The results show that the independent variables included in this analysis are major determinants of urban-rural market disintegration in China.

Table 1. Estimation of Eq. (1)

Variable	1	2	3
HUKO	0.0035 (0.2935)	-0.2255 (0.2446)	-0.4594 (0.3178)
EMPL	0.1277 (0.1056)	0.1795* (0.0859)	0.2542** (0.1075)
SOSE	-0.0225*** (0.0042)	0.0370* (0.0182)	0.0542** (0.0235)
GOV	0.0169*** (0.0031)	0.0184*** (0.0025)	0.0195*** (0.0027)
OPEN	0.1162*** (0.0213)	0.0990*** (0.0178)	0.0900*** (0.0193)
INST	-0.5758** (0.2035)	-0.5858*** (0.1628)	-0.6241*** (0.1649)
URBA		-0.0102** (0.0031)	-0.0143*** (0.0047)
DIST			0.1416 (0.1243)
C	8.5276*** (3.0373)	8.7025*** (2.4304)	9.5578*** (2.5236)
R square	0.7861	0.8707	0.8804
Adjusted R-square	0.7148	0.8174	0.8206
F-value	11.0231	16.3515	14.7207
DW	1.9610	2.7799	2.4929

Note: ***, **, and * denote 1, 5, and 10 % significant level, respectively.
The numbers in the parentheses are the standard errors.

On the whole, city-biased economic policies do exert a significant influence on urban-rural market segmentation. Except for household registration, all other compulsory city-biased policies correlate to the dependent variable. The coefficient of EMPL is positive in both model 2 and model 3, and it is significant at the level of 10% and 5% respectively. The coefficient of SOSE is positive and statistically significant at the level of employment policy is 10% and 5%. These results strongly support Hypotheses 2 and 3, and suggest that the city-biased employment system and social security system will block the way of narrowing the gap between urban and rural markets. Inductive city-biased economic policies of guiding the flow direction of capital, and technology are also correlated to the urban-rural market segmentation. The coefficient of GOV and OPEN are always positive and statistically significant at the 1% level. The coefficient of INST is significant at the 5%, 1% and 1% level repetitively, and it negatively affects the dependent variable. Thus, hypotheses 4, 5 and 6 are supported respectively, and it implies that government market intervention power and the opening policy have stronger incentives to adopt city preferential policies and separate the urban and rural market as a result while the infrastructure construction, as a whole, is conducive for shrinking the degree of urban-rural market segmentation.

The coefficient of URBA is negative and statistically significant at the level of 5% and 1% in models 2 and 3 respectively. The result strongly supports the Hypothesis 7 and implies that urbanization is conducive to narrowing the gap between urban and rural markets.

Meanwhile, HUKO and DIST are not significant at the level of 10%, Hypotheses 1 and 8 are disapproved, and they imply that both household registration policy and trading distance are not the cause for the market disparity between urban and rural markets.

The results of the standardized estimates in the multiple regressions indicate that the construction of infrastructure facilities is the greatest determinant for the urban-rural market segmentation. The employment policy also has relatively high influence on the degree of segmentation. The government market intervention and urbanization, however, have less power of influence.

In summary, the results from estimating various determinants of the degree of urban-rural market segmentation are remarkably consistent. They support our hypotheses that the degree of urban-rural market disparity is significantly affected by city-biased economic policies and urbanization. The findings support the argument that the introduction of compulsory city preferential policies and the inductive city preferential policies, including employment policy, social security policy, government market intervention and economic open policy, have significantly aggravated the urban-rural market disintegration. Infrastructure construction, on the contrary, is good for narrowing the urban-rural market gap. On the urbanization side, the results also offer strong positive support to the relationship between urbanization and urban-rural market integration. Household registration policy and distance, however, have not been proven, which suggests that they are not the main factors accounting for the urban-rural market segmentation in China.

5. Conclusion

Economic and social development requires an integrated urban-rural market, and the integration of an urban-rural market, practically, calls for a democratic institutional environment and a fair policy system. In this paper, we construct a model over a period of 25 years (1983–2008) to investigate the determinants of market segmentation in China's urban and rural areas, and find that city-biased policies and urbanization significantly explain the reason for urban-rural market segmentation.

Firstly, city-biased economic policies are an important reason for urban-rural market segmentation. Except for the household registration system, all the other city-biased variables are significant in the model. Employment and the social security system restrict the free flow of surplus farm labor. Government intervention and open policy leading to more investment in urban markets, all of this policy, combined together, brought about a dual market structure between urban and rural market. The rural mail delivery routes, greatly affect the degree of urban-rural market segmentation. As no comparative data are available in urban areas for lacking of official statistical records, the role of rural mail delivery routes, though over-valuing to some extent, can still reflect the fact that infrastructure construction is a main factor for the disparity between urban and rural markets. In a word, as a feasible solution to reap urban market benefit on the one hand and to sacrifice interest of rural markets on the other, economic policies that have been adopted during the past 30 years could be called a 'city-biased' approach, which incorporated many exclusionary policies and caused the segmentation between urban and rural markets.

Secondly, the degree of urban-rural market segmentation is increasingly lower with the implementation of urbanization. Urbanization is conducive to the integration of dual urban rural

markets; this result is consistent with the opinion of development economics. What is inconsistent with other literature is the degree of influence. In this paper, we find that the influence of urbanization on narrowing the market gap between urban and rural markets is far less than that of city-biased economic policies in both model 2 and model 3. The results provide a certification that the urbanization, implemented presently, is not effective enough to get rid of market segmentation between urban and rural markets.

In addition, the household registration policy in the city-biased economic policy system is not significant. On the one hand, household registration policy is loosened since the 1980s, and its affect, to a large extent, transfers into an informal way which is invisible for us to measure. Since the 1980s, the government of China reformed its grain and oil supply system which strictly limits the rural labor move to the urban markets for employment, and its household registration system. The restrictions on the movement of peasants to the cities have been loosened. Numerous farmers started to flow into cities. Although the free flow of labor is possible, there are still policy and system obstacles. Farm laborers in urban markets not only are discriminated against in the work place, but also in political, economic, educational and cultural areas, most of which are caused by an unfair household registration system, and could be called institutional discrimination. In the Chinese context, this kind of institutional discrimination involves a designed but ironic process of rural-to-urban migration where rural dwellers are allowed to leave their farming life but are excluded from a formal socioeconomic niche in cities. As a result, they have to flow between the blurred rural–urban divide, and the numbers are thus hard to collect.

Although city-based policy is an important determinant of rural-urban market disparity, there has been no systematic empirical study on this issue in the literature. This paper enriches the literature on issues of urban-rural markets and the relationship between city-biased economic policies and urban-rural market segmentation, as well as between urbanization and urban-rural market disintegration. Thus, the result of this paper has a significant theoretical contribution to the theory of dual economic structure. Despite the evidence for the existence of urban-rural market segmentation and the role of city-biased economic policies and urbanization on it, the result of this research is limited in its way of measuring the market trend by relative price, which practices have drawn considerable criticism, and requires further research.

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