Consumer Service Industry Agglomeration, Income Level and Skill Premium

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Abstract. This paper empirically tests the influence of consumer service industry agglomeration on the income level and skill premium of Chinese workers by using the survey data of Chinese residents' income. It is found that the agglomeration of consumer service industry has a significant role in promoting the overall income level of residents in China, but it has an additional effect on the income level of skilled workers, which increases the skill premium. The agglomeration of consumer service industry can only significantly improve the income level of labor earners and produce the effect of skill premium in labor earners. The agglomeration of consumer service industry has significantly increased the income level and skill premium of coastal workers than that of inland areas. For this, should encourage laborer to coastal big city collect.

Introduction

In recent years, the service industry has become the industry that accounts for the largest proportion of GDP in China's national economy and attracts the largest number of employees. Among these services, producer services develop relatively rapidly while consumer services lag behind. However, the consumer service industry covers a wide range of areas, involving all aspects of people's lives, such as commodity retail, household management, travel and entertainment. It is of great significance to develop consumer services.

By referring to the experience and lessons of the development of manufacturing industry, it is found that industrial agglomeration is the necessary stage and effective mode of its development. Therefore, it is necessary to deepen the research on the agglomeration of consumer service industry, especially on the impact of the agglomeration of consumer service industry on the income of heterogeneous workers, which can provide beneficial references for the adjustment of industrial structure, the development layout of service industry and the accumulation of human capital.

Based on the data availability and research problems, and based on the classification criteria of national economy, this paper holds that consumer services include wholesale and retail, accommodation and catering, residential services and other services, culture, entertainment and sports.

Literature Review

At present, there are many academic studies on the influencing factors of the development of consumer service industry. For example, Li and Zhou (2017) concluded that the consumer service industry is gathering with people based on the provincial dynamic panel data.[1] Hao and Fu (2015) used the provincial panel data from 2004 to 2012 and concluded that the evolution of labor
technology endowment promoted the growth of living service industry through the productivity effect, but had little impact on the growth of modern consumer service industry.[2]

For agglomeration of research on the effects of wage income, the domestic existing wage differences in different areas of research study looks at different angles, such as Wang and Chen (2010) found that only within the industry agglomeration can significantly improve the level of wages, and between industry agglomeration has no marked impact on wages.[3] Yang (2013) used 269 prefecture-level and above cities from 2003 to 2010 as samples and used the systematic generalized moment estimation method, and found that manufacturing industry agglomeration had a negative impact on regional wages, while service industry agglomeration significantly increased regional wages.[4] By using CHIP micro-data, Chen and Bai demonstrated that the regional wage gap existed for a long period of time mainly due to the comprehensive influence of skills-biased technological progress and agglomeration effect. It is shown that the skills-biased technological progress increases the wage gap of laborers by acting on the high-skilled laborers, and the agglomeration effect helps to raise the wages of all laborers through the regional mobility of laborers, thus contributing to the formation of the regional wage gap.[5]

The Theoretical Analysis

Consumer service industry mainly provides final consumption service products to consumers.[6] Market demand is the main factor influencing the agglomeration of consumer service industry, and population size is the basic condition for forming market demand.[7] Therefore, consumer service industry is more likely to form agglomeration in regions with concentrated population. Therefore, the agglomeration of consumer services in cities represents the agglomeration of a large number of people to cities, which will have a great positive effect on labor productivity and resource utilization efficiency.

We all workers can be divided into two types: high and low skills, highly skilled workers can work in the high skill, can work in the low skills, low-skilled workers can only work in the low skills, the income level of two types of workers from their respective market supply and demand in the employee, the skill premium for the ratio of the two. [8]

Consumer service industry is characterized by the direct provision of services to consumers and is most closely related to the daily life of residents. It is a labor-intensive industry with low knowledge and technology requirements for employees and great absorption of low-skilled labor population. The agglomeration of consumer service industry is closely related to the employment and income of low-skilled workers.

The pool effect of the agglomeration of consumer services helps low-skilled workers to obtain employment information and find jobs in cities to boost their incomes.[9] The agglomeration of consumer service industry can increase the demand for low-skilled labor, the success rate of matching between enterprises and labor is higher, and the search cost is lower. Meanwhile, the labor sharing effect generated by agglomeration makes the production mode of enterprises more flexible, and low-skilled laborers have more employment opportunities, increasing the demand for low-skilled laborers.[10]

According to the perspective of new economic geography, the agglomeration of consumer service enterprises strengthens the communication among enterprises and improves the dynamic learning ability and innovation ability in the process of enterprise development, so as to improve the
production efficiency of enterprises, create higher profits and create the possibility for workers to obtain higher remuneration.

The agglomeration of consumer services will also promote the complementarity of high-skilled and low-skilled workers in the region, which will further refine the division of labor, so as to improve the production efficiency of high-skilled and low-skilled workers respectively, thus increasing the wage income of high-skilled and low-skilled workers respectively. The agglomeration of consumer service industry makes it more convenient for the outsourcing of household activities of highly skilled workers, liberating part of the productivity of highly skilled workers and thus increasing the remuneration of highly skilled workers. At the same time, the agglomeration of consumer services will increase the demand for services such as medical care, art and law while increasing the income of low-skilled workers, whose employees are mainly high-skilled labor.

The above analysis shows that the agglomeration of consumer service industry will not only increase the income of low-skilled workers, but also increase the wage income of high-skilled workers. When the wage increase of high-skilled workers is greater than that of low-skilled workers, the skill premium will be generated.

Model and Data

Based on the classic Mincer’s individual income equation (Mincer, 1974), this paper introduces the consumption service industry agglomeration, urban economic development level and other macro variables, and sets the econometric model as follows:

\[
\ln I_{ij} = \beta_0 + \beta_1 a_{ggloj} + \beta_2 a_{ggloj} \times h_{skillij} + \beta_3 \ln p_{cgdpj} + \beta_4 X_{ij} + \mu_i + \mu_j + \epsilon_{ij}
\]

\(I_{ij}\) represents the hourly income of individual workers in a city. \(a_{ggloj}\) represents the agglomeration level of consumer services in a city. \(a_{ggloj} \times h_{skillij}\) is the interaction term between the agglomeration of consumer services and highly skilled workers. \(p_{cgdpj}\) represents the per capita GDP of a city. \(X_{ij}\) stands for individual characteristic variables. \(\mu_i\) and \(\mu_j\) represent the industry fixed effect and the enterprise ownership fixed effect. Since location entropy can better eliminate regional scale differences and truly reflect the degree of agglomeration, location entropy is used to measure the degree of agglomeration of consumer services. \(a_{ggloj} = \left(\frac{c{s_j}}{x_{jt}}\right) / \left(\frac{c{s_T}}{x_T}\right)\), \(c{s_j}\) represents the number of jobs in consumer services in region j and in the country as a whole. \(x_{jt}\) and \(x_T\) represent the total employment in region j and the total employment in the country. We divided the sample into two categories according to the education level: those who received college degree or above were regarded as high-skilled workers and the value of \(h_{skillij}\) was 1; those with high school degree or less were regarded as low-skilled workers and the value of \(h_{skillij}\) was 0. The coefficient of the interaction term reflects the additional effect of trade liberalization on the income level of highly skilled workers, that is, the skill premium.

In this paper, male value is 1, female value is 0. The degree of education is measured by the length of schooling of the worker, and the expected estimation coefficient is positive. We value first marriage or remarriage at 1 and other marital status at 0. Work experience is measured by the number of years a worker has worked, and usually the more experience he has, the higher his salary. In this
paper, the value of party membership is 1, and that of non-party members is 0. In view of the fact that the income of laborers in different industry types and enterprise ownership types is often different, this paper also adds industry fixed effect and enterprise ownership fixed effect to the regression.

Table 1. Statistical description of the main variables.

| variable | Obs. | mean | Sd. | min  | max  |
|----------|------|------|-----|------|------|
| lnhwage  | 9612 | 2.614| .793| -3.743| 6.543|
| agglo    | 12279| 1.064| .761| .176 | 6.582|
| lngdpper | 12279| 10.914|.782 | 9.037| 13.056|
| age      | 13013| 38.893|11.597| 16   | 60   |
| age²     | 13013| 1647.13|882.645| 256  | 3600 |
| gender   | 13013| .522 | .5  | 0    | 1    |
| married  | 13005| .772 | .42 | 0    | 1    |
| Edu      | 12927| 11.584|3.218 | 0    | 26   |
| workyear | 9595 | 12.253|9.902 | 0    | 45   |
| polic    | 12897| .171 | .376| 0    | 1    |

**Empirical Results and Analysis**

**Agglomeration of Consumer Services Affects Income Level and Skill Premium: A Benchmark Estimate**

Table 2 shows the baseline estimates. The agglomeration of consumer service industry improves the income level of all workers in China as a whole. It not only increases the income level of low-skilled workers, but also increases the income level of high-skilled workers. The agglomeration of consumer service industry has an additional effect on the income level of high-skill workers compared with low-skill workers, contributing to the income premium between high-skill workers and low-skill workers. In order to further study the heterogeneity of "skill premium", we then verified the influence of consumer service industry agglomeration on the income level differences of different skill workers in terms of different types of income earners and regional classification on the basis of baseline regression.
Table 2. Baseline regression estimation results.

|                  | Hourly earnings (1) |
|------------------|---------------------|
| Agglo            | 0.0269**            |
|                  | (0.0115)            |
| Agglo * hskill   | 0.0760***           |
|                  | (0.0149)            |
| lnGdpper         | 0.222***            |
|                  | (0.00998)           |
| Gender           | 0.210***            |
|                  | (0.0159)            |
| Married          | 0.0611***           |
|                  | (0.0259)            |
| Politic          | 0.0791***           |
|                  | (0.0212)            |
| Edu              | 0.0481***           |
|                  | (0.00346)           |
| Age              | 0.0481***           |
|                  | (0.00696)           |
| Age²             | -0.000579***        |
|                  | (8.46e-05)          |
| Workyear         | 0.00974***          |
|                  | (0.000991)          |
| Constant         | -1.725***           |
|                  | (0.183)             |

Industry fixed effect | Yes
Enterprise ownership fixed effect | Yes
Observations | 8,724
R-squared | 0.257

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Agglomeration of Consumer Services Influences Income Level and Skill Premium: Estimates Based on Different Types and Regions of Income Earners

According to the CHIP classification method, those who are employed as employers or self-employed workers are regarded as capital earners, while those who are employed as employees or family helpers are regarded as labor earners.
According to the regression results in table 3, the following conclusions can be drawn: First, the agglomeration of consumer service industry significantly improves the income level of labor earners, but has a positive but insignificant impact on the income level of capital earners; Second, in the group of labor income earners, the agglomeration of consumer service industry widens the income gap between high and low skilled workers, while in the group of capital income earners, the agglomeration of consumer service industry has a positive but insignificant effect on the skill premium. This paper argues that the reason why the agglomeration of consumer services does not have a significant impact on the income and skill premium of capital earners is that capital earners face more and more complex impacts such as competition and cost.

In view of the great difference in consumption level between China's coastal and inland regions, the influence of consumer service industry agglomeration on income level and skill premium may vary among regions. Therefore, this paper divides the laborers' areas into coastal areas and inland areas and makes grouping regression.
### Table 4. Estimated results by region.

|                | Hourly earnings | Coastal areas | Inland areas |
|----------------|-----------------|---------------|--------------|
|                | (4)             | (5)           |              |
| Agglo          | 0.0541*         | 0.0472***     |              |
|                | (0.0305)        | (0.0134)      |              |
| Agglo * hskill | 0.146***        | 0.0422**      |              |
|                | (0.0289)        | (0.0176)      |              |
| lnGdpper       | 0.246***        | 0.0950***     |              |
|                | (0.0176)        | (0.0192)      |              |
| Gender         | 0.196***        | 0.222***      |              |
|                | (0.0233)        | (0.0215)      |              |
| Married        | 0.104***        | 0.0243        |              |
|                | (0.0388)        | (0.0343)      |              |
| Politic        | 0.142***        | 0.0311        |              |
|                | (0.0319)        | (0.0281)      |              |
| Edu            | 0.0456***       | 0.0471***     |              |
|                | (0.00543)       | (0.00451)     |              |
| Age            | 0.0547***       | 0.0481***     |              |
|                | (0.0103)        | (0.00932)     |              |
| Age²           | -0.000645***    | -0.000588***  |              |
|                | (0.000125)      | (0.000114)    |              |
| Workyear       | 0.00774***      | 0.0109***     |              |
|                | (0.00147)       | (0.00132)     |              |
| Constant       | -2.390***       | -0.205        |              |
|                | (0.295)         | (0.275)       |              |
| Industry fixed effect | Yes | Yes |              |
| Enterprise ownership fixed effect | Yes | Yes |              |
| Observations   | 3,763           | 4,961         |              |
| R-squared      | 0.320           | 0.198         |              |

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The estimated results in table 4 show that there is a significant difference in the influence of the agglomeration of consumer services on the skill premium in the two regions. The influence of the agglomeration of consumer services on the skill premium in the coastal regions is significantly greater than that in the inland regions.

#### Conclusions and Policy Implications

The main research conclusions are as follows: First, the agglomeration of consumer service industry has a significant promoting effect on the improvement of the overall income level of Chinese residents, but has an additional promoting effect on the income level of highly skilled workers, which increases the skill premium; Second, the agglomeration of consumer service industry can only significantly improve the income level of labor income earners, and only produce the effect of skill premium among labor income earners. Third, there is heterogeneity in the impact of consumer service industry agglomeration on the income of workers, which is manifested in that the increase of income level and skill premium of workers in coastal areas is significantly higher than that in inland areas.
The policy implications of the empirical study are as follows: first, vigorously develop the consumption service industry, promote the optimization and upgrading of the service industry structure, increase the proportion of resident income and consumption in GDP, and improve the agglomeration degree of consumer service industry; Second, the consumption service industry significantly increases the income level and skill premium of the coastal labor earners more than that of the inland areas. Therefore, workers should be encouraged to cluster in the coastal areas, especially high-skilled workers and low-skilled workers, so as to realize the virtuous circle of consumer service industry cluster, low-skilled workers’ income increase, labor productivity increase and high-skilled workers' income increase. Third, we should improve the education and training mechanism and attach importance to education input, so that low-skilled workers can improve their human capital through the improvement of their education level, thereby increasing the rate of return on labor, so as to control the income gap within a reasonable range.

References
[1] J.H. Li and L. Zhou, “Study On Influencing Factors Of Consumer Service Industry Agglomeration—Based On Provincial Dynamic Panel Data Analysis”[J]. Consumer Economy, 2017, 33(01):38-42+37.
[2] H.J. Hao and W.L. F, “The Technological Endowment of Labor and the Growth of Consumer Services—Empirical Evidence From China's Provincial Level” [J]. Finance Research, 2015, 26(02):35-43.
[3] H.N. Wang and Y.Y. Chen. “Study on the effect of industry aggregation and the difference of regional industrial resources” [J]. Economic evaluation Theory, 2010 (5): 72-81.
[4] R.F. Yang, “Industrial Agglomeration And Regional Wage Gap—Based On An Empirical Study Of 269 Cities In China ”[J]. Management World, 2013(08):41-52.
[5] Y. Chen and Z. Bai, “Skill—Biased Technological Progress, Labor Agglomeration Effect and Widening Regional Wage Gap'”[J]. China's Industrial Economy, 2018(09):79-97.
[6] S. Wang and J. Wang, “Service Industry Agglomeration, Industry Heterogeneity and Regional Economic Growth” [J]. Research on Financial Theory, 2018(06):49-56.
[7] C. Huang, “Trade Openness, Income Levels And Skill Premiums—A Test Based On Data From The China Household Income Survey”[J]. Journal of Liaoning University (Philosophy And Social Sciences Edition), 2019, 47(05):40-50.
[8] Y.Z. Liu and Y. Song, “Labor Heterogeneity, Skill Premium and Middle-Income Trap” [J]. China Science and Technology Forum, 2019(06):172-178.
[9] Abdel-Rahman, H. and Fujita, M. (1990), “Product Variety, Marshallian Externalities, and City Sizes”. Journal of Regional Science, 30: 165-183.
[10] Glaeser, Edward L. and David C. Mare. "Cities and Skills," Journal of Labor Economics, 2001, v19 (2, Apr), 316-342.