Who Benefits from Domestic Market Integration?

Xin Fan Shan Jin Zeyu Chen*

Abstract

The historical integration of economic markets between and within nations has profoundly altered human society. Nonetheless, existing literature on this topic has seldom gone beyond the economic repercussions of this phenomenon. Accordingly, this study examines the relationship between domestic market integration and subjective well-being, of which very little is known. Taking China as a case, we match individual-level data from a longitudinal survey with province-level data to construct panel data and use the fixed effect model to estimate the welfare effect of market integration. Our studies suggest that market integration has a positive effect on welfare overall, contributing to approximately 11.4% of the rise in life satisfaction among Chinese residents from 2010 to 2018. In addition, we found that low-income populations had a relatively large increase in subjective well-being, which implies that market integration is a significant mechanism of redistribution and contributes to reduced happiness inequality. We also discuss the different effects of goods, labor, and capital markets, which are further impacted by heterogeneity in China's household registration (hukou) system and labor skills. Our findings emphasize the broader importance of reduced market segmentation and are of relevance to policymakers and stakeholders involved in economic reform.

Keywords Market integration · Subjective well-being · Welfare effect · Redistribution effect

JEL Classification D60 · F15 · I31 · O53 · P36 · R12

1 Introduction

In the past few decades, China's economy has witnessed an average annual growth rate of 9.2%, leading to a per capita GDP of more than 10,000 US dollars and the emergence of the so-called "China Miracle". This economic triumph has been attributed to a series of market-oriented reforms that have been implemented in the country. However, despite these efforts, China still faces challenges in establishing a fully integrated domestic market due to its ongoing transition towards a socialist market economy system (Tombe & Zhu, 2019). The free trade of goods and the unhindered flow of production factors across the country remain facing impediments. Specifically, Chinese local governments have been the major contributors to interregional market segmentation. In China, local governments are incentivized to prioritize economic growth and fiscal revenue (Che & Qian, 1998; Li & Zhou, 2005; Oi, 1992), leading to the implementation of varying levels of local protectionism strategies (Bai et al., 2004; Tao et al., 2010). In recent decades, the Chinese government has reformed the fiscal decentralization system (Shen et al., 2012), the judicial system (Liu et al., 2022), the household registration system (Tombe & Zhu, 2019), and many other aspects in order to reduce the institutional factors that hinder market integration.

* Xin Fan: National Center for Political Economy of Socialism with Chinese Characteristics and School of Economics, Renmin University of China. Shan Jin: School of Economics, Renmin University of China. Zeyu Chen (corresponding author): School of Economics, Renmin University of China; rucczy@ruc.edu.cn.

Market-oriented reform and the gradually integrated domestic market are becoming increasingly important to social life and economic development, and have greatly changed China's demographics, economic growth, and the well-being of the population. According to the "World Happiness Report" issued by the United Nations, China's world happiness ranking rose from 92nd in 2010 to 52nd in 2020. In addition to China, an increasing number of nations have adopted the objective of attaining elevated levels of national subjective well-being, propelling a flourishing of research on this topic.

Not just in China, the past two centuries have witnessed a dramatic integration of markets across and within nations. In this context, there is extensive literature that illustrates the positive economic consequences of market integration, including lower prices and better accessibility of goods (De Loecker et al., 2016; Samuelson, 1962), improved productivity of enterprises (Melitz, 2003), better mobility for factors of productions to seek higher returns (Clemens, 2011), smaller regional income gap (Dorn & Zweimüller, 2021), cleaner production methods (Lai et al., 2021), etc. However, it is also necessary to explore the impact of market integration on subjective well-being. Since Easterlin (1974, 1995) first put forward the argument that people's subjective well-being does not necessarily increase with economic growth, there has been growing awareness that purely economic measures cannot be used to fully reflect welfare (Diener & Seligman, 2004). The impact of market integration—whether economic or non-economic—is multifaceted, and thus far there has been no comprehensive assessment of its effect on welfare.[1]

To address this gap in the current literature, this study introduces findings from China's domestic market integration. We use the relative-price method to calculate the annual market integration level for each province and match the measures with samples from a longitudinal survey to conduct a panel data analysis. The results reveal that market integration has an overall positive effect on subjective well-being. Based on this estimation, the average life satisfaction score of residents (scaled from 1 to 5) increases by 0.084 when the measure of market integration increases by 100%. We also find a significant redistribution effect of market integration on subjective well-being (i.e., low-income populations experience more improvement in subjective well-being). In addition, this study investigates the effects of the goods, labor market, and capital markets separately under a unified empirical framework. We find that both positive welfare effects and redistribution effects exist in the three markets, but vary in magnitude. Thus, this study also contributes to the discussion on the varying effects of different markets' integration (Caliendo et al., 2021; Donaldson, 2015; Gourinchas & Jeanne, 2006; Jensen & Miller, 2018). Finally, we discuss the heterogeneity of hukou (a system of household registration in China) and labor skills.

The remainder of this paper is organized as follows. Section 2 provides the institutional background for China's domestic market segmentation. Section 3 introduces the empirical framework of this study. Section 4 discusses the overall effects of market integration. Section 5 presents heterogeneity analyses aimed at identifying the beneficiaries of market integration. Section 6 concludes.

[1] Some studies have employed quantitative trade models to evaluate the welfare effects (e.g., Atkin & Donaldson, 2015; Caliendo et al., 2021; Caliendo & Parro, 2015). This technique begins from assuming a particular utility function (usually a function of some economic variables, particularly real income) for residents, and then solves the general equilibrium through multi-sector optimization. By analyzing the changes in utility at equilibrium resulting from changes in certain exogenous parameters that symbolize the extent of market segmentation, these studies quantitatively discuss the welfare effect of market integration. Nevertheless, due to the fact that these assumed utility functions include only economic variables, the analysis of quantitative trade models can only capture one aspect of the welfare effects of market integration.

2 Institutional Background

Along with the social division of labor, the market was born as an important place for the exchange of goods and production factors. However, imperfect market conditions create numerous segmented and narrowed marketplaces, both between and within countries. Market segmentation can arise from natural phenomena, such as geographical distance, or from institutional variations in different market and culture systems. With advancements in transportation and communication technologies, market segmentation caused by natural reasons has become less important (Xu & Yang, 2021), while institutional market segmentation has also been reduced due to gradual improvements in institutional arrangements (Xing & Whalley, 2014). The degree of market segmentation is the result of the combined influence of natural and institutional factors which, historically speaking, have varied across different countries and economic development periods. In China, which has been transitioning from a planned economy to a market economy, an imperfect institutional arrangement becomes a key factor in creating domestic market segmentation. Under institutions that are politically centralized but economically decentralized, local governments in China always artificially lead to market segmentation and interregional uncooperative strategies for the sake of their own interests, which is particularly pronounced among provinces (Poncet, 2005; Tombe & Zhu, 2019).

More than 40 years after the Reform and Opening-up,[2] China has made significant progress in improving its economic decentralization system, particularly through the reform of the fiscal system. In the 1980s, China introduced the fiscal contracting system aimed at making localities fiscally self-sufficient to provide incentives to local governments to promote economic growth (Oi, 1992).[3] However, with greater fiscal autonomy, local governments were also encouraged to protect subordinated enterprises from competition and collude with them to hide profits through extra-budgetary accounts (Che & Qian, 1998), consequently shifting fiscal deficits to the central government. In response, the central government introduced the tax-share reform in 1994 to mitigate this trend, establishing a unified tax system and allocating a larger share of fiscal revenue to the central government.[4] Since then, the fiscal revenue and public responsibilities of local governments have become disproportionate, leading to enormous fiscal pressure on them (Wu et al., 2015). In 2021, the additional fiscal deficit of local governments has reached about 1.4 trillion US dollars and has grown at an average rate of 6.85% over the past five years. As a result, local governments have been forced to use their administrative power to protect local businesses[5] and engage in intense

[2] Reform and Opening-up refers to the series of economic policies introduced by the Chinese government since 1978 to carry out economic reforms and enhance the accessibility of international markets. These policies have facilitated China's transition from a planned economic system to a socialist market economic system and have contributed to the establishment of formal institutions.

[3] In 1980, the fiscal contracting system—requiring the central and local government each to "eat in separate kitchens"—replaced the highly centralized fiscal system. Under this system, the central government established rules for the division of fiscal revenue into "within-budget revenue" and "extra-budgetary revenue", with only the former being required to submit a portion to the government with higher administrative level. This arrangement allowed local governments to come to an agreement in advanced on the amount of fiscal revenue to be submitted to their higher administration, and anything excess could be retained (Shen et al., 2012). This gave them increasing autonomy in arranging local expenditure, which greatly increased the incentives to develop local economies.

[4] The tax-share reform divided the taxes into three categories: central taxes, local taxes, and shared taxes. Among the three major taxes (value-added tax, business tax, and enterprise income tax), value-added tax was a shared tax, with 75% allocated to the central government. Initially, enterprise income tax was a local tax, however, the central government reclaimed 50% of it in 2002, and further increased its share to 60% in 2003 (Tao et al., 2010).

[5] The drug market in China is a relevant example. According to Eberhardt et al. (2016), the vague definition of

regional competition to attract private investments to expand their tax bases (Tao et al., 2010). To obtain more fiscal revenue, local governments tended to invest in and shelter industries with higher profit margins, leading to the homogenization of industries across regions (Bai et al., 2004). This trend has resulted in China losing the high efficiency that the regional division of labor based on comparative advantages and endowments could bring.

In recent years, the central government has intensified fiscal reform to synchronize the impact of administrative power on different industries, regions, and economic agents. For example, the "replacement of business tax with value-added tax" in 2016, the unification of business income tax rates for domestic and foreign enterprises in 2018, and the mergence of state tax bureaus and local tax bureaus in 2018. Moreover, the central government has begun to emphasize not using GDP as the only indicator for local officials' performance assessments,[6] and has sought to encourage interregional collaboration through the construction of urban agglomerations. These initiatives help weaken uncooperative behavior among local governments due to GDP competition, which boosts interregional market integration.

A complete market system consists of goods markets and factor markets. On the one hand, China has almost achieved an integrated goods market, owing to the improvement of transportation and information infrastructures, as well as the introduction of market unification policies. On the other hand, despite a protracted reform process, factor market segmentation among regions persists, impeding the flow of production factors.[7] This is mainly due to the absence of a platform for standardized factor trading information and other market-specific institutional problems. Information platform is improving along with a more formalized system,[8] while market-specific institutional impediments—such as labor and capital restrictions—have become an increasingly pressing focus for reforms.

First, the hukou system is a key cause of labor restrictions.[9] It is a household registration system that was initially designed to regulate rural-to-urban migration so that urban residents are guaranteed employment and welfare. However, restrictions on labor mobility have led to severe urban-rural segmentation (Chan & Zhang, 1999). Although hukou restrictions were gradually lessened from around the early 1980s,[10] the reform has not been thorough enough, and rural migrates still suffer from hukou-based discrimination in wages and public services (Dulleck et al., 2020; Ma et al., 2020).[11] Second, capital restrictions have been gradually decreased, with the

"illegal" allows the local Food and Drug administration to selectively interpret rules, thereby providing protection to local drug producers while exposing nonlocal ones.

[6] In 2013, the Third Plenary Session of the 18th Central Committee adopted several key decisions pertaining to the comprehensive deepening of reform, including the call for an improvement in the evaluation system so that development results and political performance were not solely based on the economic growth rates.

[7] Labor mobility is a poignant example. According to Zipf's law, the population of the largest city is i times that of the i-th largest city. Unlike most Asian countries, China's large cities are smaller than what Zipf's law predicts, suggesting an inadequate inflow of people (Li & Lu, 2021).

[8] For example, in March 2020 the central government released the "Opinions of the State Council of the Central Committee of the Communist Party of China on Building a More Perfect Institutional Mechanism for Market-Oriented Allocation of Factors" (hereinafter referred to as the 2020 Opinions), which gave specific guidelines on the market-oriented allocation of land, capital, labor, technology, data, and other factors.

[9] For a more detailed description of the Hukou system in China, see Bosker et al. (2012) and Song (2014).

[10] The 2020 Opinion advocated for the relaxation of household registration restrictions, except in certain mega cities, and the implementation of a system based on permanent residence for household registration.

[11] For instance, the basic health insurance system offered by the Chinese government comprises of Urban Employee Basic Medical Insurance (UEBMI) for the employed in the urban areas, Urban Resident Basic Medical Insurance (URBMI) for urban residents not covered by the UEBMI, and New Rural Cooperative Medical Scheme (NCMS) for rural residents. Rural-urban migrants are eligible for NCMS at their hometown, however, owing to the inadequate of healthcare resources in urban areas, they are required to seek pre-approval or reimbursement in their hometowns instead of at city healthcare facilities. This process is cumbersome and results in insufficient protection at their

continuous improvement of the fiscal decentralization system and the reduced control over trans-regional investment. Since the 1990s, China has progressively established two major stock exchanges (Shanghai and Shenzhen), financial regulators, and several stock market segments. This provides an initial framework for a multi-level capital market. However, compared with mature capital markets in developed countries, the basic system in China is still imperfect, and interest rates and exchange rates are not fully market-oriented, resulting in capital market segmentation.

3 Empirical Framework

3.1 Methodology

To examine the welfare effects of recent market integration in China, we investigate the relationship between subjective well-being and market integration and use interactions and subsamples to reflect group heterogeneity. The model is as follows:

$$SWB_{i,p,t} = \alpha + \beta^{MI} Int_{p,t} + \gamma' M_{p,t} + \delta' X_{i,t} + \eta_i + \xi_t + \lambda_p + intv + \varepsilon_{i,p,t}, \quad (1)$$

where $SWB_{i,p,t}$ represents the self-reported subjective well-being of resident i living in province p in survey wave t. We slightly abuse the notation and let $Int_{p,t}$ stand for either the market integration level of province p at time t or its logarithm, depending on the specification. $M_{p,t}$ is a vector of province-level control variables referring to potentially confounding social-economic factors and $X_{i,t}$ denotes individual-level characteristics that may affect subjective well-being. We also control individual fixed effects η_i, time fixed effects ξ_t, province fixed effects λ_p, and interviewer-wave interactive fixed effects $intv$.[12] $\varepsilon_{i,p,t}$ is the error term. Although the measure of subjective well-being in our study is an ordinal variable, we use OLS regression to estimate the marginal effects of market integration (Ferrer-i-Carbonell & Frijters, 2004). For each specification, we report the standard errors of the key explanatory variables clustered at the province-wave, county, and province levels, respectively. Our results are explained mainly based on the standard errors clustered at the province-wave level.[13]

3.2 Data and Variables

3.2.1 Sources of Data

Individual-level data were obtained from the China Family Panel Studies (CFPS), a biennial longitudinal survey administered by the Institute of Social Science Survey (ISSS) of Peking University.[14] CFPS is a nationally representative survey that captures Chinese households'

current place of residence and employment (Ma et al., 2020).

[12] An interviewers' traits may affect respondents' answer (Stefkovics & Sik, 2022). To avoid any measurement bias resulting from the "interviewer effect", we control the interview-wave interactive fixed effects referring Biermann et al. (2022).

[13] As market segmentation is much more pronounced between provinces (Tombe & Zhu, 2019), it is reasonable to expect the ties within provinces may be much stronger than across them, providing a natural way of clustering at a high level of aggregation. However, it should be noted that for all specifications, the number of clusters by province is not more than 30, which may incorrectly estimate the standard errors (Bertrand et al., 2004; MacKinnon et al., 2023). Therefore, we interpret our estimation results mainly based on the standard errors clustered at province-wave level, and provide the standard errors clustered at province level and county level as robustness checks.

[14] Data of the CFPS are available at http://www.isss.pku.edu.cn/cfps/en/index.htm.

economic and non-economic welfare and is widely used in happiness studies in China (Nie et al., 2017).

We also used province-level variables. The price indices used in the construction of the market integration measures were from the National Bureau of Statistics of China. All other data were acquired from the Statistical Yearbook of each province. All province-level variables were matched according to where individuals lived and when they were surveyed. To construct balanced panel data, we retained only respondents who were surveyed in all five waves. The final sample consisted of 16970 respondents from 30 provinces, municipalities, and autonomous regions.[15]

3.2.2 Measurement of Subjective Well-being

Our main proxy of subjective well-being is life satisfaction derived from respondents' answers to the question "Please rate the following questions according to your situation (the lowest score is 1 and the highest score is 5). […] How satisfied are you with your life? (1 = very dissatisfied to 5 = very satisfied)". The histogram in Fig. 1 shows the distribution of life satisfaction scores in each wave of the survey: most residents scored 3 or above; since the 2014 survey, more than half scored 4 or 5, and in the 2018 survey, the percentage of residents scoring 5 reached the highest. Thus, the subjective attitudes of Chinese residents toward life were quite positive. We also illustrate the means, standard deviations, and Gini coefficients of life satisfaction across the five waves. Generally, the mean exhibits an increasing trend, indicating the overall well-being of Chinese residents continued to improve. In addition, two measures of happiness inequality, the standard deviation and the Gini coefficient,[16] demonstrate a downward trend, suggesting that the happiness inequality among Chinese residents is shrinking.

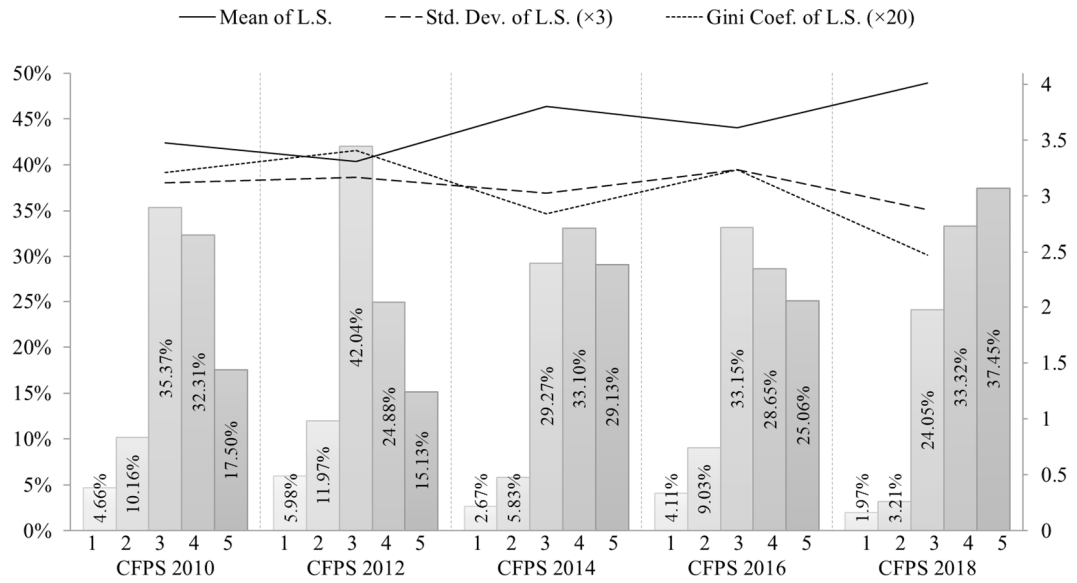

Fig. 1 Distribution and statistical characteristics of life satisfaction in each wave of the survey. Notes: For illustration purposes, we multiplied the standard deviation of life satisfaction by 3 and the Gini coefficient by 20.

[15] The CFPS surveys excluding Hong Kong, Macao, and Taiwan. In addition, we dropped the sample from the Tibet Autonomous Region due to the lack of price index data.

[16] The Gini coefficient is a common measure of inequality, however, Kalmijn and Veenhoven (2005) documents that Gini coefficient is not suitable for variables measuring "strength" (e.g., happiness). Therefore, we use the standard deviation, which is also frequently used, to portray happiness inequality as well. The two measures give similar results.

3.2.3 Measurement of Market Integration

The main explanatory variable in this study is the province-level degree of market integration. Current studies have primarily developed two fundamentally different perspectives for measuring this. The first is based on trade volumes and the gravity model, which assumes that inter-regional trade volumes reflect the degree of market integration (e.g., Barrell & Nahhas, 2020; Bergstrand et al., 2015; McCallum, 1995; Narayan & Nguyen, 2016; Poncet, 2003; Rose, 2000). For example, Rose (2000) finds a large positive effect of the currency union on international trade, which implies that it plays a large role in facilitating market integration.[17]

The second is based on price. The earliest method is based on the idea of "the law of one price" (e.g., Rogers & Jenkins, 1995; Shiue & Keller, 2007; Studer, 2008), which posits that if there is a high degree of market integration, arbitrage will drive common price fluctuations in different markets. However, this approach has been criticized for ignoring the existence of transaction costs. To remedy this deficiency, Parsley and Wei (1996, 2001) propose the relative-price method, which draws on the concept of "iceberg" costs (Samuelson, 1964). They argue that due to the existence of various types of transaction costs, the relative prices of goods in different regions are not equal to 1 but fluctuate within a range that satisfies the no-arbitrage condition. In other words, as the market gradually integrates, the transaction costs will decrease and the range of relative price fluctuations will be narrowed. Thus the degree of market integration can be reflected by the volatility of relative prices in a region. Following Parsley and Wei's seminal work, this method has been extensively used and further developed (e.g., Chen et al., 2022; Ke, 2015; Lai et al., 2021; Liu et al., 2019), and is now regarded as a mainstream method for measuring market segmentation and integration.[18]

Due to the limitations of trade-based methods, we use the relative-price method. We begin by constructing a measure of province-level goods market integration using eight categories of representative goods.[19] The calculation process was as follows: m and n represent different provinces, t represents different years, and k represents different categories of goods. First, we construct the fluctuation of the relative price of good k at time t between every two provinces $\Delta p_{m,n,k,t}$, that is:

$$\Delta p_{m,n,k,t} = \left|\ln\left(P_{m,k,t}/P_{m,k,t-1}\right) - \ln\left(P_{n,k,t}/P_{n,k,t-1}\right)\right|, \quad (2)$$

where $P_{m,k,t}$ is the real price of good k in the province m at time t and so on.[20]

---

[17] Despite their usefulness, trade-based methods are not without limitations, with some being quite critical. One such limitation is that the mapping between volume of trade and the degree of market integration is not necessarily monotonic. This is due to numerous factors that influence trade, and if not adequately controlled, can lead to misleading results, as noted by Xu (2002). Additionally, the heterogeneity of traded goods and residens' preferences can result in different changes in trade volume for various countries even with similar reductions in trade costs, making comparisons difficult to establish. Parsley and Wei (2001) illustrated that high substitutability between products of two regions can significantly reduce trade volume with even a small cost, while high complementarity results in minimal impact. Furthermore, scholars have acknowledged the existence of the "distance puzzle". Despite the significant advancements in transportation and communication technologies, standard gravity model have not found a notable reduction in the obstacles to trade resulting from geographic distance (for some discussion, see Coe et al. 2007, Disdier & Head 2008, Yilmazkuday 2017, etc.).

[18] In addition to trade-based methods and price-based methods, there are some other relatively uncommon measures not mentioned here, including the business cycle approach (Xu, 2002) and the specialized index method (Kim, 1995), etc.

[19] They are food; fresh vegetables; beverages, tobacco and alcohol; clothing, shoes and hats; Chinese and Western medicines; books, newspapers and magazines; daily necessities; and fuel.

[20] Indeed, the fluctuation of the relative price should be written as:

$$\Delta p_{m,n,k,t} = \left|\ln\left(P_{m,k,t}/P_{n,k,t}\right) - \ln\left(P_{m,k,t-1}/P_{n,k,t-1}\right)\right|.$$

Since we did not have the data of real price, we leveraged the properties of the logarithmic function to transform the equation into an equivalent form, resulting in equation (2). The term $P_{m,k,t}/P_{m,k,t-1}$ and $P_{n,k,t}/P_{n,k,t-1}$ derive

Second, because of the heteroskedasticity of the price fluctuations of different goods,[21] we standardize each $\Delta p_{m,n,k,t}$ by subtracting the cross-region average:

$$q_{m,n,k,t} = \Delta p_{m,n,k,t} - \overline{\Delta p_{k,t}}, \tag{3}$$

where $\overline{\Delta p_{k,t}} = \left(\sum_{m \neq n} \Delta p_{m,n,k,t}\right)/d$ and d denotes the total number of province pairs, which equals 435 (=30×29/2) in our studies.

Third, given certain m, k, and t, we calculate the variance of $q_{m,n,k,t}$ and denote it as $s_{m,k,t}$. According to the above explanation, $s_{m,k,t}$ reflect the transaction costs of good k in the province m at time t:

$$s_{m,k,t} = \sum\nolimits_n \left(q_{m,n,k,t} - \overline{q_{k,t}}\right)^2, \tag{4}$$

where $\overline{q_{k,t}} = \left(\sum_{m \neq n} q_{m,n,k,t}\right)/d$.

Fourth, we calculate the mean value of $s_{m,k,t}$ for eight categories of goods and subsequently take its inverse as a measure of the degree of goods market integration of province m at time t, that is,

$$GoodsInt_{m,t} = \left(\frac{\sum_k s_{m,k,t}}{8}\right)^{-1}. \tag{5}$$

In addition, using the same method, we use the average real wage indices of the three kinds of employed persons to construct measures $LaborInt_{m,t}$ for the degree of labor market integration and use the price indices for investment in 3 kinds of fixed assets to construct measures $CapitalInt_{m,t}$ for the degree of capital market integration.[22] Finally, to obtain an aggregation measure of all markets types for province m at time t, we compute the average of $GoodsInt_{m,t}$, $LaborInt_{m,t}$, and $CapitalInt_{m,t}$ as

$$Int_{m,t} = \frac{GoodsInt_{m,t} + LaborInt_{m,t} + CapitalInt_{m,t}}{3}. \tag{6}$$

Fig. 2 shows the average integration levels of the three markets and their aggregation. Although there are some ups and downs, they show an overall increasing trend, suggesting that the Chinese market is gradually integrating.

from the price indices.

[21] For example, Han et al. (1990) found that some exogenous shocks (e.g., monetary policy shock) could produce greater price fluctuation in agricultural products than industrial products.

[22] The 3 kinds of employed persons are those work in state-owned urban units, collective-owned urban units, and urban units with other types of ownership. The 3 kinds of fixed assets are construction and installation, equipment and instruments, and other fixed assets.

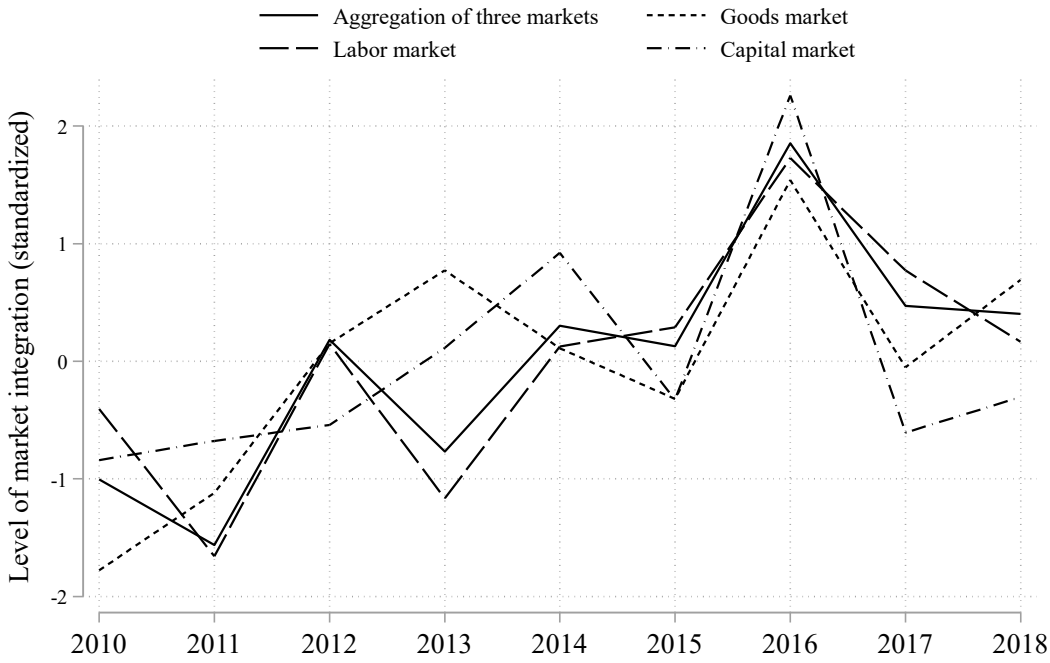

Fig. 2 Average level of standardized market integration across provinces in China from 2010 to 2018. Note: The average level is the simple average of the levels of 30 provinces. We standardize each market integration level across years because of the different magnitudes among these indexes.

3.2.4 Control Variables

Based on previous studies, we controlled three potential province-level confounders that are a determinant not only of the dependent variable but also of the main explanatory variable (Bartram, 2021). The first is the size of the local governments, which we measured as the ratio of general budget expenditure to the local GDP. Some studies have found a negative relationship between the size of local governments and happiness (Bjørnskov et al., 2007; Ott, 2005). Size is a reflection of the local governments' capacity (Besley & Persson, 2009, 2010), which in turn affects their ability to implement strategic protection. Second, we introduced the variable of transportation infrastructure as it influences people's commuting time. According to Stutzer and Frey (2008), people with longer commuting time report lower subjective well-being. In addition, transportation infrastructure may be used as an indicator of reducing market segmentation caused by topographic barriers (Donaldson, 2018; Faber, 2014). We used the ratio of total road, rail, and inland waterway mileage to the local area as a proxy for each province's transportation infrastructure. The last control is inflation, which we measured by the consumer price index (CPI). Inflation is known to be negatively associated with subjective well-being (Di Tella et al., 2001). We excluded the effect of overall inflation on the price indices used to construct the measure of market integration.

To improve the validity of the model, we controlled some individual characteristics, including household income, place of residence (urban or rural), hukou, marital status, housing situation, self-reported health status, work status, age, age squared, partisan, religion, gender, and educational attainment.[23] The definition and descriptive statistics of variables are reported in Table 1, and the

[23] Although these individual-level controls are usually included in happiness studies, it is important to note that some of them may be colliders (e.g., the household income, the work status, and the housing situation), which intervenes in the relationship between market integration and subjective well-being (Bartram, 2021). Adding these variables may lead to biased estimates of the main explanatory variables. Such concerns, however, will be alleviated in the following empirical analysis, as we find that the coefficients of the main explanatory variables vary little after

correlations of these variables are reported in Table S.1 of the complementary material.

Table 1 Variable definition and descriptive statistics.

Variable	Definition	Mean	Std. Dev.	Min.	Max.
A. Dependent variable					
SWB	Life satisfaction scaled from 1 (very dissatisfied) to 5 (very satisfied)	3.676	1.059	1	5
B. Main explanatory variables					
Int	Mean of the three market integration levels	0.068	0.026	0.002	0.126
GoodsInt	Goods market integration level calculated using the relative price volatility	0.062	0.025	0.015	0.126
LaborInt	Labor market integration level calculated using the relative price volatility	0.041	0.017	0.001	0.096
CapitalInt	Capital market integration level calculated using the relative price volatility	0.803	0.596	0.063	2.522
C. Province-level control variables		0.817	0.604	0.0633	2.346
Public	The ratio of general budget expenditure to the local GDP	2.211	0.951	0.957	6.278
Traffic	The ratio of total road, rail, and inland waterway mileage to the local area	1.079	0.559	0.095	2.513
Inflation	Consumer Price Index (CPI) minus 1	2.376	0.702	0.567	5.867
D. Individual-level control variables					
Urban	In urban areas: value of 1; o/w: value of 0	0.443	0.497	0	1
Hukou	Registration as non-agricultural hukou: value of 1; o/w: value of 0	0.263	0.440	0	1
Married	Married: value of 1; o/w: value of 0	0.868	0.338	0	1
House	Owing a house: value of 1; o/w: value of 0	0.911	0.285	0	1
Health	No physical discomfort in the past two weeks: value of 1; o/w: value of 0	0.679	0.467	0	1
Work	Employment: value of 1; o/w: value of 0	0.649	0.477	0	1
Income	Household annual income (thousand US dollars)	8.764	19.638	0	1626.828
Age	Age of the respondent	49.819	14.694	16	99
Education	Above college: value of 4; college: value of 3; senior high school/secondary school/technical school/vocational senior school: value of 2; junior high school: value of 1; primary school or unschooled: value of 0	0.735	0.928	0	4
Party	Party member: value of 1; o/w: value of 0	0.066	0.248	0	1
Religion	Having religious belief: value of 1; o/w: value of 0	0.020	0.140	0	1
Gender	Male: value of 1; o/w: value of 0	0.476	0.499	0	1

4 Overall Effects of Market Integration

Table 2 shows estimates of equation (1). Columns 1 to 3 present the most parsimonious specification, without including any controls. In column 1, the estimated coefficient of the market integration level is positive and is significant at less than 5%. Column 2 presents a similar model with the natural logarithm of the market integration level, where the results are similar but more precisely estimated as indicated by the F-statistics. Overall, the estimation suggests a positive association between

including individual-level controls.

market integration and residents' life satisfaction.

A better fit of the logarithm specification is again confirmed in column 3, where we include both the market integration level and its logarithm. Although collinearity between the two variables reduces the precision of the estimation, the logarithm variable continues to be positive and significant, while the market integration level becomes negative. This suggests that, if anything, a transformation more concave than the logarithm would be an even better fit for the data. This result likely reflects the fact that residents' life satisfaction improves even more significantly when the degree of market integration increases from a low initial level. These patterns motivated us to focus on the logarithm specification in the subsequent regressions. We graphically show the estimated fit of column 2 in Fig. 3.

In column 4, we add the province-level controls along with time, province, and interviewer-wave fixed effects to exclude confounding factors. The estimate of β^{MI} is positive and significant at 1%. In column 5, we also control for individual characteristics, and the results show little variation. In column 6, individual fixed effects are added to control for individual time-invariant factors. We find the estimate of β^{MI} decreases to 0.084 but is still significant at 5% (or 10% when using rigorous standard errors).[24] This result implies that when the measure of market integration increases by 100%, residents' life satisfaction scores increase by 0.084, overall. The linear fit is shown in Fig. S.1 and Fig. S.2 in the Supplementary Material.

To offer a more comprehensive understanding of the magnitude of the effect, we computed the mean market integration level weighted by the number of survey participants in each administrative region. The weighted mean increased from 0.04 in 2010 to 0.069 in 2018, indicating that market integration contributes to a 0.061 increase in the overall life satisfaction of the population during the examined period. Moreover, the average life satisfaction score of all participants increased by 0.533, from 3.478 in 2010 to 4.011 in 2018, with market integration accounting for approximately 11.4% of the improvement. In addition, significant disparities persist in the extent of market integration across Chinese provinces. In 2018, the market integration levels were recorded as 0.026 and 0.094 for the minimum and maximum, respectively. Therefore, if the province with the minimum market integration level were raised to the maximum level, the subjective well-being of its residents would increase by approximately 0.22. This increase in subjective well-being is equivalent to 41.3% of the increase in the average subjective well-being of Chinese residents from 2010 to 2018 (i.e., 0.533).

In addition, most of the control variables have a significant correlation with life satisfaction (column 5), which is generally in line with the results of previous studies.[25] First, smaller governments and improved transportation infrastructure were associated with higher subjective well-being. Second, we find a positive relationship between inflation and subjective well-being. This could potentially be attributed to China's average low and well-controlled inflation rate, which may instead have encouraged innovation and investment, thus boosting happiness. Third, being married, owning a house, remaining healthy, working, having a religious belief, and being a member of the Communist Party of China may help improve happiness, as well as a U-shaped relationship

[24] With including individual fixed effects, we find a noticeable decrease in the estimated coefficient, which raises concerns about whether our results are caused by selection effects of unobservables. In Table S.2 of the Supplementary Material, we use the strategy of Nunn and Wantchekon (2011) to discuss the potential selection effects from unobservables and we believe selective bias due to unobservables cannot overturn our findings.

[25] After adding individual fixed effects in column 6, some individual-level controls are no longer statistically significant, possibly due to the lack of variation over time (e.g., the partisan, the religion, and the educational attainment), but they still keep the same sign as in column 5.

between age and happiness. Finally, we observed differences in residents' life satisfaction based on household income and hukou, which inspired us to discuss heterogeneity across groups in the subsequent analysis. Naturally, it should be clarified that due to the endogeneity of the controls, these results primarily reflect correlations rather than causal effects.

Table 2 Overall effects of market integration.

	Dependent variable: life satisfaction					
	(1)	(2)	(3)	(4)	(5)	(6)
Int	2.003		-1.689			
	(0.930)		(1.973)			
	[0.313]		[0.947]			
	{0.571}		{1.421}			
Int (ln)		0.141	0.243	0.135	0.128	0.084
		(0.057)	(0.129)	(0.047)	(0.052)	(0.040)
		[0.021]	[0.062]	[0.041]	[0.043]	[0.049]
		{0.039}	{0.089}	{0.048}	{0.053}	{0.046}
Public				-0.170	-0.204	-0.226
				(0.079)	(0.083)	(0.076)
Traffic				0.862	0.995	0.554
				(0.504)	(0.488)	(0.535)
Inflation				0.091	0.085	0.108
				(0.053)	(0.052)	(0.040)
Urban					-0.050	-0.017
					(0.015)	(0.025)
Hukou					0.011	0.054
					(0.014)	(0.029)
Married					0.162	0.090
					(0.013)	(0.027)
House					0.092	0.037
					(0.017)	(0.018)
Health					0.211	0.062
					(0.011)	(0.011)
Work					0.029	0.027
					(0.010)	(0.012)
Income (ln)					0.094	0.035
					(0.006)	(0.005)
Age					-0.030	-0.032
					(0.002)	(0.021)
Age^2					0.039	0.045
					(0.002)	(0.006)
Party					0.165	0.010
					(0.015)	(0.035)
Religion					0.099	0.045
					(0.027)	(0.032)
Gender					-0.077	
					(0.008)	
Education						
Junior high school					-0.054	0.015
					(0.012)	(0.038)
Senior high school					-0.096	-0.031
					(0.019)	(0.050)
College					-0.046	-0.153

					(0.023)	(0.058)
Above college					-0.048	-0.131
					(0.082)	(0.180)
Constant	3.540	4.068	4.463	3.274	2.336	3.394
	(0.072)	(0.162)	(0.499)	(0.598)	(0.577)	(1.204)
Individual fixed effects	No	No	No	No	No	Yes
Time fixed effects	No	No	No	Yes	Yes	Yes
Province fixed effects	No	No	No	Yes	Yes	Yes
Interviewer-wave fixed effects	No	No	No	Yes	Yes	Yes
Observations	81489	81489	81489	81435	74295	74163
F	4.83	8.26				
Adj. R^2	0.002	0.003	0.003	0.114	0.148	0.344
Num. clusters (province-wave)	136	136	136	135	133	133
Num. clusters (county)	604	604	604	601	539	537
Num. clusters (province)	30	30	30	29	28	28

The reference group of education is primary school or unschooled. Standard errors clustered at the province-wave level are shown in parentheses, standard errors clustered by county are shown in brackets, and standard errors clustered by province are shown in curly brackets.

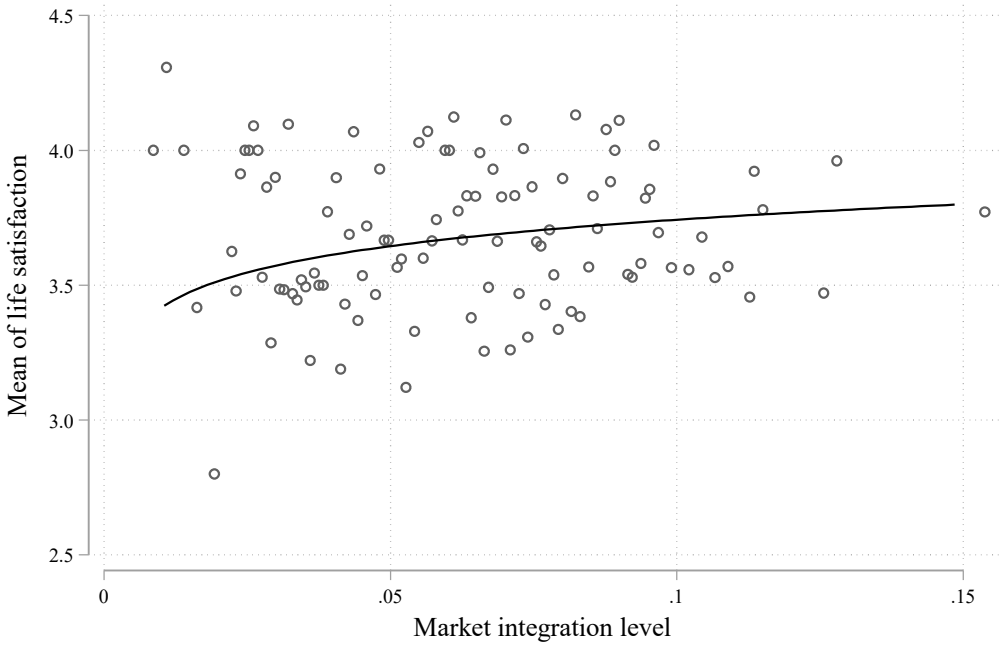

Fig. 3 Market integration level and life satisfaction. Notes: The fitted curve corresponds to the model in column 2 of Table 2.

With the progress of society and the gradual establishment of formal institutions, a gradual trend of integration has been observed in each type of market in China; however, the processes differ. To account for the varying nature and degree of integration across different markets, we replaced the aggregation measure with integration levels for the goods, labor, and capital markets, respectively. Columns 1 to 3 of Table 3 show the positive and significant effects of the goods market; whereas the effect of the labor market is relatively smaller but remains statistically significant at the 10% level based on standard errors clustered at the province-wave level; the estimated coefficient for the capital market is also positive, but quite smaller in magnitude and insignificant. We include three variables in column 4 to compare the effects for the different markets. The results show that the welfare effect is the most pronounced in goods market integration and relatively weak in labor

market integration.

The positive welfare effect of goods market integration implies positive consequences, like the reduced goods' price (De Loecker et al., 2016) and increased accessibility of consumer goods (Samuelson, 1962), are probably the most crucial parts of the numerous economic and non-economic effects of goods market integration. Labor market integration promotes mobility for people in search of better employment prospects (Clemens, 2011). However, migrants struggle with higher living costs and homesickness, while the inflow of nonlocal workers may lead to increased competition for jobs among both native and migrant workers (Dustmann et al., 2017), possibly explaining why labor market integration has less of a positive effect on welfare. Given that capital market integration directly affects capital owners, who constitute a small segment of the population, the estimated impact of capital market integration in our sample is negligible.

Table 3 Overall effects of the integration of three different markets.

	Dependent variable: life satisfaction			
	(1)	(2)	(3)	(4)
GoodsInt (ln)	0.113			0.115
	(0.054)			(0.055)
	[0.063]			[0.063]
	{0.066}			{0.070}
LaborInt (ln)		0.057		0.059
		(0.032)		(0.033)
		[0.040]		[0.032]
		{0.038}		{0.041}
CapitalInt (ln)			0.015	-0.010
			(0.033)	(0.034)
			[0.031]	[0.041]
			{0.041}	{0.042}
Control variables	Yes	Yes	Yes	Yes
Individual fixed effects	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes
Interviewer-wave fixed effects	Yes	Yes	Yes	Yes
Observations	74661	74661	74661	74661
Adj. R^2	0.344	0.344	0.344	0.344
Num. clusters (province-wave)	136	136	136	136
Num. clusters (county)	562	562	562	562
Num. clusters (province)	30	30	30	30

Standard errors clustered at the province-wave level are shown in parentheses, standard errors clustered by county are shown in brackets, and standard errors clustered by province are shown in curly brackets.

Finally, we discuss the potential influence of further domestic market integration on China's subjective well-being, beginning with the goods market. Tombe and Zhu (2019) compared the level of market integration between China and Canada. They use a quantitative spatial model to estimate China's domestic trade costs in 2002 and 2007 as 3.73 and 3.28, respectively.[26] According to their findings, if China's goods market integration reaches Canada's level, domestic trade costs would decrease further to 2.22. Assuming a linear relationship between our calculated market integration level and their trade costs, the unit decrease in trade costs calculated by Tombe and Zhu (2019)

[26] Indeed, the authors have conducted estimations of trade costs for the agricultural and non-agricultural sectors separately, and the simple average of the two sectors is employed herein, and likewise in subsequent discussions.

corresponds to a 0.017 unit increase in our goods market integration level.[27] Therefore, if China were to achieve the same degree of goods market integration as Canada, its goods market integration level would need to increase to 0.05. Our calculations suggest that China's goods market integration level had already reached a high level of 0.062 by 2018, indicating that the potential benefits of further reforms on the goods market may be limited.

Next, we focus on the labor market. Tombe and Zhu (2019) employ the same framework to estimate the domestic mobility costs of labor in China in 2000 and 2005, which amounted to 2.82 and 2.31, respectively. They suggest that for China's domestic labor market integration to reach the level of the United States, the mobility costs would need to be reduced to 0.51. Correspondingly, we calculate that China's labor market integration would need to increase to 0.051.[28] During the study period (2010-2018), China's average labor market integration level rose from 0.023 to 0.03, but remained considerably lower than 0.051. This implies that there is still tremendous potential for labor market integration in China. Based on the estimation results presented in Table 3, achieving the level of labor market integration seen in the United States would result in a subjective well-being gain of approximately 0.041 for Chinese residents, even exceeding the effect of overall market integration on subjective well-being from 2010 to 2018 (0.04) analyzed above.

5 Heterogeneity Analysis

5.1 Heterogeneity by Income

To identify who benefits from market integration, we investigate the heterogeneity among different groups. First, we focus on income. Table 4 introduces the interaction between household income and market integration level. Columns 1 to 3 discuss the aggregation of the three markets, with different specifications. Columns 4 to 6 examine the effects of the different markets. Throughout these columns, the coefficients of market integration are positive and the interactions are negative, both economically and statistically significant. This implies that as household income increases, the marginal effects of market integration on individuals' subjective well-being decrease. After reaching a certain threshold, the effects turn from positive to negative. Therefore, these results show a robust pattern in which market integration has significant redistribution effects: people with lower income have a larger welfare improvement, while people with higher income have a smaller improvement or even face welfare loss.

We provide four possible explanations for the redistribution effects of market integration. First, market integration can lead to lower prices for goods and services (De Loecker et al., 2016; Samuelson, 1962). As people with lower incomes tend to be more sensitive to changes in prices (Park et al., 1996), they tend to experience greater improvements. Second, market integration increased labor mobility to seek higher wages (Clemens, 2011; Stahl, 1989). Based on the two-country model presented by Bhagwati (1984), migration from low-income to high-income areas results in a relatively modest decline in wages for high-income individuals, but a substantial increase in income for low-income migrants. Third, market integration can foster competition and specialization across regions, leading to changes in the industrial structure and the exit of firms with

[27] The goods market integration level we calculate is 0.024 and 0.032 in 2002 and 2007, respectively.
[28] The labor market integration level we calculate is 0.021 and 0.028 in 2000 and 2005, respectively. Therefore, a unit decrease in mobility costs calculated by Tombe and Zhu (2019) corresponds to a 0.013 unit increase in our labor market integration level.

lower productivity (Jensen & Miller, 2018; Melitz, 2003). The resulting income distribution effects may have a greater negative impact on part of capital holders. In addition, the mobility of labor in this process may also lead to a loss of profits for specific capital holders (Stolper & Samuelson, 1941). Fourth, market integration may disrupt local customs and culture, which could have more non-economic detrimental effects on individuals with higher incomes due to their stronger non-material demands (Katz-Gerro et al., 2009). Naturally, it cannot be denied that market integration processes may include factors that favor high-income groups (e.g., Beerli et al., 2021; Caliendo et al., 2021), but our empirical evidence suggests that the factors favoring low-income groups seem to have a stronger impact.

Table 4 Heterogeneity across people with different income.

	Dependent variable: life satisfaction					
	(1)	(2)	(3)	(4)	(5)	(6)
Int (ln)	0.811	0.657	0.581			
	(0.282)	(0.157)	(0.148)			
	[0.158]	[0.135]	[0.143]			
	{0.252}	{0.130}	{0.132}			
Int (ln) × Income (ln)	-0.067	-0.051	-0.045			
	(0.027)	(0.013)	(0.012)			
	[0.014]	[0.012]	[0.012]			
	{0.025}	{0.010}	{0.010}			
GoodsInt (ln)				0.683		
				(0.141)		
				[0.146]		
				{0.134}		
GoodsInt (ln) × Income (ln)				-0.053		
				(0.011)		
				[0.012]		
				{0.010}		
LaborInt (ln)					0.287	
					(0.121)	
					[0.120]	
					{0.131}	
LaborInt (ln) × Income (ln)					-0.021	
					(0.010)	
					[0.010]	
					{0.010}	
CapitalInt (ln)						0.163
						(0.087)
						[0.071]
						{0.091}
CapitalInt (ln) × Income (ln)						-0.014
						(0.007)
						[0.006]
						{0.006}
Province-level controls	No	Yes	Yes	Yes	Yes	Yes
Individual-level controls	No	No	Yes	Yes	Yes	Yes
Individual fixed effects	No	Yes	Yes	Yes	Yes	Yes
Time fixed effects	No	Yes	Yes	Yes	Yes	Yes
Interviewer-wave fixed effects	No	Yes	Yes	Yes	Yes	Yes
Observations	78446	78350	74659	74659	74659	74659

Adj. R^2	0.017	0.341	0.344	0.344	0.344	0.344
Num. clusters (province-wave)	136	136	136	136	136	136
Num. clusters (county)	30	30	30	30	30	30
Num. clusters (province)	601	599	562	562	562	562

Standard errors clustered at the province-wave level are shown in parentheses, standard errors clustered by county are shown in brackets, and standard errors clustered by province are shown in curly brackets. The income variable and constant term are added to each specification but are not listed in the table.

According to the estimations in columns 3 to 6, we plot the marginal effects of market integration on life satisfaction as a function of household income in Fig. 4, where we label the sample mean and median of income. As shown in this figure, the sample mean and median are both far smaller than the income threshold at which the marginal effects become negative, indicating that the majority of Chinese residents benefit from market integration. For residents with median income, the welfare effect of goods market integration is the most significant, followed by labor market integration, while capital market integration has the weakest impact, consistent with the pattern found earlier. When the degree of integration of these three markets increases by 100%, the life satisfaction of the residents increases by approximately 0.121, 0.064, and 0.015, respectively. Moreover, the curve of the goods market exhibits the steepest slope, suggesting that goods market integration is associated with the most significant redistribution effect. The labor market has the highest income threshold which reaches about 130,000 US dollars, indicating that the largest proportion of residents benefits from labor market integration. Finally, the redistribution effect of capital market integration is relatively limited. This, to some extent, confirms our previous explanation that capital market integration predominantly affects a minority of the population. Therefore, in the sample dominated by farmers and workers, capital market integration is found to have weaker impacts on welfare.

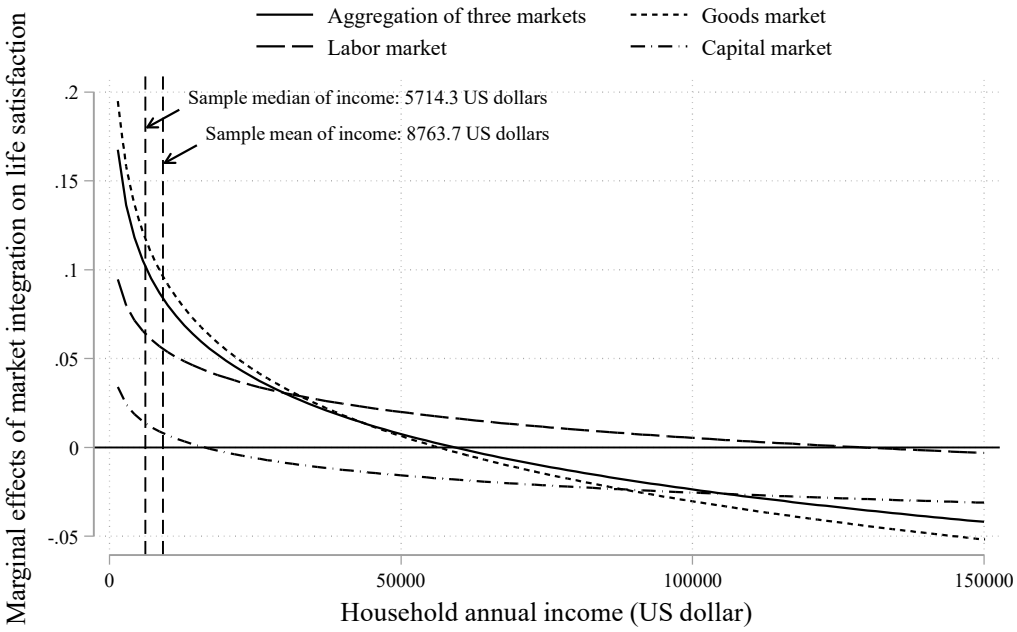

Fig. 4 Marginal effects of market integration on life satisfaction with respect to income.

Furthermore, we argue that market integration can contribute to a decrease in happiness inequality. In Table 2, a positive relationship between household income and life satisfaction has

been observed. To further verify this relationship, we divided the respondents for each survey into different income quintiles, as shown in Table S.3 of the Supplementary Material. The results demonstrate a clear pattern wherein individuals in higher quintiles report higher life satisfaction levels. Therefore, during the process of market integration, subjective well-being is not only redistributed based on income but also on its own. This finding is further supported by the results presented in Table S.6, where we employ the generalized order logit model to estimate the main specifications and observe larger positive effects of market integration on individuals with lower levels of life satisfaction. This could partially explain the decrease in happiness inequality observed in China over the past decade, as mentioned in section 3.2.2.

5.2 Heterogeneity by Hukou

China has a unique dual urban-rural structure. Table 5 shows the income gap between urban and rural residents and between people with different hukou. It reveals that individuals with non-agriculture hukou possess a significantly higher average income than those with agriculture hukou, a distinction that remains pronounced in both urban and rural areas. Considering the moderating effect of income identified in previous analyses, it is plausible that the income gap may cause heterogeneous effects of market integration through hukou. Moreover, developmental discrepancies in other aspects of hukou could also contribute to heterogeneity. Taken together, these facts encouraged us to investigate the heterogeneity caused by the dual urban-rural dual structure.

Table 5 Income across different groups by urban-rural and hukou.

Group	Observations	Mean of income	P-value of t-test
A. urban areas vs. rural areas			
Living in urban areas	35715	6.635	0.0000
Living in rural areas	44734	11.361	
B. hukou			
Registered as non-agricultural hukou	21171	13.177	0.0000
Registered as agricultural hukou	58419	7.159	
C. different hukou in urban areas			
Registered as non-agricultural hukou in urban areas	18006	13.785	0.0000
Registered as agricultural hukou in urban areas	17140	8.804	
D. different hukou in rural areas			
Registered as non-agricultural hukou in rural areas	2996	9.363	0.0000
Registered as agricultural hukou in rural areas	40797	6.423	

The null hypothesis of the t-test is that no difference in income exists between the two groups, and the alternative hypothesis is that the income of the two groups is not equal. The unit of income is one thousand US dollars.

Table 6 presents the estimates for people with different hukou. Interactions have not been included in columns 1 and 3, and therefore, the estimated coefficients of the market integration level represent the average effects on the respective subsamples. The findings indicate that while market integration does not exert a significant impact on individuals with non-agricultural hukou, it positively affects the overall subjective well-being of those with agricultural hukou. This outcome can be partly attributed to the increased mobility opportunities for rural residents and the relaxation of hukou-based restrictions. Market integration enhances the ability of rural residents to relocate to more habitable cities, thereby improving their income prospects and enabling them to access superior job opportunities and higher-quality vocational training. Furthermore, as indicated in

Section 2, the gradual reform of the hukou system and the relaxation of household registration restrictions have resulted in a decrease in both explicit institutional controls and implicit discrimination based on the hukou. This, in turn, has contributed to the enhancement of life satisfaction among people with agricultural hukou. Including interactions in columns 2 and 4 reveals again that individuals with lower income benefit more from market integration, implying that the differences in effects between columns 1 and 3 can also be partly explained by the income gap between non-agricultural and agricultural hukou holders.[29]

Table 6 Heterogeneity by hukou.

	Dependent variable: life satisfaction			
	Non-agricultural hukou		Agricultural hukou	
	(1)	(2)	(3)	(4)
Int (ln)	0.003	0.546	0.116	0.649
	(0.094)	(0.255)	(0.042)	(0.166)
	[0.112]	[0.301]	[0.051]	[0.171]
	{0.108}	{0.272}	{0.049}	{0.129}
Int (ln) × Income (ln)		-0.047		-0.049
		(0.019)		(0.015)
		[0.023]		[0.015]
		{0.018}		{0.011}
Control variables	Yes	Yes	Yes	Yes
Individual fixed effects	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes
Interviewer-wave fixed effects	Yes	Yes	Yes	Yes
Observations	19893	19893	54094	54094
Adj. R^2	0.377	0.377	0.338	0.338
Num. clusters (province-wave)	133	133	128	128
Num. clusters (county)	317	317	478	478
Num. clusters (province)	27	27	30	30

Standard errors clustered at the province-wave level are shown in parentheses, standard errors clustered by county are shown in brackets, and standard errors clustered by province are shown in curly brackets.

5.3 Heterogeneity by Skill

Finally, we grouped respondents according to their occupations to examine the heterogeneity of the high- and low-skilled. We classified the heads of state agencies, party organizations, enterprises and institutions, professionals, clerical workers, and related personnel as high-skilled workers, and other occupations and agricultural workers as low-skilled workers. We find that market integration significantly raises the overall welfare of the low-skilled group but not that of the high-skilled group. In addition, we again observe that the moderating effect of income remains, although it is not significant in the high-income group subsample, primarily due to the under-sample making the standard error too large.

The results obtained here contradict those of Caliendo et al. (2021), who found that well-being improvement for high-skilled groups is more pronounced when immigration barriers between the

[29] In the Table S.4 of the Supplementary Material, we report the welfare effects of each the three types of market integration on different hukou. Once again, the results align with expectations, indicating an overall positive impact of the goods and labor markets on the subjective well-being of a vulnerable population, namely people with agricultural hukou. Moreover, capital markets primarily influence people with non-agricultural hukou, which is also to be expected given that capital holders are more likely to obtain a non-agricultural hukou.

old and new EU member states are broken down. One possible reason for this discrepancy is that high-skilled immigrants in China face fewer restrictions in terms of accessing local hukou than low-skilled immigrants. For example, it is very common for many large cities to relax the restrictions on obtaining local hukou for college graduates as a means to attract talent. Consequently, even during periods of more severe market segmentation, the high-skilled group faces relatively low mobility costs. Therefore, the low-skilled group experiences a more significant reduction in mobility costs during the process of market integration, providing them with greater opportunities for mobility and employment.

Table 7 Heterogeneity by skill.

	Dependent variable: life satisfaction			
	High-skilled		Low-skilled	
	(1)	(2)	(3)	(4)
Int (ln)	0.015	0.705	0.090	0.573
	(0.200)	(0.653)	(0.047)	(0.162)
	[0.209]	[0.765]	[0.052]	[0.155]
	{0.294}	{0.998}	{0.051}	{0.128}
Int (ln) × Income (ln)		-0.060		-0.044
		(0.052)		(0.013)
		[0.064]		[0.013]
		{0.075}		{0.009}
Control variables	Yes	Yes	Yes	Yes
Individual fixed effects	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes
Interviewer-wave fixed effects	Yes	Yes	Yes	Yes
Observations	4009	4009	54094	54094
Adj. R^2	0.377	0.377	0.338	0.338
Num. clusters (province-wave)	125	125	135	135
Num. clusters (county)	267	267	491	491
Num. clusters (province)	26	26	30	30

Standard errors clustered at the province-wave level are shown in parentheses, standard errors clustered by county are shown in brackets, and standard errors clustered by province are shown in curly brackets.

5.4 Robustness test

To further establish the robustness of our findings, we conducted six robustness tests, which are presented in the Supplementary Material. First, we verified our results were robust when employing an ordered logit model in Table S.5. Second, we used the generalized ordered logit model in Table S.6 to relax the parallel-lines assumptions of the ordered logit model. Third, we re-estimated the main specifications using an unbalanced panel (i.e., data without excluding respondents who were not surveyed in all five waves) in Table S.7 to avoid selection bias. Fourth, the influences of different interview methods were considered in Table S.8 by adding interview method-wave interactive fixed effects. Fifth, we re-examine the redistribution effects using relative income in Table S.9. Finally, in Table S.10, we performed a 5% two-sided winsorization for the measures of market integration to eliminate the potential influence of outliers. Throughout these variations, the results are essentially consistent with our findings.

6 Concluding Remarks

The advent of technological breakthroughs in recent centuries has been instrumental in facilitating market integration, both between and within nations. Despite the plethora of economic studies on the economic consequences of market integration, the impact of this phenomenon on subjective well-being has not received adequate attention in the literature. While acknowledging this research gap, we propose China as a case to address this gap. Notably, China's market-oriented reforms have yielded promising improvements in formal institutional arrangements, leading to a substantial reduction in domestic market segmentation.

This study endeavors to explore the causal relationship between domestic market integration and the subjective well-being of Chinese residents. Our empirical findings reveal that market integration has a positive effect on the overall subjective well-being of residents. Specifically, for every 100% increase in the market integration measure, the average life satisfaction score of residents increases by 0.084. Our estimates demonstrate the crucial role played by market integration in enhancing the welfare of the Chinese population, accounting for an 11.4% surge in the average life satisfaction of Chinese residents between 2010 and 2018. Furthermore, our analysis of the effects of the goods, labor, and capital markets reveals that the welfare effects of market integration are most pronounced for the goods market, relatively weak for the labor market, and insignificant for the capital market. Our results suggest that the positive consequences of market integration outweigh the negative ones, underscoring the importance of market integration in promoting welfare. Furthermore, we discuss the potential welfare benefits of China's further market integration, and we contend that there exists significant potential for welfare enhancement through the narrowing of integration level gaps among provinces, as well as through further labor market integration.

We extend our analysis to explore who benefits from market integration by examining heterogeneity among different individuals. Our results reveal a clear redistribution effect on happiness resulting from market integration. Individuals with lower income, who also have lower subjective well-being, experience greater welfare improvement from market integration. However, as income levels rise, the welfare effect decreases, and beyond a certain threshold, market integration inversely shows a negative effect on subjective well-being. Our estimates of the threshold demonstrate that it is significantly higher than the mean or median income of our sample, implying that the majority of Chinese residents benefit from market integration, albeit to varying extents. Furthermore, we observe similar redistribution effects in all kinds of markets, although with some differences. The redistribution effect of goods market integration is the strongest, and the threshold of labor market integration when the effect changes sign is the largest. Meanwhile, the redistribution effect of capital market integration is statistically significant but relatively smaller in magnitude. Thus, our findings suggest that market integration may be a catalyst for reducing happiness inequality in China.

Moreover, we examined the heterogeneity arising from hukou and labor skills. Overall, our findings suggest that market integration exerts a considerably positive impact on the subjective well-being of individuals with agricultural hukou and low skills, but has minimal effect on those with non-agricultural hukou and high skills. Across different groups, the redistribution effects of market integration persist, indicating the robustness of this pattern.

In summary, our investigation draws an optimistic conclusion within the context of the gradual

integration of markets both within and among nations. In general, market integration has a favorable impact on people's well-being, lessening happiness inequality and providing greater benefits to relatively vulnerable demographic groups (such as those with lower incomes, agricultural hukou, or lower skills). As such, this study has implications for policymakers, who must work to diminish domestic market segmentation by implementing policies that promote the development of domestic transportation and communication infrastructure, thereby reducing the segmentation caused by natural phenomena. In transition economies with immature market systems, governments must prioritize the development of fundamental market institutions, while gradually identifying and reducing specific institutional impediments faced by different types of markets during the process of integration.

References

Atkin, D., & Donaldson, D. (2015). *Who's Getting Globalized? The Size and Implications of Intra-national Trade Costs* (Working Paper No. 21439; Working Paper Series). National Bureau of Economic Research. https://doi.org/10.3386/w21439

Bai, C.-E., Du, Y., Tao, Z., & Tong, S. Y. (2004). Local protectionism and regional specialization: Evidence from China's industries. *Journal of International Economics*, *63*(2), 397–417. https://doi.org/10.1016/S0022-1996(03)00070-9

Barrell, R., & Nahhas, A. (2020). Regional integration and bilateral FDI stocks in the OECD. *International Journal of Finance & Economics*, ijfe.2311. https://doi.org/10.1002/ijfe.2311

Bartram, D. (2021). Cross-Sectional Model-Building for Research on Subjective Well-Being: Gaining Clarity on Control Variables. *Social Indicators Research*, *155*(2), 725–743. https://doi.org/10.1007/s11205-020-02586-3

Beerli, A., Ruffner, J., Siegenthaler, M., & Peri, G. (2021). The Abolition of Immigration Restrictions and the Performance of Firms and Workers: Evidence from Switzerland. *American Economic Review*, *111*(3), 976–1012. https://doi.org/10.1257/aer.20181779

Bergstrand, J. H., Larch, M., & Yotov, Y. V. (2015). Economic integration agreements, border effects, and distance elasticities in the gravity equation. *European Economic Review*, *78*, 307–327. https://doi.org/10.1016/j.euroecorev.2015.06.003

Bertrand, M., Duflo, E., & Mullainathan, S. (2004). How Much Should We Trust Differences-In-Differences Estimates? *The Quarterly Journal of Economics*, *119*(1), 249–275. https://doi.org/10.1162/003355304772839588

Besley, T., & Persson, T. (2009). The Origins of State Capacity: Property Rights, Taxation, and Politics. *American Economic Review*, *99*(4), 1218–1244. https://doi.org/10.1257/aer.99.4.1218

Besley, T., & Persson, T. (2010). State Capacity, Conflict, and Development. *Econometrica*, *78*(1), 1–34. https://doi.org/10.3982/ECTA8073

Bhagwati, J. N. (1984). Incentives and disincentives: International migration. *Weltwirtschaftliches Archiv*, *120*(4), 678–701. https://doi.org/10.1007/BF02706510

Biermann, P., Bitzer, J., & Gören, E. (2022). The relationship between age and subjective well-being: Estimating within and between effects simultaneously. *The Journal of the Economics of Ageing*, *21*, 100366. https://doi.org/10.1016/j.jeoa.2021.100366

Bjørnskov, C., Dreher, A., & Fischer, J. A. V. (2007). The bigger the better? Evidence of the effect of government size on life satisfaction around the world. *Public Choice*, *130*(3), 267–292. https://doi.org/10.1007/s11127-006-9081-5

Bosker, M., Brakman, S., Garretsen, H., & Schramm, M. (2012). Relaxing Hukou: Increased labor mobility and China's economic geography. *Journal of Urban Economics*, *72*(2), 252–266. https://doi.org/10.1016/j.jue.2012.06.002

Caliendo, L., & Parro, F. (2015). Estimates of the Trade and Welfare Effects of NAFTA. *The Review of Economic Studies*, *82*(1), 1–44. https://doi.org/10.1093/restud/rdu035

Caliendo, L., Parro, F., Opromolla, L. D., & Sforza, A. (2021). Goods and Factor Market Integration: A Quantitative Assessment of the EU Enlargement. *Journal of Political Economy*, *129*(12), 3491–3545. https://doi.org/10.1086/716560

Chan, K. W., & Zhang, L. (1999). The *Hukou* System and Rural-Urban Migration in China: Processes and Changes. *The China Quarterly*, *160*, 818–855. https://doi.org/10.1017/S0305741000001351

Che, J., & Qian, Y. (1998). Insecure Property Rights and Government Ownership of Firms. *The Quarterly Journal of Economics*, *113*(2), 467–496. https://doi.org/10.1162/003355398555658

Chen, J., Hu, X., Huang, J., & Lin, R. (2022). Market integration and green economic growth—Recent evidence of China's city-level data from 2004–2018. *Environmental Science and Pollution Research*, 1–18. https://doi.org/10.1007/s11356-022-19070-9

Clemens, M. A. (2011). Economics and Emigration: Trillion-Dollar Bills on the Sidewalk? *Journal of Economic Perspectives*, *25*(3), 83–106. https://doi.org/10.1257/jep.25.3.83

Coe, D. T., Subramanian, A., & Tamirisa, N. T. (2007). The Missing Globalization Puzzle: Evidence of the Declining Importance of Distance. *IMF Staff Papers*, *54*(1), 34–58. https://doi.org/10.1057/palgrave.imfsp.9450003

De Loecker, J., Goldberg, P. K., Khandelwal, A. K., & Pavcnik, N. (2016). Prices, Markups, and Trade Reform. *Econometrica*, *84*(2), 445–510. https://doi.org/10.3982/ECTA11042

Di Tella, R., MacCulloch, R. J., & Oswald, A. J. (2001). Preferences over Inflation and Unemployment: Evidence from Surveys of Happiness. *American Economic Review*, *91*(1), 335–341. https://doi.org/10.1257/aer.91.1.335

Diener, E., & Seligman, M. E. P. (2004). Beyond Money: Toward an Economy of Well-Being. *Psychological Science in the Public Interest: A Journal of the American Psychological Society*, *5*(1), 1–31. https://doi.org/10.1111/j.0963-7214.2004.00501001.x

Disdier, A.-C., & Head, K. (2008). The Puzzling Persistence of the Distance Effect on Bilateral Trade. *The Review of Economics and Statistics*, *90*(1), 37–48. https://doi.org/10.1162/rest.90.1.37

Donaldson, D. (2015). The Gains from Market Integration. *Annual Review of Economics*, *7*(1), 619–647. https://doi.org/10.1146/annurev-economics-080213-041015

Donaldson, D. (2018). Railroads of the Raj: Estimating the Impact of Transportation Infrastructure. *American*

Economic Review, *108*(4–5), 899–934. https://doi.org/10.1257/aer.20101199
Dorn, D., & Zweimüller, J. (2021). Migration and Labor Market Integration in Europe. *Journal of Economic Perspectives*, *35*(2), 49–76. https://doi.org/10.1257/jep.35.2.49
Dulleck, U., Fooken, J., & He, Y. (2020). Hukou Status and Individual-Level Labor Market Discrimination: An Experiment in China. *ILR Review*, *73*(3), 628–649. https://doi.org/10.1177/0019793919887118
Dustmann, C., Schönberg, U., & Stuhler, J. (2017). Labor Supply Shocks, Native Wages, and the Adjustment of Local Employment. *The Quarterly Journal of Economics*, *132*(1), 435–483. https://doi.org/10.1093/qje/qjw032
Easterlin, R. A. (1974). Does Economic Growth Improve the Human Lot? Some Empirical Evidence. In *Nations and Households in Economic Growth* (pp. 89–125). Elsevier. https://doi.org/10.1016/B978-0-12-205050-3.50008-7
Easterlin, R. A. (1995). Will raising the incomes of all increase the happiness of all? *Journal of Economic Behavior & Organization*, *27*(1), 35–47. https://doi.org/10.1016/0167-2681(95)00003-B
Eberhardt, M., Wang, Z., & Yu, Z. (2016). From one to many central plans: Drug advertising inspections and intra-national protectionism in China. *Journal of Comparative Economics*, *44*(3), 608–622. https://doi.org/10.1016/j.jce.2015.10.012
Faber, B. (2014). Trade Integration, Market Size, and Industrialization: Evidence from China's National Trunk Highway System. *The Review of Economic Studies*, *81*(3), 1046–1070. https://doi.org/10.1093/restud/rdu010
Ferrer-i-Carbonell, A., & Frijters, P. (2004). How Important is Methodology for the Estimates of the Determinants of Happiness? *The Economic Journal*, *114*(497), 641–659. https://doi.org/10.1111/j.1468-0297.2004.00235.x
Gourinchas, P.-O., & Jeanne, O. (2006). The Elusive Gains from International Financial Integration. *Review of Economic Studies*, *73*(3), 715–741. https://doi.org/10.1111/j.1467-937X.2006.00393.x
Han, D. B., Penson, J. B., & Jansen Jr., D. W. (1990). Variance of Agricultural Prices, Industrial Prices, and Money. *American Journal of Agricultural Economics*, *72*(4), 1066–1073. https://doi.org/10.2307/1242638
Jensen, R., & Miller, N. H. (2018). Market Integration, Demand, and the Growth of Firms: Evidence From a Natural Experiment in India. *American Economic Review*, *108*(12), 3583–3625. https://doi.org/10.1257/aer.20161965
Kalmijn, W., & Veenhoven, R. (2005). Measuring Inequality of Happiness in Nations: In Search for Proper Statistics. *Journal of Happiness Studies*, *6*(4), 357–396. https://doi.org/10.1007/s10902-005-8855-7
Katz-Gerro, T., Raz, S., & Yaish, M. (2009). How do class, status, ethnicity, and religiosity shape cultural omnivorousness in Israel? *Journal of Cultural Economics*, *33*(1), 1–17. https://doi.org/10.1007/s10824-008-9088-5
Ke, S. (2015). Domestic Market Integration and Regional Economic Growth—China's Recent Experience from 1995–2011. *World Development*, *66*, 588–597. https://doi.org/10.1016/j.worlddev.2014.09.024
Kim, S. (1995). Expansion of Markets and the Geographic Distribution of Economic Activities: The Trends in U. S. Regional Manufacturing Structure, 1860–1987. *The Quarterly Journal of Economics*, *110*(4), 881–908. https://doi.org/10.2307/2946643
Lai, A., Yang, Z., & Cui, L. (2021). Market segmentation impact on industrial transformation: Evidence for environmental protection in China. *Journal of Cleaner Production*, *297*, 126607. https://doi.org/10.1016/j.jclepro.2021.126607
Li, H., & Zhou, L.-A. (2005). Political turnover and economic performance: The incentive role of personnel control in China. *Journal of Public Economics*, *89*(9–10), 1743–1762. https://doi.org/10.1016/j.jpubeco.2004.06.009
Li, P., & Lu, M. (2021). Urban Systems: Understanding and Predicting the Spatial Distribution of China's Population. *China & World Economy*, *29*(4), 35–62. https://doi.org/10.1111/cwe.12380
Liu, E., Lu, Y., Peng, W., & Wang, S. (2022). *Judicial Independence, Local Protectionism, and Economic Integration: Evidence from China* (Working Paper No. 30432). National Bureau of Economic Research. https://doi.org/10.3386/w30432
Liu, Z., Zhang, H., Zhang, Y.-J., Duan, F.-E., & Wei, L.-Y. (2019). Research on the effects of market integration on carbon emissions. *Management Decision*, *59*(4), 747–763. https://doi.org/10.1108/MD-09-2018-1067
Ma, C., Zhang, Y., Li, Y., Wang, Y., Jiang, Y., Wang, X., & Ma, S. (2020). Healthcare, Insurance, and Medical Expenditure of the Floating Population in Beijing, China. *Frontiers in Public Health*, *8*. https://www.frontiersin.org/article/10.3389/fpubh.2020.00375
MacKinnon, J. G., Nielsen, M. Ø., & Webb, M. D. (2023). Cluster-robust inference: A guide to empirical practice. *Journal of Econometrics*, *232*(2), 272–299. https://doi.org/10.1016/j.jeconom.2022.04.001
McCallum, J. (1995). National Borders Matter: Canada-U.S. Regional Trade Patterns. *The American Economic Review*, *85*(3), 615–623.
Melitz, M. J. (2003). The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity. *Econometrica*, *71*(6), 1695–1725. https://doi.org/10.1111/1468-0262.00467
Narayan, S., & Nguyen, T. T. (2016). Does the trade gravity model depend on trading partners? Some evidence from Vietnam and her 54 trading partners. *International Review of Economics & Finance*, *41*, 220–237. https://doi.org/10.1016/j.iref.2015.08.010
Nie, P., Sousa-Poza, A., & Nimrod, G. (2017). Internet Use and Subjective Well-Being in China. *Social Indicators Research*, *132*(1), 489–516. https://doi.org/10.1007/s11205-015-1227-8
Nunn, N., & Wantchekon, L. (2011). The Slave Trade and the Origins of Mistrust in Africa. *American Economic*

Review, *101*(7), 3221–3252. https://doi.org/10.1257/aer.101.7.3221
Oi, J. C. (1992). Fiscal Reform and the Economic Foundations of Local State Corporatism in China. *World Politics*, *45*(1), 99–126. https://doi.org/10.2307/2010520
Ott, J. (2005). Level and Inequality of Happiness in Nations: Does Greater Happiness of a Greater Number Imply Greater Inequality in Happiness? *Journal of Happiness Studies*, *6*(4), 397–420. https://doi.org/10.1007/s10902-005-8856-6
Park, J. L., Holcomb, R. B., Raper, K. C., & Capps Jr., O. (1996). A Demand Systems Analysis of Food Commodities by U.S. Households Segmented by Income. *American Journal of Agricultural Economics*, *78*(2), 290–300. https://doi.org/10.2307/1243703
Parsley, D. C., & Wei, S.-J. (1996). Convergence to the Law of One Price Without Trade Barriers or Currency Fluctuations. *The Quarterly Journal of Economics*, *111*(4), 1211–1236. https://doi.org/10.2307/2946713
Parsley, D. C., & Wei, S.-J. (2001). Explaining the border effect: The role of exchange rate variability, shipping costs, and geography. *Journal of International Economics*, *55*(1), 87–105. https://doi.org/10.1016/S0022-1996(01)00096-4
Poncet, S. (2003). Measuring Chinese domestic and international integration. *China Economic Review*, *14*(1), 1–21. https://doi.org/10.1016/S1043-951X(02)00083-4
Poncet, S. (2005). A Fragmented China: Measure and Determinants of Chinese Domestic Market Disintegration. *Review of International Economics*, *13*(3), 409–430. https://doi.org/10.1111/j.1467-9396.2005.00514.x
Rogers, J. H., & Jenkins, M. (1995). Haircuts or hysteresis? Sources of movements in real exchange rates. *Journal of International Economics*, *38*(3), 339–360. https://doi.org/10.1016/0022-1996(94)01354-U
Rose, A. K. (2000). One money, one market: The effect of common currencies on trade. *Economic Policy*, *15*(30), 08–45. https://doi.org/10.1111/1468-0327.00056
Samuelson, P. A. (1962). The Gains from International Trade Once Again. *The Economic Journal*, *72*(288), 820. https://doi.org/10.2307/2228353
Samuelson, P. A. (1964). Theoretical Notes on Trade Problems. *The Review of Economics and Statistics*, *46*(2), 145–154. https://doi.org/10.2307/1928178
Shen, C., Jin, J., & Zou, H. (2012). Fiscal Decentralization in China: History, Impact, Challenges and Next Steps. *Annals of Economics and Finance*, *13*(1), 1–51.
Shiue, C. H., & Keller, W. (2007). Markets in China and Europe on the Eve of the Industrial Revolution. *American Economic Review*, *97*(4), 28.
Song, Y. (2014). What should economists know about the current Chinese hukou system? *China Economic Review*, *29*, 200–212. https://doi.org/10.1016/j.chieco.2014.04.012
Stahl, D. O. (1989). Oligopolistic Pricing with Sequential Consumer Search. *The American Economic Review*, *79*(4), 700–712.
Stefkovics, Á., & Sik, E. (2022). What Drives Happiness? The Interviewer's Happiness. *Journal of Happiness Studies*. https://doi.org/10.1007/s10902-022-00527-0
Stolper, W. F., & Samuelson, P. A. (1941). Protection and Real Wages. *The Review of Economic Studies*, *9*(1), 58–73. https://doi.org/10.2307/2967638
Studer, R. (2008). India and the Great Divergence: Assessing the Efficiency of Grain Markets in Eighteenth- and Nineteenth-Century India. *The Journal of Economic History*, *68*(2), 393–437. https://doi.org/10.1017/S0022050708000351
Stutzer, A., & Frey, B. S. (2008). Stress that Doesn't Pay: The Commuting Paradox. *The Scandinavian Journal of Economics*, *110*(2), 339–366. https://doi.org/10.1111/j.1467-9442.2008.00542.x
Tao, R., Su, F., Liu, M., & Cao, G. (2010). Land Leasing and Local Public Finance in China's Regional Development: Evidence from Prefecture-level Cities. *Urban Studies*, *47*(10), 2217–2236. https://doi.org/10.1177/0042098009357961
Tombe, T., & Zhu, X. (2019). Trade, Migration, and Productivity: A Quantitative Analysis of China. *The American Economic Review*, *109*(5), 1843–1872. https://doi.org/10.1257/aer.20150811
Wu, D., Xu, Y., & Zhang, S. (2015). Will joint regional air pollution control be more cost-effective? An empirical study of China's Beijing–Tianjin–Hebei region. *Journal of Environmental Management*, *149*, 27–36. https://doi.org/10.1016/j.jenvman.2014.09.032
Xing, W., & Whalley, J. (2014). The Golden Tax Project, value-added tax statistics, and the analysis of internal trade in China. *China Economic Review*, *30*, 448–458. https://doi.org/10.1016/j.chieco.2014.05.005
Xu, X. (2002). Have the Chinese provinces become integrated under reform? *China Economic Review*, *13*(2–3), 116–133. https://doi.org/10.1016/S1043-951X(02)00058-5
Xu, Y., & Yang, X. (2021). Access to ports and the welfare gains from domestic transportation infrastructure. *Journal of Urban Economics*, *126*, 103392. https://doi.org/10.1016/j.jue.2021.103392
Yilmazkuday, H. (2017). A Solution to the Missing Globalization Puzzle by Non-CES Preferences. *Review of International Economics*, *25*(3), 649–676. https://doi.org/10.1111/roie.12278

Journal of Happiness Studies

Who Benefits from Domestic Market Integration? (Supplementary Material)

Xin Fan Shan Jin Zeyu Chen*

This supplementary material includes additional figures, data descriptions, and results of robustness tests described in the paper.

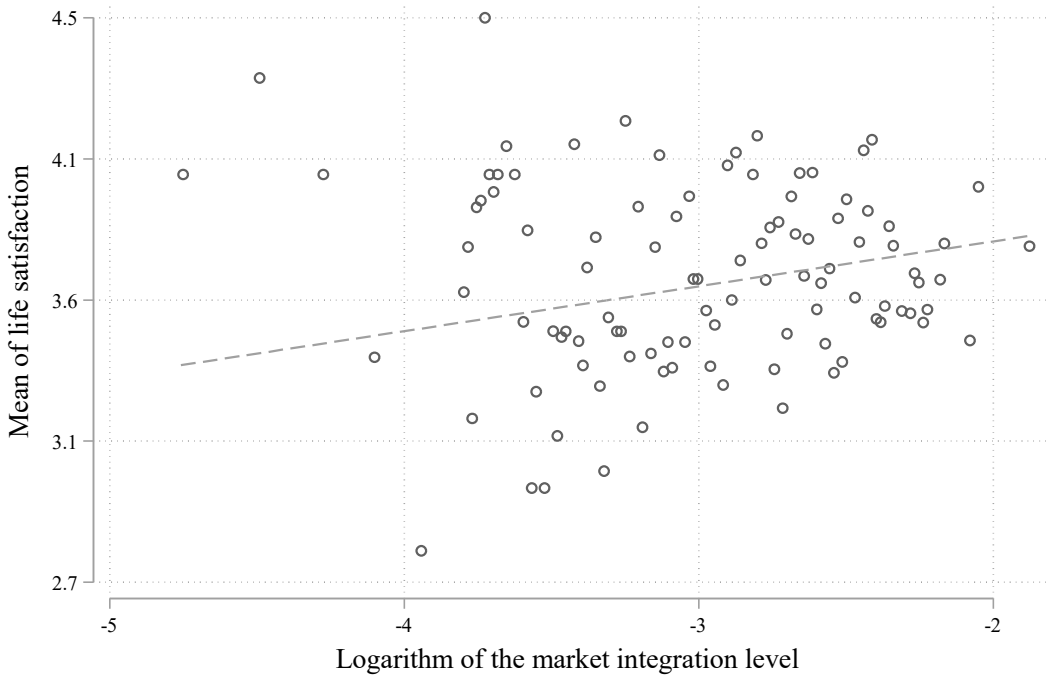

Fig. S.1 Linear fit without controls.

* Corresponding Author is Zeyu Chen. Email: rucczy@ruc.edu.cn.

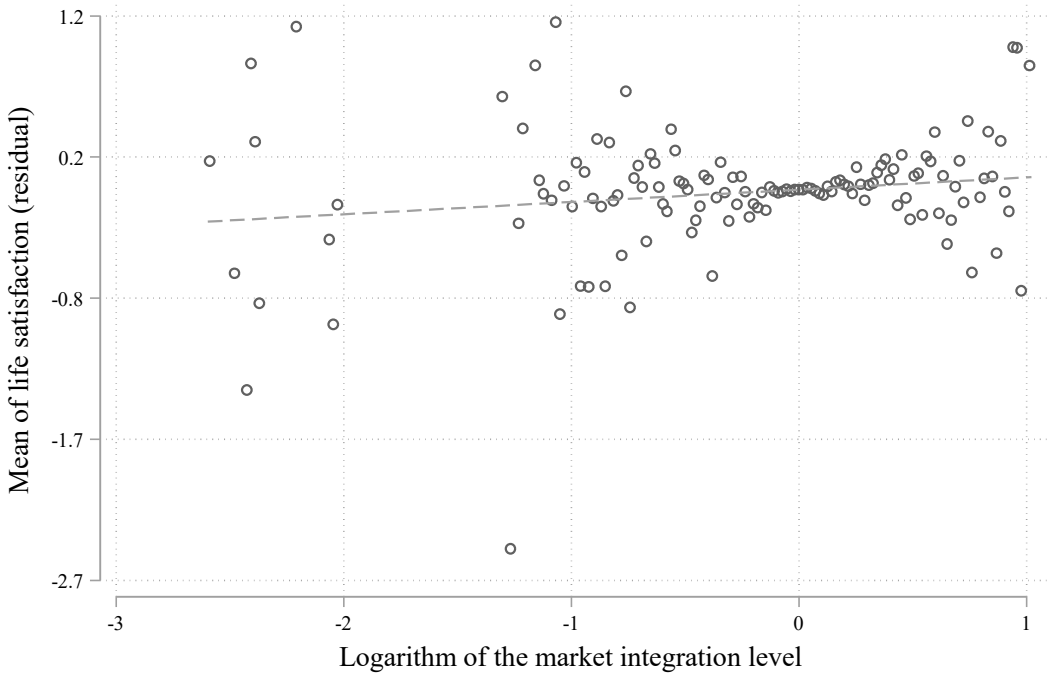

Fig. S.2 Linear fit with controls and fixed effects in column 6 of Table 2.

Table S.1 Correlations of study variables.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. SWB																		
2. Int	.056*																	
3. GoodsInt	.082*	.750*																
4. LaborInt	.024*	.903*	.411*															
5. CapitalInt	.079*	.627*	.517*	.509*														
6. Public	-.040*	-.148*	-.107*	-.159*	-.052*													
7. Traffic	.054*	.059*	.109*	.019*	.045*	-.628*												
8. Inflation	-.110*	-.600*	-.686*	-.386*	-.646*	.044*	.003											
9. Urban	-.002	.022*	.034*	.015*	-.009	-.234*	.22*	-.022*										
10. Hukou	-.003	-.032*	-.013*	-.037*	-.011*	-.189*	.198*	.024*	.496*									
11. Married	.037*	.014*	.013*	.009	.018*	.003	-.001	-.018*	-.032*	-.037*								
12. House	.043*	.002	-.009	.007	.012*	.053*	-.019*	.010*	-.121*	-.110*	.056*							
13. Health	.078*	-.017*	-.035*	.001	-.012*	-.047*	.054*	.039*	.027*	.017*	.010*	.019*						
14. Work	.011*	.080*	.091*	.047*	.127*	.060*	-.043*	-.145*	-.119*	-.167*	.106*	.051*	.056*					
15. Income	.057*	.045*	.072*	.021*	.052*	-.086*	.143*	-.067*	.114*	.127*	.012*	-.018*	.023*	.010*				
16. Age	.120*	.111*	.134*	.068*	.108*	-.090*	.109*	-.127*	-.008	.048*	.036*	.006	-.155*	-.245*	-.013*			
17. Party	.031*	.003	-.014*	.012*	.033*	.001	.009	.007	.073*	.165*	.032*	.008	.022*	-.002	.034*	.076*		
18. Religion	.030*	.030*	.040*	.017*	.030*	-.012*	.010*	-.030*	.009	-.004	-.008	.002	-.025*	-.013*	.002	.043*	-.029*	
19. Gender	-.021*	-.009	-.011*	-.006	.001	.023*	-.003	.006	-.022*	.017*	.002	.007	.111*	.146*	-.002	.029*	.168*	-.044*

*$p < 0.001$.

Despite taking into account provincial controls and individual characteristics, the estimates reported in Table 2 may still be subject to selection bias by unobservable factors correlated with market integration and life satisfaction. To assess the likelihood of such bias, we employ the strategy set forth by Nunn and Wantchekon (2011), which is based on the idea of Altonji et al. (2005) that the selection of observables can be utilized to assess potential bias from unobservables.

To illustrate how the strategy works, two specifications can be considered: one with a restricted set of control variables, and one with a full set of controls. Let the estimated coefficient for the variable of interest from the restricted model be denoted as $\hat{\beta}^R$ and that from the full model as $\hat{\beta}^F$. Then, a ratio of $\hat{\beta}^F/(\hat{\beta}^R - \hat{\beta}^F)$ can be used to quantify the probable bias from unobservables. Since $\hat{\beta}^R - \hat{\beta}^F$ reflects the reduction in selection bias due to the inclusion of additional observables in the full model, this ratio $\hat{\beta}^F/(\hat{\beta}^R - \hat{\beta}^F)$ implies the magnitude of selection bias on unobservables relative to selection bias on observables which is necessary to explain the full estimated effect.

We consider two sets of restricted specifications: the specification with no controls and the specification in column (3) of Table 2. We also consider four sets of full specifications: the first with controls and fixed effects in column (6) of Table 2, a second adding to the first province-wave two-way fixed effect, a third adding to the first all controls interacted with time fixed effect, and a fourth one adding both province-wave two-way fixed effect and all controls interacted with time fixed effect. Using our two restricted and four full sets specifications., eight distinct combinations can be employed for the calculation of the ratios. Among the eight ratios reported in Table S.2, none is less than 1, which means the positive association between market integration and life satisfaction will not be overturned unless the selective bias due to unobservables is even greater than what we have tried to control for. We believe this provides support to the robustness of our results.

Table S.2 Using the selection of observables to assess the bias from unobservables.

Controls in the restricted set	Controls in the full set	$\beta^F/(\beta^R - \beta^F)$
None	Set of controls and fixed effects in column (6) of Table 2	1.473
None	Set of controls and fixed effects in column (6) of Table 2 and province-wave two-way fixed effect	1.104
None	Set of controls and fixed effects in column (6) of Table 2 and all controls interacted with time fixed effect	1.169
None	Set of controls and fixed effects in column (6) of Table 2, province-wave two-way fixed effect, and all controls interacted with time fixed effect	1.390
Set of controls and fixed effects in column (3) of Table 2	Set of controls and fixed effects in column (6) of Table 2	1.647
Set of controls and fixed effects in column (3) of Table 2	Set of controls and fixed effects in column (6) of Table 2 and province-wave two-way fixed effect	1.213
Set of controls and fixed effects in column (3) of Table 2	Set of controls and fixed effects in column (6) of Table 2 and all controls interacted with time fixed effect	1.288
Set of controls and fixed effects in column (3) of Table 2	Set of controls and fixed effects in column (6) of Table 2, province-wave two-way fixed effect, and all controls interacted with time fixed effect	1.547

Each cell of the table reports ratios based on the coefficient for "Int (ln)" from the regressions with controls in the restricted set and controls in the full set.

Table S.3 Life satisfaction across income quintiles based on household annual income.

	Income quintiles based on household annual income				
	1	2	3	4	5
A. CFPS 2010					
Mean of income	0.964	2.252	3.544	5.421	12.610
Mean of life satisfaction	3.30	3.40	3.51	3.59	3.69
B. CFPS 2012					
Mean of income	0.655	2.452	4.674	7.668	17.659
Mean of life satisfaction	3.20	3.31	3.32	3.42	3.47
C. CFPS 2014					
Mean of income	0.923	3.351	5.816	8.972	21.522
Mean of life satisfaction	3.74	3.77	3.82	3.90	3.92
D. CFPS 2016					
Mean of income	1.708	4.553	7.327	11.412	32.199
Mean of life satisfaction	3.58	3.59	3.65	3.71	3.75
E. CFPS 2018					
Mean of income	2.016	5.618	8.983	13.692	34.782
Mean of life satisfaction	4.10	4.04	4.07	4.07	4.11

The unit of income is one thousand US dollars.

Table S.4 The welfare effects of three types of market integration on different hukou.

	Dependent variable: life satisfaction					
	Non-agricultural hukou			Agricultural hukou		
	(1)	(2)	(3)	(4)	(5)	(6)
GoodsInt (ln)	-0.034			0.137		
	(0.139)			(0.059)		
	[0.162]			[0.070]		
	{0.169}			{0.072}		
LaborInt (ln)		-0.002			0.077	
		(0.077)			(0.038)	
		[0.091]			[0.046]	
		{0.090}			{0.046}	
CapitalInt (ln)			0.130			0.013
			(0.072)			(0.039)
			[0.070]			[0.037]
			{0.099}			{0.043}
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Individual fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Interviewer-wave fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	19893	19893	19893	54094	54094	54094
Adj. R^2	0.377	0.377	0.377	0.338	0.338	0.338
Num. clusters (province-wave)	128	128	128	133	133	133
Num. clusters (county)	317	317	317	478	478	478
Num. clusters (province)	27	27	27	30	30	30

Standard errors clustered at the province-wave level are shown in parentheses, standard errors clustered by county are shown in brackets, and standard errors clustered by province are shown in curly brackets.

We utilize an ordered logit model to re-estimate the main specifications in Table S.5. To mitigate the introduction of an excessive number of dummy variables into the ordered logit model, we instead incorporate province-wave interactive fixed effects in each specification. In odd columns, we inspect the general effects of market integration and find the coefficient to be positive and significant, both statistically and economically, implying a beneficial effect on residents' life satisfaction. In even columns, we incorporate the interaction terms and likewise observe the redistribution effects of market integration. These results are consistent with our main findings.

Table S.5 Using the ordered logit model to re-estimate the main specifications.

	Dependent variable: life satisfaction							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Int (ln)	0.335	1.261						
	(0.083)	(0.333)						
	[0.081]	[0.252]						
	{0.073}	{0.317}						
Int (ln)		-0.084						
× Income (ln)		(0.028)						
		[0.022]						
		{0.028}						
GoodsInt (ln)			0.417	1.573				
			(0.099)	(0.298)				
			[0.100]	[0.226]				
			{0.091}	{0.299}				
GoodsInt (ln)				-0.107				
× Income (ln)				(0.024)				
				[0.019]				
				{0.024}				
LaborInt (ln)					0.204	0.587		
					(0.076)	(0.302)		
					[0.067]	[0.223]		
					{0.056}	{0.323}		
LaborInt (ln)						-0.035		
× Income (ln)						(0.025)		
						[0.019]		
						{0.028}		
CapitalInt (ln)							0.140	0.587
							(0.060)	(0.204)
							[0.046]	[0.125]
							{0.066}	{0.209}
CapitalInt (ln)								-0.041
× Income (ln)								(0.017)
								[0.011]
								{0.014}
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province-wave FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	78446	78350	74659	74659	74659	74659	74659	74659
Num. clus. (pro.-wave)	136	136	136	136	136	136	136	136
Num. clus. (county)	567	567	567	567	567	567	567	567
Num. clus. (province)	30	30	30	30	30	30	30	30

Standard errors clustered at the province-wave level are shown in parentheses, standard errors clustered by the county are shown in brackets, and standard errors clustered by the province are shown in curly brackets.

We use the generalized ordered logit model to relax the parallel-lines assumptions of the ordered logit model in Table S.6. Each panel in Table S.6 reports two sets of results. Of these, Columns 1 to 4 estimate the overall effect, and the significant positive coefficients indicate that the higher level of market integration makes it more likely to have a higher score of life satisfaction for residents with a current score of 1 to 4, respectively. Moreover, there is a pattern shown in coefficients that residents with lower life satisfaction gain greater positive impacts, which once again illustrates that market integration facilitates the reduction of happiness inequality. Columns 5 to 8 investigate the redistribution effect and we find it more pronounced for residents with higher life satisfaction.

Table S.6 Using the generalized ordered logit model to re-estimate the main specifications.

	Dependent variable: life satisfaction							
	Overall effect				Redistribution effect			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	L.S.=1	L.S.=2	L.S.=3	L.S.=4	L.S.=1	L.S.=2	L.S.=3	L.S.=4
A. Aggregation of three markets								
Int (ln)	0.668	0.547	0.372	0.221	0.752	0.725	1.096	1.671
	(0.262)	(0.216)	(0.091)	(0.093)	(0.664)	(0.390)	(0.327)	(0.355)
	[0.210]	[0.137]	[0.091]	[0.107]	[0.554]	[0.336]	[0.254]	[0.278]
	{0.223}	{0.209}	{0.081}	{0.100}	{0.541}	{0.325}	{0.290}	{0.388}
Int (ln)					-0.007	-0.016	-0.065	-0.133
× Income (ln)					(0.061)	(0.034)	(0.028)	(0.031)
					[0.048]	[0.028]	[0.022]	[0.024]
					{0.049}	{0.027}	{0.026}	{0.035}
Observations	74833				74833			
B. Goods market								
GoodsInt (ln)	0.883	0.631	0.401	0.218	1.545	0.974	1.362	1.798
	(0.310)	(0.203)	(0.089)	(0.083)	(0.542)	(0.405)	(0.276)	(0.284)
	[0.245]	[0.162]	[0.105]	[0.104]	[0.479]	[0.303]	[0.245]	[0.278]
	{0.315}	{0.191}	{0.079}	{0.070}	{0.412}	{0.291}	{0.258}	{0.325}
GoodsInt (ln)					-0.062	-0.031	-0.089	-0.146
× Income (ln)					(0.043)	(0.033)	(0.023)	(0.025)
					[0.041]	[0.025]	[0.021]	[0.024]
					{0.032}	{0.024}	{0.021}	{0.029}
Observations	74833				74833			
C. Labor market								
LaborInt (ln)	0.339	0.339	0.225	0.141	-0.068	0.317	0.465	0.925
	(0.240)	(0.183)	(0.080)	(0.090)	(0.671)	(0.328)	(0.305)	(0.351)
	[0.166]	[0.117]	[0.074]	[0.093]	[0.503]	[0.312]	[0.219]	[0.299]
	{0.170}	{0.173}	{0.064}	{0.085}	{0.591}	{0.345}	{0.290}	{0.398}
LaborInt (ln)					0.039	0.003	-0.021	-0.073
× Income (ln)					(0.059)	(0.027)	(0.026)	(0.031)
					[0.046]	[0.026]	[0.019]	[0.026]
					{0.054}	{0.028}	{0.025}	{0.037}
Observations	74833				74833			

Table S.6 (continued)

	Dependent variable: life satisfaction							
	Overall effect				Redistribution effect			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	L.S.=1	L.S.=2	L.S.=3	L.S.=4	L.S.=1	L.S.=2	L.S.=3	L.S.=4
D. Capital market								
CapitalInt (ln)	0.458	0.284	0.107	0.026	0.378	0.254	0.464	0.490
	(0.112)	(0.096)	(0.059)	(0.061)	(0.322)	(0.207)	(0.186)	(0.217)
	[0.099]	[0.066]	[0.054]	[0.057]	[0.271]	[0.164]	[0.130]	[0.154]
	{0.122}	{0.107}	{0.064}	{0.060}	{0.300}	{0.147}	{0.169}	{0.237}
CapitalInt (ln)					0.008	0.003	-0.033	-0.043
× Income (ln)					(0.030)	(0.020)	(0.016)	(0.019)
					[0.024]	[0.015]	[0.011]	[0.014]
					{0.029}	{0.011}	{0.012}	{0.019}
Observations	74833				74833			
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Prov.-wave FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Num. clusters (pro.-wave)	136	136	136	136	136	136	136	136
Num. clusters (county)	567	567	567	567	567	567	567	567
Num. clusters (province)	30	30	30	30	30	30	30	30

Standard errors clustered at the province-wave level are shown in parentheses, standard errors clustered by the county are shown in brackets, and standard errors clustered by the province are shown in curly brackets.

In the main texts, we drop a large number of respondents to obtain balanced panel data. However, if there is selection bias in exclusion, then the estimated results are not representative. In Table S.7, we retain all respondent samples. We find a small decrease in the estimated overall effects (odd columns), and the redistribution effects are still quite significant (even columns). This may reflect that those who dropped out of the survey are in the higher income group.

Table S.7 Using unbalanced panel data to re-estimate the main specifications.

	Dependent variable: life satisfaction							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Int (ln)	0.070	0.592						
	(0.034)	(0.136)						
	[0.042]	[0.128]						
	{0.042}	{0.129}						
Int (ln)		-0.047						
× Income (ln)		(0.012)						
		[0.010]						
		{0.009}						
GoodsInt (ln)			0.050	0.605				
			(0.053)	(0.116)				
			[0.053]	[0.119]				
			{0.068}	{0.120}				
GoodsInt (ln)				-0.051				
× Income (ln)				(0.010)				
				[0.010]				
				{0.010}				
LaborInt (ln)					0.049	0.328		
					(0.026)	(0.119)		
					[0.035]	[0.115]		
					{0.032}	{0.131}		
LaborInt (ln)						-0.025		
× Income (ln)						(0.010)		
						[0.009]		
						{0.010}		
CapitalInt (ln)							0.025	0.195
							(0.024)	(0.075)
							[0.029]	[0.068]
							{0.029}	{0.070}
CapitalInt (ln)								-0.016
× Income (ln)								(0.006)
								[0.006]
								{0.005}
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Interviewer-wave FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	107721	107721	107721	107721	107721	107721	107721	107721
Adj. R^2	0.340	0.340	0.340	0.341	0.340	0.340	0.340	0.340
Num. clus. (pro.-wave)	138	138	138	138	138	138	138	138
Num. clus. (county)	760	760	760	760	760	760	760	760
Num. clus. (province)	30	30	30	30	30	30	30	30

Standard errors clustered at the province-wave level are shown in parentheses, standard errors clustered by the county are shown in brackets, and standard errors clustered by the province are shown in curly brackets.

In Table S.8, we take into account different interview methods, as some studies suggest interview methods will affect respondents' answers. For example, Ng et al. (2019) find higher reported subjective well-being in face-to-face interviews compared to responses collected online. In some waves of the CFPS, part of the respondents were interviewed face-to-face while others were surveyed by telephone. If provinces with lower degrees of market integration systematically tend to a certain interview method or vice versa, estimations may be skewed. In Table S.8, we add interview method-wave interactive fixed effects to the original specifications and get similar results.

Table S.8 Re-estimating considering the interview methods.

	Dependent variable: life satisfaction							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Int (ln)	0.068	0.558						
	(0.038)	(0.148)						
	[0.047]	[0.143]						
	{0.046}	{0.131}						
Int (ln)		-0.044						
× Income (ln)		(0.012)						
		[0.012]						
		{0.010}						
GoodsInt (ln)			0.093	0.660				
			(0.054)	(0.142)				
			[0.062]	[0.145]				
			{0.068}	{0.140}				
GoodsInt (ln)				-0.052				
× Income (ln)				(0.011)				
				[0.012]				
				{0.010}				
LaborInt (ln)					0.043	0.273		
					(0.032)	(0.121)		
					[0.040]	[0.120]		
					{0.040}	{0.130}		
LaborInt (ln)						-0.021		
× Income (ln)						(0.010)		
						[0.010]		
						{0.010}		
CapitalInt (ln)							-0.056	0.093
							(0.034)	(0.085)
							[0.033]	[0.071]
							{0.032}	{0.082}
CapitalInt (ln)								-0.014
× Income (ln)								(0.007)
								[0.006]
								{0.006}
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Interviewer-wave FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inter. method-wave FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	74661	74661	74661	74661	74661	74661	74661	74661
Adj. R^2	0.344	0.344	0.344	0.345	0.344	0.344	0.344	0.344
Num. clus. (pro.-wave)	136	136	136	136	136	136	136	136
Num. clus. (county)	562	562	562	562	562	562	562	562
Num. clus. (province)	30	30	30	30	30	30	30	30

Standard errors clustered at the province-wave level are shown in parentheses, standard errors clustered by the county are shown in brackets, and standard errors clustered by the province are shown in curly brackets.

In terms of the importance of absolute versus relative income in determining subjective well-being, Helliwell and Huang (2010) conclude that life satisfaction is totally relative in income. Inspiredly, we replace the household income with the subjective relative income to re-estimate. In CFPS, respondents answer the question "how would you rate your income in your local area (the lowest score is 1 and the highest score is 5)". In Table S.9, residents whose relative income equals 1 are regarded as the references, thus the significant negative estimated coefficients of the interactive terms indicated a less positive or even negative effect of market integration on the life satisfaction of high-income residents.

Table S.9 Re-estimating with relative income.

	Dependent variable: life satisfaction			
	(1)	(2)	(3)	(4)
Int (ln)	0.179			
	(0.040)			
	[0.045]			
	{0.046}			
Int (ln) × Relative Income				
Relative Income = 2	-0.049			
	(0.005)			
	[0.005]			
	{0.005}			
Relative Income = 3	-0.126			
	(0.005)			
	[0.006]			
	{0.005}			
Relative Income = 4	-0.179			
	(0.009)			
	[0.008]			
	{0.009}			
Relative Income = 5	-0.276			
	(0.010)			
	[0.010]			
	{0.009}			
GoodsInt (ln)		0.226		
		(0.058)		
		[0.063]		
		{0.070}		
GoodsInt (ln) × Relative Income				
Relative Income = 2		-0.048		
		(0.004)		
		[0.005]		
		{0.005}		
Relative Income = 3		-0.122		
		(0.004)		
		[0.006]		
		{0.005}		
Relative Income = 4		-0.176		
		(0.007)		
		[0.008]		
		{0.008}		

Table S.9 (continued)

	Dependent variable: life satisfaction			
	(1)	(2)	(3)	(4)
Relative Income = 5		-0.272		
		(0.010)		
		[0.010]		
		{0.009}		
LaborInt (ln)			0.130	
			(0.034)	
			[0.039]	
			{0.039}	
LaborInt (ln) × Relative Income				
Relative Income = 2			-0.041	
			(0.004)	
			[0.004]	
			{0.004}	
Relative Income = 3			-0.105	
			(0.005)	
			[0.005]	
			{0.004}	
Relative Income = 4			-0.149	
			(0.008)	
			[0.007]	
			{0.008}	
Relative Income = 5			-0.229	
			(0.009)	
			[0.008]	
			{0.007}	
CapitalInt (ln)				0.133
				(0.042)
				[0.035]
				{0.044}
CapitalInt (ln) × Relative Income				
Relative Income = 2				-0.069
				(0.017)
				[0.016]
				{0.016}
Relative Income = 3				-0.166***
				(0.029)
				[0.017]
				{0.020}
Relative Income = 4				-0.229***
				(0.046)
				[0.026]
				{0.034}
Relative Income = 5				-0.428***
				(0.077)
				[0.040]
				{0.049}

Table S.9 (continued)

	Dependent variable: life satisfaction			
	(1)	(2)	(3)	(4)
Control variables	Yes	Yes	Yes	Yes
Individual FE	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes
Interviewer-wave FE	Yes	Yes	Yes	Yes
Observations	71251	71251	71251	71251
Adj. R^2	0.368	0.368	0.367	0.351
Num. clusters (province-wave)	136	136	136	136
Num. clusters (county)	544	544	544	544
Num. clusters (province)	30	30	30	30

Standard errors clustered at the province-wave level are shown in parentheses, standard errors clustered by the county are shown in brackets, and standard errors clustered by the province are shown in curly brackets.

Due to a large price fluctuation, some provinces in some years have very small measures of market integration, which are particularly further away from the mean after taking the logarithm. Therefore, we perform a 5% two-sided winsorization for the market integration index in Table S.10 to eliminate the impact of these high-leverage points. The results are once again consistent with our main findings and even larger overall effects of market integration have been found.

Table S.10 Re-estimating after 5% two-sided winsorization for market integration index.

	Dependent variable: life satisfaction							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Int (ln)	0.141	0.722						
	(0.050)	(0.163)						
	[0.061]	[0.160]						
	{0.061}	{0.143}						
Int (ln)		-0.053						
× Income (ln)		(0.014)						
		[0.013]						
		{0.011}						
GoodsInt (ln)			0.137	0.755				
			(0.058)	(0.157)				
			[0.064]	[0.146]				
			{0.068}	{0.142}				
GoodsInt (ln)				-0.057				
× Income (ln)				(0.013)				
				[0.012]				
				{0.011}				
LaborInt (ln)					0.080	0.370		
					(0.042)	(0.151)		
					[0.057]	[0.146]		
					{0.049}	{0.161}		
LaborInt (ln)						-0.027		
× Income (ln)						(0.013)		
						[0.012]		
						{0.014}		
CapitalInt (ln)							0.016	0.162
							(0.039)	(0.093)
							[0.037]	[0.076]
							{0.049}	{0.100}
CapitalInt (ln)								-0.014
× Income (ln)								(0.007)
								[0.006]
								{0.006}
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Interviewer-wave FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	74661	74661	74661	74661	74661	74661	74661	74661
Adj. R^2	0.344	0.344	0.344	0.345	0.344	0.344	0.344	0.344
Num. clus. (pro.-wave)	136	136	136	136	136	136	136	136
Num. clus. (county)	562	562	562	562	562	562	562	562
Num. clus. (province)	30	30	30	30	30	30	30	30

Standard errors clustered at the province-wave level are shown in parentheses, standard errors clustered by the county are shown in brackets, and standard errors clustered by the province are shown in curly brackets.

References

Altonji, J. G., Elder, T. E., & Taber, C. R. (2005). Selection on Observed and Unobserved Variables: Assessing the Effectiveness of Catholic Schools. *Journal of Political Economy*, *113*(1), 151–184.

Helliwell, J. F., & Huang, H. (2010). How's the Job? Well-Being and Social Capital in the Workplace. *ILR Review*, *63*(2), 205–227.

Ng, W., Russell Kua, W. S., & Kang, S.-H. (2019). The Relative Importance of Personality, Financial Satisfaction, and Autonomy for Different Subjective Well-Being Facets. *The Journal of Psychology*, *153*(7), 680–700.

Nunn, N., & Wantchekon, L. (2011). The Slave Trade and the Origins of Mistrust in Africa. *American Economic Review*, *101*(7), 3221–3252.