

## FDI and labour share of home-country: empirical evidence from micro data of Chinese enterprises

Nisha Jia, Yonghui Han, Keming Peng & Hongzhen Lei

To cite this article: Nisha Jia, Yonghui Han, Keming Peng & Hongzhen Lei (2019) FDI and labour share of home-country: empirical evidence from micro data of Chinese enterprises, Economic Research-Ekonomska Istraživanja, 32:1, 1320-1335, DOI: [10.1080/1331677X.2019.1628652](https://doi.org/10.1080/1331677X.2019.1628652)

To link to this article: <https://doi.org/10.1080/1331677X.2019.1628652>



© 2019 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group



Published online: 09 Jul 2019.



Submit your article to this journal [↗](#)



Article views: 309



View related articles [↗](#)



View Crossmark data [↗](#)

# FDI and labour share of home-country: empirical evidence from micro data of Chinese enterprises

Nisha Jia<sup>a</sup>, Yonghui Han<sup>b</sup> , Keming Peng<sup>b</sup> and Hongzhen Lei<sup>a</sup>

<sup>a</sup>International Business School, Shaanxi Normal University, Xi'an, China; <sup>b</sup>Guangdong Institute for International Strategies (GIIS), Guangdong University of Foreign Studies (GDUFS), Guangzhou, China

## ABSTRACT

When an enterprise is operating globally, it will surely lead to the flow of production factors, and thus change the factor income distribution in the home country. This paper studies the influence of FDI on the labour share in enterprises' home country under the background of continuous economic globalisation. Based on the theory of Heterogeneity of FDI Motivation, this paper first analyzes the influence mechanism of FDI on home country labour share. Then, with the micro data of Chinese enterprises, this paper adopts Mahalanobis distance matching and Difference-in-Differences (DID) estimation to have empirical test on the influence of FDI on the labour share in enterprises' home country. The results show that, overall, enterprises' FDI and labour share in the home country present a negative correlation. In terms of heterogeneity of FDI motivation, market-seeking FDI significantly decreases the labour share in the home country, while resources-seeking and technology-seeking FDI significantly increase the labour share in the home country. From the perspective of host country heterogeneity, FDI in developed countries significantly increases the labour share in the home country, while the FDI in developing countries inhibits the increase of labour share in the home country.

## ARTICLE HISTORY

Received 7 July 2017  
Accepted 21 May 2018

## KEYWORDS

Foreign direct investment (FDI); labour share; motivation of FDI

## JEL CLASSIFICATIONS

F42; F16; F21; F22

## I. Introduction

In the last four decades, the global labour share witnessed stability, and then gradual decrease. Kaldor's (1957) 'stylized fact of a constant capital share' is challenged by empirical experience (Blanchard, Nordhaus, & Phelps, 1997). Normally, the distribution of labour factors is more balanced than the distribution of capital. Factor income is more reliant on capital, which can widen the income gap, and further lead to social instability, undermining sustainable economic development. Meanwhile, with the economic globalisation, the FDI has gradually become an important way for multinational enterprises to participate in global labour division. The operation and

**CONTACT** Yong-hui Han  hanyonghui2006@foxmail.com

© 2019 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

multinational mobility will lead to the fluctuation of prices, and flow of production factors, and thus, lead to the change of labour share in the home country. Under this background, it is necessary to study how enterprises FDI influences the labour share in the home country, and analyze how to better use FDI in promoting the same in the home country.

Most of the early studies focus on which FDI induce reallocation of factor income share (e.g., Aizenman & Spiegel, 2006; Feenstra & Hanson, 1997; Onaran & Stockhammer, 2008). According to the Heckscher-Ohlin theorem and the Stolper-Samuelson theorem, with the opening of the economy, the labour share of copiousness factor will increase. Meanwhile, with the accelerating economic globalisation, capital gains more mobility than labour, while increased mobility in return offers more opportunities to capital for revenue. This typically presents owners of capital as having greater bargaining power compared to labour, and thus workers' salary is relatively low (Rodrik, 1998). This theoretical assertion has received empirical support in both developed and developing countries. For example, using UN dataset, Diwan (2001) finds the decline of labour share during a crisis, which is mainly driven by the openness of its capital regimes and trade. Harrison (2005) uses a panel of more than 100 countries in 1993 to 1996 and finds that inward FDI from developed economies to developing economies presents a negative correlation with the average labour share in the developing economies, and suggests that foreign investment inflows are associated with a decline in labour share in developing countries. Stockhammer (2013) uses a new ILO dataset on adjusted wage shares for 28 advanced economies and 43 developing economies to explain changes in wage shares, and finds that globalisation has robust negative effects.

Recent studies investigate the mechanism of labour share change caused by FDI but they mainly focus on the impact of inward FDI in the host country. Andrew and Krueger (2003) and Jaumotte and Tytell (2008) estimate the contributions of technological progress to the decline in the labour share, and suggest that technology progress enhances the productivity of the host country, and thus increases the labour share. Meanwhile, the labour income of workers rises slowly due to the wage adhesiveness mechanism. The two factors lead to the decrease of labour share. Decreuse and Maarek (2015), however, suggest that the final effect of FDI on labour share depends on the 'technological rent effect'<sup>1</sup> and 'wage competition effect'.<sup>2</sup> For example, Qiao, Li, and Gao (2015) test data from China and conclude that FDI inflow inhibits China's labour share. Such inhibition decreases after 1994, mainly because of the dominant 'technological rent effect'. However, the impact of outward FDI on labour share in home country is equally important. In particular, outward FDI is crucial for upgrading industrial structure and promoting technological progress in home country such as Japan (Kojima, 1978), Korea (Kim, 2000), China (Jia, Han, & Zou, 2016).

The purpose of this paper is to investigate the impact of outward FDI on labour share in home country and intend to make the following three contributions to the literature. First, investigations on the reasons of labour share change are mainly from the perspectives of inward FDI, economic structural change, and financial restrictions (Maarek, 2012; Hutchinson & Persyn, 2012). For example, using data from China,

Chong-En & Zhenjie (2009) point out that industrial restructuring contributes 61.3% to the labour share change. Charpe (2011) analyzes the macro panel data of 69 countries, and proposes that the main reason of the decline of labour share is the financialisation of economy. In this paper, we analyze the effect of outward FDI's influence on labour share, which provides a new perspective for understanding the reasons of labour share change. Under the background of economic globalisation, outward FDI will lead to the change of factors supply in home country, and thus factor price, finally influencing labour share. Given the above, the economic analysis of labour share cannot leave behind the important factor of outward FDI.

Second, despite labour share allocation being a traditional macro-economic problem, empirical facts might deviate, because it is 'unable to figure out the differences in data sources' and because of 'statistical discrepancy' (Elsby, Hobijn, & Şahin, 2013). Meanwhile, outward FDI are mostly decided by enterprises. The use of micro enterprise data from Industrial Departments could lead to ignorance of these problems. Jia and Shen (2016) provide an example of calculating labour share by using enterprises data. In this paper, we use the micro data of Chinese enterprises, and analyze the influence of outward FDI on the labour share in the home country. This has eliminated the deviation of the empirical test caused by the aggregation of macro data.

Thirdly, enterprises' outward FDI shows obvious investment motivations (Dunning, 1993). Different outward FDI with different motivations might lead to different changes in labour share. Taken into consideration of outward FDI's motivation, this paper analyzes the mechanism of how each of the four types of outward FDI's influences labour share, and then empirically analyzes different samples, so as to offer a micro evidence to further understand the relation between outward FDI and labour share. This could be a breakthrough for the adjustment of national income pattern.

Using enterprise-level data from China, we find that labour share in experimental group is lower than that in control group with Mahalanobis distance matching and Difference-in-Differences (DID) estimation, which means that enterprises' outward FDI and labour share present a negative correlation. Sample tests show that market-seeking outward FDI significantly decreases the labour share in the home country, while resources-seeking and technology-seeking outward FDI significantly increase the labour share in the home country. From the perspective of host country heterogeneity, outward FDI in developed countries significantly increases the labour share in the home country, while the outward FDI in developing countries inhibits the increase of labour share in the home country.

In addition to the literature discussed earlier, this paper is also closely related to the studies on how outward FDI affects factor returns. For example, using French micro-data in a fixed model, Gazaniol and Laffineur (2015) find that outward FDI raises wages for managers and reduces wages for workers performing offshorable tasks. Chen (2011) investigates the impact of outward FDI on employment and wages in Taiwan. In particular, they find that outward FDI causes wage inequality. However, these studies do not focus on the factor income share or labour share.

The rest of the paper is organised as follows. [Section II](#) analyzes the influence mechanism of FDI on home country labour share. [Section III](#) describes the data and

introduces the empirical model. [Section IV](#) presents the main empirical evidence and discussion on the possible mechanism. [Section V](#) is the conclusion.

## II. Mechanism analysis

According to the theory by Dunning (1993), there are four motivations in enterprises' FDI, namely, market-seeking FDI, efficiency-seeking FDI, resource-seeking FDI and technology-seeking FDI. Based on the above, this paper analyzes how each of the four types of FDI influences labour share.

1. **Market-seeking FDI.** This type of FDI focuses on market expansion and after-sales services, and aims at expanding the export of the home country. Compared to other enterprises that invest overseas, most of enterprises with market-seeking FDI are in a development period with lower productivity and focus on labour-intensive production. Therefore, such enterprises, when faced with strong overseas bargaining power and competition pressure, will be 'captured'. Enterprises are confronted with a dilemma: despite the export expansion and the rise of factor prices, they cannot increase the price of goods. When labour supply is sufficient and capital is relatively insufficient, this type of enterprises tends to pass 'capture effect'<sup>3</sup> to their employees, thus leading to negative influence on labour share. Therefore, it is clear that market-seeking FDI functions in the way as follows: low-end production - market-seeking FDI - export expansion - difficulties in increasing goods price - labour share decrease (compare to capital income). Therefore, market-seeking FDI negatively correlates with the labour share in the home country.
2. **Efficiency-seeking FDI.** In the overseas market, this type of FDI mainly focuses on the general business that integrates production. The influence of such FDI on the labour share in the home country depends on the competition of the labour factor market in the host country. If the labour factor market in the host country is over-supply, enterprises with this type of FDI can employ a large number of overseas staff to cut the cost, and increase international competitiveness. This will largely weaken the bargaining power of employees from the home country, and therefore lower the status of the initial labour factor distribution, which finally limits the labour share in the home country. However, when the host country is faced with insufficient labour supply, enterprises tend to raise the payroll to hire employees from the home country, so as to lower the costs for communication and training. In the long term, this can increase the payroll of home country employees, and thus increase the labour share. Therefore, it needs further studies to test the influence of efficiency-seeking FDI on the labour share in the home country.
3. **Resource-seeking FDI.** Such FDI is to make use of the resources of the host countries. On one hand, through 'resources deficiency effect', such FDI can ease the situation of resources shortage in the home country. With the rise of resources factors stock over the labour factors stock, the price of resources factor will decline compared to labour factor, and thus the labourshare will increase. On the

other hand, enterprises are mostly SOEs with lower interest rates and soft budget constraint. Therefore, the enterprise managers will attach more importance to humane care and people-to-people relations than making profits. Thus, within the regulations and under certain conditions, such enterprises will tend to be labour-biased, and labour share can be increased, in which employees, enterprise managers and governments reach win-win results (Wu, 2011). Therefore, resource-seeking FDI will help increase the labour share in the home country.

4. Technology-seeking FDI. Enterprises with such FDI generally invest in key overseas assets (R&D, technology, and brand), and invest more in developed countries, and aim at obtaining reverse technology spillover. Therefore, such enterprises will increase home country's need for high-level labour to receive advanced technologies and management experience from the host country, and thus enterprises will raise the salary to attract high-end personnel, finally increasing the labour share in the home country. Moreover, due to the 'self-selection effect',<sup>4</sup> such enterprises generally have high productivity than others, which will lead to 'reverse technology spillover effect'<sup>5</sup> and further enhance enterprises' competitiveness of products. As a result, these enterprises can on one hand promote production, and on the other hand avoid the 'capture effect' as would face the enterprises with market-seeking FDI, which can increase employment and labour share. Thus, technology-seeking FDI will help to increase the labour share in the home country. The mechanism is illustrated as in Figure 1.

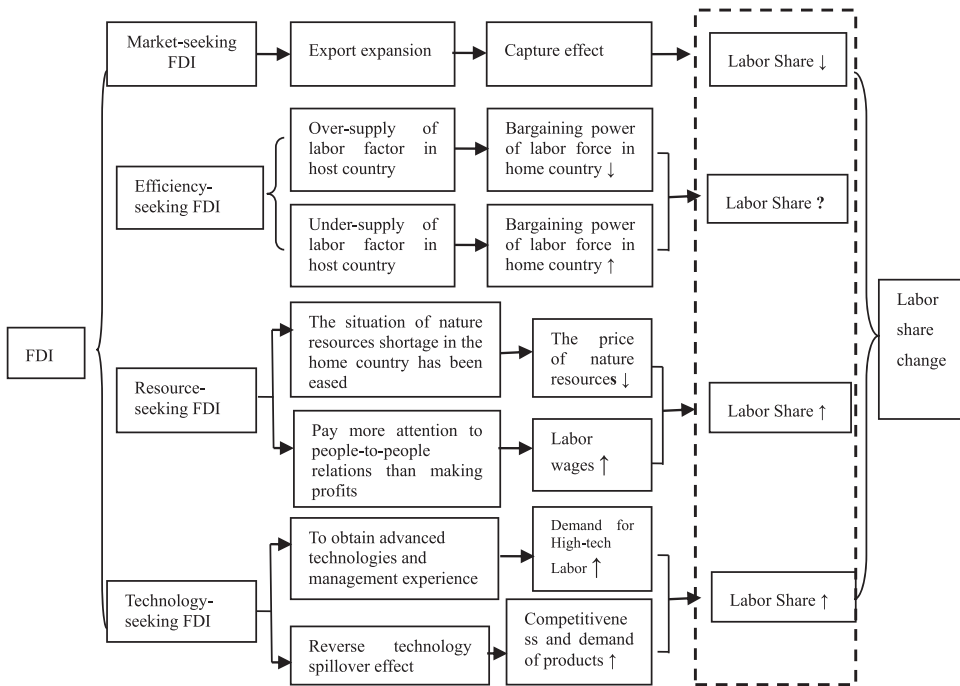


Figure 1. The mechanism of how different FDI motivations influence labour share.

### III. Data and model

#### 1. Model

This paper adopts DID and Mahalanobis distance matching to empirically analyze Chinese enterprises' FDI and the influence on the labour share in the home country. To be specific, following Girma, Greenaway, and Kneller (2004), the author uses Mahalanobis distance matching in selecting factors influencing enterprises' decision in FDI. As a result, non-FDI enterprises are selected according to the matching results with the FDI enterprises. Then the author defines the FDI enterprises as experimental group, while the non-FDI enterprises the control group. The test model is as follows:

$$S_{it} = \alpha_0 + \alpha_1 du + \alpha_2 dt + \delta du \times dt + \varepsilon_{it} \quad (1)$$

Here  $du = 1$  means experimental group (i.e., FDI enterprises), otherwise it is taken as 0 (i.e., control group).  $dt = 0$  means enterprises before FDI, while  $dt = 1$  means enterprises after FDI. Here,  $S_{it}$  means the labour share of enterprise  $i$  in the period of  $t$ . The index  $\delta$  of the cross-multiplying term ( $du \times dt$ ) in (1) is the key variable of this paper, which means the influence of enterprises' FDI on the labour share in the home country. Considering that the test result can be affected by omitted variables, the author adds a set of controlled variables  $X_{itjk}$ , which include total factor productivity, capital intensity, enterprise scale, a dummy variable of whether the enterprise has foreign direct investment, whether the enterprise exports, and whether the enterprise is state-owned. Meanwhile, the variables of industrial characteristics  $v_j$  and regional characteristics  $v_k$  are controlled. Given the above, the formula (1) can be modified:

$$S_{it} = \alpha_0 + \alpha_1 du + \alpha_2 dt + \delta du \times dt + \varphi X_{itjk} + v_j + v_k + \varepsilon_{it} \quad (2)$$

#### 2. Data and variables

The data of this paper are from a horizontal integration of *Foreign-invested Enterprises (Institutions) List* (hereinafter referred to as *the List*) and *Chinese Industrial Enterprises Database*. *The List* is from the website of the Chinese Ministry of Commerce. With the information from *the List*, it is possible to differentiate FDI enterprises from non-FDI ones. To ensure data consistency, the author eliminates abnormal values, and the result is 909 FDI enterprises.<sup>6</sup> Recalling that the matching test is to find out non-FDI enterprises that can be compared to the experimental group before they have FDI, it is necessary to eliminate enterprises without data prior to their FDI. The result is an experimental group of 621 enterprises. Recalling that Chinese enterprises' FDI mostly started from 2005, to better show the relation between enterprises' FDI and labour share, this paper focuses on the data from 2005 to 2007.

**Table 1.** Definition of Key Variables and Method of Calculation.

Type	Name	Symbol	Description
Dependent Variables	Labour Share	$S_{it}$	Total Salary and Total Benefits v.s. Industrial Added Value (in pairs). Data source: <i>Chinese Industrial Enterprises Database</i>
Controlled Variables	Total Factor Productivity	Tfp1	Calculated with Levinsohn and Petrin (2003) Method. <sup>9</sup> In calculation, industrial added value, capital investment and intermediate input is deflated in accordance with the price index and fixed-asset price index of year 2000, while labour input L is represented in the enterprises' average annual employment number. Data source: <i>Chinese Industrial Enterprises Database</i>
		Tfp2	Calculated with Olley and Pakes (1992) Method. In calculation, industrial added value, capital investment and intermediate input is deflated in accordance with the price index and fixed-asset price index of year 2000, while labour input L is represented in the enterprises' average annual employment number. Data source: <i>Chinese Industrial Enterprises Database</i>
	Enterprises Scale	Scale	The author paired the revenue of enterprises to demonstrate enterprise scale. The revenue here is deflated according to the producer price of industrial products (PPI) with year 2000 as the base period. Data source: <i>Chinese Industrial Enterprises Database</i>
	capital intensity	Kshare	The fixed-asset stock of unit labour (in pairs). The fixed asset here is deflated according to the fixed asset investment price index (FAIPI) with year 2000 as the base period. Data source: <i>Chinese Industrial Enterprises Database</i>
	Is it a foreign invested enterprise?	Dummy_FDI	If the paid-in capital includes Hong Kong, Macau, Taiwan or overseas investment, then 1, otherwise, 0. Data source: <i>Chinese Industrial Enterprises Database</i>
	Does the enterprise export goods?	Dummy_ex	If the enterprise exports goods, then 1, otherwise, 0. Data source: <i>Chinese Industrial Enterprises Database</i>
	Is the enterprise state-owned?	Dummy_con	If the paid-in capital includes state capital, then 1, otherwise, 0. Data source: <i>Chinese Industrial Enterprises Database</i>

In the empirical analysis, it is necessary to consider some basic variables and labour distribution variables. Some of these variables need to be modified based on the original data, and they are explained as in Table 1.

## IV. Empirical results

### 1. Results from Mahalanobis distance matching

This paper adopts the Mahalanobis distance matching method, and matches the following indices as variables<sup>7</sup>: enterprise total factor productivity (TFP), enterprise scale (scale), capital intensity (kshare). Since enterprises vary from each other in the year of their first FDI, the author selects the Control Group based on enterprises' first FDI and the results are in pairs in Tables 2–4. Before matching, the labour share between FDI enterprises and non-FDI enterprises vary significantly, and T value is also significant. Therefore, the null hypothesis (that the two groups of enterprises have same average labour share) is rejected. Through Mahalanobis distance matching, the samples' labour share of the control group declines significantly, and approaches the



**Table 2.** Data Match in 2004.

	Before the Match			After the Match			Experimental Group	Control Group	Match Results
	Experimental Group	Control Group	T Value	Experimental Group	Control Group	T Value			
lkshare	3.652	3.155	-5.758***	3.652	3.670	0.129	244	5725	227
Scale	11.458	9.813	-22.894***	11.458	11.619	0.976	244	5725	227
Tfp1	11.576	0.727	-10.983***	11.576	13.144	0.216	244	5725	227
S	5.528	5.101	-6.482***	5.528	5.631	1.156	244	5725	227

**Table 3.** Data Match in 2005.

	Before the Match			After the Match			Experimental Group	Control Group	Match Results
	Experimental Group	Control Group	T Value	Experimental Group	Control Group	T Value			
lkshare	3.477	3.217	-2.577**	3.477	3.537	0.422	186	5934	174
lscale	10.861	9.934	-11.435***	10.861	10.996	1.072	186	5934	174
Tfp1	3.135	0.879	-6.761***	3.135	3.144	0.006	186	5934	174
S	5.488	5.264	-2.949***	5.488	5.551	0.659	186	5934	174

**Table 4.** Data Match in 2006.

	Before the Match			After the Match			Experimental Group	Control Group	Match Results
	Experimental Group	Control Group	T Value	Experimental Group	Control Group	T Value			
lkshare	3.641	3.217	-4.294***	3.641	3.602	-0.331	191	6108	182
lscale	11.154	10.051	-13.835***	11.154	11.279	0.774	191	6108	182
Tfp1	14.033	0.924	-10.233***	14.033	15.758	-0.044	191	6108	182
S	5.722	5.419	-3.919***	5.722	5.804	0.822	191	6108	182

average of the samples' labour share of the experimental group. The T-Test shows that the result is not significant, which means the null hypothesis (that the two groups of enterprises had same average labour share) is accepted.

Note: The match proportion is 1:1. The null hypothesis is 'The Experimental Group and the Control Group had same average labour share'. Recall that we have eliminated some repeated match enterprise samples, so that the matching result is not presented in 1:1 proportion. Also, we have carried out robustness tests in 1:2 proportion and 1:3 proportion. But these tests did not deviate the result.

## 2. Initial regression

Based on the DID method, Table 5 presents the baseline results for the empirical specification of total sample. From Column 1 and Column 2 of Table 5, the coefficient of the key test variable  $du \times dt$  is  $-0.127$  and  $-0.075$ , which are significant at a 10% statistical level. This means that the labour share of FDI enterprises is significantly lower than that of non-FDI enterprises, which indicates that FDI will lower the share of labour share in the home country. Given that time, region and industrial difference could influence the labour share, so in Column 3 and Column 4, the author controls the influence of time, region and industrial difference on labour share. It is found that the  $du \times dt$  coefficient is still negative, and result is robust. Given that different

**Table 5.** Initial Regression.

	(1)	(2)	(3)	(4)	(5)
<i>du</i>	0.112** (2.09)	0.018 (0.37)	0.019 (0.39)	0.155 (1.04)	0.013 (0.21)
<i>dt</i>	0.022 (0.48)	0.071* (1.73)	0.118 (1.31)	0.109 (1.08)	(0.091) (1.51)
<i>du</i> × <i>dt</i>	-0.127* (-1.94)	-0.075* (-1.83)	-0.074* (-1.79)	-0.063* (-1.87)	-0.083** (-2.16)
kshare		-0.105*** (-8.77)	-0.105*** (-8.77)	-0.111*** (-8.77)	-0.061*** (-6.23)
Scale		0.212*** (17.27)	0.214*** (17.39)	0.221*** (16.60)	0.172*** (2.93)
Tfp1		0.098 (0.41)	0.012 (0.48)	0.057 (0.22)	
Tfp2					-0.132 (1.49)
Dummy_con		0.408*** (6.49)	0.401*** (6.37)	0.401*** (5.50)	0.071 (0.21)
Dummy_fdi		0.212*** (5.76)	0.211*** (5.74)	0.169*** (4.37)	0.196*** (3.87)
Dummy_export		0.442*** (12.66)	0.438*** (12.55)	0.340*** (9.03)	0.532*** (3.32)
Constant	-1.033*** (-4.76)	0.967*** (7.04)	1.062*** (7.40)	0.711 (1.59)	3.821 (0.92)
Year	NO	NO	YES	YES	YES
Region	NO	NO	YES	YES	YES
Industry	NO	NO	NO	YES	YES
N	3018	3018	3018	3018	3018
adj.R <sup>2</sup>	0.007	0.181	0.181	0.238	0.203
F Value	2.85	75.15	56.85	24.09	30.13

Note: \*\*\*, \*\*, \* denote statistical significance at the 1%, 5% and 10% level; year, region and industry means the fixed effects of year, region and industry.

TFP measures may affect the empirical test results, this paper adopts the Olti-Pakes Method (1996) to recalculate the enterprise TFP and to perform empirical regression in Column 5, and the result is negative and significant coefficients. This means that FDI is not conducive to the increase of enterprises' labour share in the home country. According to the previous theory, the impact of FDI on the home enterprises labour share is divided into two aspects. The first is the positive promotion effect, which is mainly caused by the resource replacement effect and the reverse technology spillover effect obtained by the enterprise FDI. The second is the negative inhibitory effect. This is mainly due to the 'capture effect' of the host country's product market on home-country FDI enterprises and the impact of the host country intensive labour factor on the labour market in the home country. During the sample period, the FDI of Chinese enterprises are mostly in their start-ups and exploration. These enterprises tend to look for strategic preemption (Yang & Bin, 2014). It is true that FDI in this period will promote the labour share of the home country through 'resource replacement effect' and 'reverse technology spillover effect'. However, in order to seize the host country market and obtain the host country's recognition, FDI enterprises often choose low-price strategies and hire local labour to pass the pressure to home-country workers, so that the FDI plays a negative role on the labour share decline of the home country.

Meanwhile, *du* coefficient is positive, but the significance is not robust. This means that the labour share of FDI and non-FDI enterprises do not present obvious increase or decrease. *dt* is the same as *du*, which is positive, but the significance is not robust. This means that without consideration of the influence of FDI on enterprises' labour share, the change of labour share in both Experimental Group and Control Group is not clear.

As for other controlled variables, enterprises' capital intensity is significantly negative, which means that the higher the capital density, the more difficult it is to increase enterprises' labour share. This is because most of capital intensive enterprises are in the area of high-tech industry. These enterprises emphasise the role of

technology and capital, which is not conducive to the increase of labour share. The scale coefficient is significantly positive, meaning that the larger the enterprise scale, the easier it is to have scalable income, and the more it needs to pay for its staff. This is because of ‘the influence of labour union power’ (Droucopoulos & Lianos, 1992) when an enterprise is large in scale. The enterprises export coefficient is significantly positive, meaning that export enterprises positively correlate with the labour share in the home country. This is in line with the Neoclassical Economics theory, in which it is believed that international trade and labour division will lead to the increase of abundant factors income in the home country. FDI coefficient is significantly positive, meaning that usage of FDI can help increase labour share. The reasons for the increase could be that foreign investors bring in better worker’s regulations and thus improve the benefits for employees and finally increase labour share in the home country. The coefficient of state-owned capital is significantly positive, meaning that SOEs can help increase labour share. The coefficient of total factor productivity is positive, but not significant, meaning that the decrease of labour share in the GDP is not due to the total factor productivity.

### 3. Regressions using samples with different FDI motivations

Column 1 to Column 4 of Table 6 shows the regression results of four investment motivations FDI and labour share. In Column 1, the coefficient of the key test variable  $du \times dt$  is  $-0.024$ , significant at the 5% statistical level. This means that market-seeking FDI significantly lowers the labour share in the home country, which is in line with the assumption of this paper. Enterprises with such FDI have relatively lower bargaining power and therefore are ‘captured’, which then lead to decline of labour share. In Column 2, the coefficient of the key variable  $du \times dt$  is  $-0.028$ , but not significant. This means that efficiency-seeking FDI might lead to the decline of labour share in the home country, but it is not obvious. This is related to the labour market competitiveness of the host country in which Chinese enterprises invests, and

**Table 6.** Regression of Different FDI Motivations’ influence on Labour Share.

	Market-seeking FDI (1)	Efficiency-seeking FDI (2)	Resource-seeking FDI (3)	Technology-seeking FDI (4)
$du$	0.059 (0.77)	-0.157 (-0.81)	0.003 (0.02)	0.097 (1.27)
$dt$	0.035 (0.52)	0.551** (2.58)	0.009 (0.07)	0.106 (1.61)
$du \times dt$	-0.024** (-2.23)	-0.028 (-1.10)	0.058** (2.34)	0.014* (1.95)
kshare	-0.150*** (-7.89)	-0.033 (-0.62)	-0.075** (-2.44)	-0.057*** (-2.94)
Scale	0.233*** (11.35)	0.197*** (2.95)	0.215*** (7.09)	0.191*** (9.87)
Tfp1	0.072 (0.86)	-0.089 (-1.18)	0.011 (1.51)	0.023 (0.90)
Dummy_con	0.282** (2.45)	0.654*** (3.01)	0.303** (2.20)	0.426*** (4.24)
Dummy_fdi	0.154*** (4.90)	-0.056 (-0.37)	0.151 (1.53)	0.117** (1.97)
Dummy_export	0.463*** (8.43)	0.286** (2.05)	0.426*** (4.58)	0.345*** (6.17)
Constant	1.353*** (5.87)	0.747 (0.96)	1.179*** (3.24)	0.621*** (2.94)
N	1321	197	430	1070
Year	YES	YES	YES	YES
Region	YES	YES	YES	YES
Industry	YES	YES	YES	YES
adj.R <sup>2</sup>	0.186	0.202	0.153	0.204
F Value	34.6	4.55	6.54	25.91

Note: \*\*\*, \*\*, \* denote statistical significance at the 1%, 5% and 10% level; year, region and industry means the fixed effects of year, region and industry.

shows that most of Chinese efficiency-seeking FDI is in labour-intensive markets. This is in line with the result of Yan (2013). In Column 3, the coefficient of the key test variable  $du \times dt$  is 0.058, significant at the 5% statistical level. This means resources-seeking FDI significantly increases the labour share in the home country, which is in line with the assumption of this paper. This indicates that such FDI makes use of resource-deficiency effect to enrich other factors except for labour, and thus lower the price for other production factors, which in turn increase the labour share compared to other factor shares. In Column 4, the coefficient of the key test variable  $du \times dt$  is a significant 0.014. This means technology-seeking FDI significantly increases the labour share in the home country, which is in line with the assumption of this paper. This indicates that technology-seeking FDI can increase the labour share in the home country, thanks to 'reverse technology spillover effect'.

#### **4. Regressions using samples with different types of host country**

According to the theories by Melitz (2003) and Helpman, Melitz, and Yeaple (2004), because of the 'self-selection effect' and 'productivity threshold', the higher the enterprise productivity, the more it tends to invest in developed countries. From Chinese data and experience, enterprises investing in developed countries tend to be leading enterprises in Chinese market, and have higher capacity to take high-end technologies (mostly technology-seeking FDI). Enterprises investing in developing countries tend to be in lower level of productivity, and they invest to transfer their over-capacity (i.e., efficiency-seeking FDI). The data in this paper show that 90.03% of technology-seeking FDI went to developed countries, while 70.91% of efficiency-seeking FDI went to developing countries. These two types of FDI enterprises will have different influence on the labour share in the home country. The former increases the payroll of skilled employees in the home country, and thus increases the labour share. The latter substitutes the labour in the home country, and thus reduces the labour share. Meanwhile, it is found that some Chinese enterprises invest in traditional tax havens (such as Cayman Islands and British Virgin Islands) to obtain preferential foreign investment policies. These enterprises are mainly motivated by 'institutional escape', and therefore such enterprises do not fall into the category of FDI enterprises. Given the above motivations, the author categorises the FDI host countries into developed countries (regions) and developing countries (regions),<sup>8</sup> and with tax havens such as Hong Kong and without tax havens such as Hong Kong. The results are as in Table 7.

Column 1 of Table 7 shows the regression results of FDI in developed countries (regions) and its results on the labour share in the home country. The coefficient of the key variable  $du \times dt$  is 0.067, significant at the 10% statistical level. This means that enterprises' FDI in developed countries is conducive to the increase of labour share in the home country. Column 2 shows the key explanatory variable  $du \times dt$ , whose coefficient is a significant  $-0.075$ . This indicates that FDI in developing countries significantly lowers the labour share in the home country. This also shows that the labour in developing countries can substitute the labour of China. Column 3 shows the key test variable  $du \times dt$ , which is negative. This indicates that Chinese FDI

**Table 7.** Regression of Host Country Heterogeneity.

	Developed Country (1)	Developing Country (2)	With Tax Havens Such as Hong Kong (3)	Without Tax Havens Such as Hong Kong (4)
<i>du</i>	-0.11 (-1.61)	0.066 (0.75)	-0.008 (-0.16)	0.101 (0.83)
<i>dt</i>	0.064 (1.10)	0.161* (1.76)	0.122** (2.19)	0.120 (1.13)
<i>du × dt</i>	0.067* (1.79)	-0.075** (-2.15)	-0.072** (-2.01)	-0.087 (-0.55)
<i>kshare</i>	-0.115*** (-7.31)	-0.081*** (-3.69)	-0.103*** (-8.00)	-0.124*** (-3.70)
Scale	0.218*** (11.43)	0.199*** (9.30)	0.219*** (15.75)	0.209*** (3.70)
Tfp1	-0.009 (-0.87)	0.098* (1.69)	0.070 (1.40)	-0.092 (-0.29)
Dummy_con	0.514*** (5.08)	0.440*** (4.13)	0.441*** (6.09)	0.334** (2.46)
Dummy_fdi	0.244*** (4.88)	0.165** (2.41)	0.221*** (5.48)	0.176** (1.98)
Dummy_export	0.464*** (9.48)	0.432*** (7.18)	0.467*** (12.37)	0.237** (2.53)
Constant	1.118*** (5.27)	0.860*** (3.46)	1.102*** (6.84)	1.225*** (3.63)
Year	YES	YES	YES	YES
Region	YES	YES	YES	YES
Industry	YES	YES	YES	YES
N	1493	1536	2491	524
adj.R <sup>2</sup>	0.235	0.145	0.185	0.212
F Value	40.59	15.17	48.23	12.56

Note: \*\*\*, \*\*, \* denote statistical significance at the 1%, 5% and 10% level; year, region and industry means the fixed effects of year, region and industry.

in countries (regions) other than the traditional tax havens will significantly lower the labour share of enterprises. This is to prove that after eliminating sample with tax havens such as Hong Kong, the initial test result of this paper is still robust. Column 4 shows the coefficient of  $du \times dt$  is negative, but not significant, meaning that enterprises investment in tax havens such as Hong Kong and Macao do not have obvious inhibition on labour share.

## V. Conclusions

The comprehensive interpretation of the continuous declining share of labour share in the process of economic globalisation is the precondition and basis for resolving this major issue. This article links the economic effects of outward FDI and the determinants of labour share, and tries to demonstrate the mechanism of how outward FDI with different motivation influences labour share. This paper adopts the DID approach and uses micro-enterprises data in China from 2005 to 2007 to analyze the influence of FDI on home country labour share. The result shows that, first, the impact of FDI with different motivations on the home country labour share of can be mainly categorised as positive promotion effect and negative inhibitory effect. The negative inhibitory effect is mainly caused by the 'capture effect' of market-seeking FDI enterprises, and the impact of labour market caused by efficiency-seeking FDI flowing into the labour-intensive host country. The positive promotion effect is mainly caused by the 'resource replacement effect', which is caused by resource-seeking FDI and the 'reverse technology spillover effect' caused by 'technology-seeking FDI.' Second, through the whole sample data, this paper confirms that the FDI of Chinese enterprises is one of the important factors to restrain the growth of the labour share of the home-country enterprises. Further sub-sample test finds that the market-seeking FDI significantly reduces the labour share in the home country while resources-seeking FDI and technology-seeking FDI significantly increase the labour

share in the home country. At the same time, it is found that FDI in developed countries shows increases in labour share in the home country, while the FDI in developing countries inhibits the increase of labour share in the home country.

The above conclusion shows that FDI is a major negative factor restraining the labour share of home enterprises. Moreover, this inhibitory effect is mainly reflected in market-seeking FDI and FDI in developing countries. In terms of the reason of the inhibitory effect on home country labour share, for one thing, it is closely related to the low-end position of the global value chain in which China's current FDI enterprises are located. Multinationals from the developed countries have control over the global sales network, and product suppliers in developed countries have core technologies and brands. The two players make up the community of shared interests in the process of economic globalisation. The two players have advantages in 'capturing' the market-seeking FDI enterprises from developing countries. Such FDI enterprises in turn pass on such capture effects to home country workers, resulting in a decline in the labour share in home countries. On the other hand, the support from government policies, combined with the cheap production factors, abundant resources and lower barriers to developing countries, a large number of Chinese OFDI enterprises have infused in the market, thus affecting the labour market in the home country and weakened the bargaining power of home country labour, which inhibits the labour share increase in the home country.

Based on the above conclusions and analysis, the main policy implications of this paper are as follows. First, enterprises should shift their focus from the pursuit of increasing the scale of FDI to profits generated from FDI, which is the key to solving the problem of the continuous decline in the home country labour share. Second, under the background of economic globalisation, to reverse the trend of continuous labour share decline, more incentives should be given to technology-seeking and resource-seeking FDI. Third, the government should encourage and guide qualified enterprises to invest in developed countries and regions, so as to balance the income distribution in the home country.

## Notes

1. 'Technological rent effect': FDI brings capital and technology to increase the marginal productivity of factors, yet the enterprises hire workers with low wages. Labour factor market presents a typical feature of buyer's monopoly, which decreases labour share.
2. 'Wage competition effect': With more FDI coming to developing economies, foreign companies compete with each other for labour, which matches wages to the marginal value of products, and finally increases labour share.
3. Capture effect: Some enterprises are integrated into the global value chain through outsourcing, and thus take the price of products. Because of the vertical squeeze of the contracting enterprises of developed countries, the export increase comes with product price decline (Kaplinsky, 2004). The market-seeking FDI enterprises in this paper generally have low productivity, and thus are in a disadvantageous position while participating in economic globalisation, and are easily captured.
4. Self-selection effect: Helpman et al. (2004) extend Melitz's (2003) enterprise heterogeneity from export to outward FDI. They consider that the most productive firms choose to invest in foreign direct investment while the ones with the medium productivity choose

- to export while those with the lowest productivity can only serve the domestic market, which is called the 'self-selection effect' of FDI.
5. Reverse technology spillover effect: With developing countries increasing their engagement in overseas investment, multinational corporations in developing countries gradually adopt foreign investment projects to attract and learn the advanced technologies in the host countries. This occurs mostly in multinational corporations in developing countries' FDI in developed countries. It is called reverse technology transfer, which is mainly realised through technology spillovers.
  6. First, eliminate samples that lack key financial indicators; second, eliminate enterprises with less than 10 employees; third, eliminate enterprises without specific time of foundation and industrial properties.
  7. Data matching is to find out the enterprises that are closest to those in the experimental group before the 'quasi natural experiment.', in the data match, we should select data that is prior to enterprises' FDI. Specifically, to match the data between FDI enterprises and non-FDI enterprises in year 2005, we should select the data of enterprises in 2004, so as to avoid the influence of FDI effect on the data match.
  8. According to the standards of UNDP, countries in the *2010 Human Development Report* with Human Development Index above 0.9 are defined as developed countries, which is a total of 43 countries (regions).
  9. When using enterprise-panel data to estimate TFP, two problems will emerge. The first is simultaneity problem. Compared to outsiders, enterprises have more information about their productivity, and based on which, they decide their amount of investment on factors. The second is the entry and exit of enterprises (Entry and Exit). Under normal circumstances, the older the enterprise, the stronger its ability to resist risks, and the greater the probability of its survival. Therefore, Olley and Pakes (1992) adopt the semi-parametric estimation method to effectively solve the endogenous problem of input elements. Olley-Pakes Method can provide a consistent estimate of the production function at the enterprise level (Lu & Lian, 2012). However, in the actual measurement of the enterprise TFP, it is required that the proxy variable (investment) always has a monotonic relationship with the total output, which means that those samples with zero investment cannot be estimated. Levinsohn and Petrin (2003) develop a new TFP method for this problem. Instead of using the investment amount as a proxy variable, they use the intermediate input index as a proxy variable. Therefore, this paper chooses Levinsohn-Petrin Method to measure enterprise TFP, and uses Olley-Pakes Method to measure enterprise TFP robustness.

## Disclosure statement

No potential conflict of interest was reported by the authors.

## Funding

This research is partially supported by Ministry of Education of Humanities and Social Science Project (No. 19YJC790045), Fundamental Research Funds for the Central Universities (No. 19SZYB09). National Natural Science Foundation of China (No. 71873041; No. 71603060; No. 71573058), Guangdong Province Humanities and Social Sciences Key Research Project & Annual Project of Institute of Studies for the Great Bay Area of Guangdong University of Foreign Studies (No. 2018YGA002), Institute of City Strategy Studies Research Base Project (No. JD201801), Key Grant Projects of Philosophy and Social Sciences Research, Ministry of Education of China (No. 16JZD018), Natural Science Foundation of Guangdong, China (No. 2015A030313577; No. 2017A030313422), National Social Science Foundation (No. 15ZDC038), Program for Innovative Research Team in University (NO.IRT\_17R26); Philosophy and Social Science Development Planning Project of Guangzhou (No. 2019GZZK07; No. 18QNXR29).

## ORCID

Yonghui Han  <https://orcid.org/0000-0002-9196-7369>

## References

- Aizenman, J., & Spiegel, M. M. (2006). Institutional efficiency, monitoring costs and the investment share of FDI. *Review of International Economics*, 14(4), 683–697. doi:10.1111/j.1467-9396.2006.00595.x
- Andrew, B., & Krueger, A. O. (2003). *Trade, growth, and poverty: A selective survey*. IMF Working Papers 03/30, International Monetary Fund. <https://ideas.repec.org/p/imf/imfwpa/03-30.html>
- Blanchard, O. J., Nordhaus, W. D., & Phelps, E. S. (1997). The medium run. *Brookings Papers on Economic Activity*, 1997(2), 89–158. doi:10.2307/2534687
- Charpe, M. (2011). The labour share of income: Determinants and potential contribution to exiting the financial crisis. *World of Work Report*, 2011(1), 55–74. doi:10.1002/wow3.26
- Chen, K. M. (2011). Outward foreign direct investment, wage rigidity and unemployment: A computable general equilibrium analysis. *The Journal of International Trade & Economic Development*, 20(4), 569–583. doi:10.1080/09638190903137206
- Chong-En, B., & Zhenjie, Q. (2009). Factor income share in China: The story behind the statistics. *Economic Research Journal*, 3, 27–41.
- Decreuse, B., & Maarek, P. (2015). FDI and the labor share in developing countries: A theory and some evidence. *Annals of Economics and Statistics/Annales D'Économie et de Statistique*, 119/120, 289–319.
- Diwan, I. (2001). *Debt as sweat: Labor, financial crises, and the globalization of capital*[R]. Washington: Mimeo, The World Bank Working Papers. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.197.8440&rep=rep1&type=pdf>
- Droucopoulos, V., & Lianos, T. P. (1992). Labor's share and market power: Evidence from the greek manufacturing industries. *Journal of Post Keynesian Economics*, 15(2), 263–280. doi:10.1080/01603477.1992.11489939
- Dunning, J. H. (1993). Internationalizing Porter's diamond. *MIR: Management International Review*, 33, 7–15.
- Elsby, M. W., Hobijn, B., & Şahin, A. (2013). The decline of the US labor share. *Brookings Papers on Economic Activity*, 2013(2), 1–63. doi:10.1353/eca.2013.0016
- Feenstra, R. C., & Hanson, G. H. (1997). Foreign direct investment and relative wages: Evidence from Mexico's maquiladoras. *Journal of International Economics*, 42(3-4), 371–393. doi:10.1016/S0022-1996(96)01475-4
- Gazaniol, A., & Laffineur, C. (2015). *Does outward foreign direct investment affect domestic real wages? An investigation using French micro-data*. FIW Working Paper series 155, FIW. <https://ideas.repec.org/p/wsr/wpaper/y2015i155.html>
- Girma, S., Greenaway, A., & Kneller, R. (2004). Does exporting increase productivity? A microeconomic analysis of matched firms. *Review of International Economics*, 12(5), 855–866. doi:10.1111/j.1467-9396.2004.00486.x
- Harrison, A. (2005). *Has Globalization Eroded Labor's Share? Some Cross-Country Evidence* (MPRA Paper 39649). Germany: University Library of Munich. <https://ideas.repec.org/p/pra/mprapa/39649.html>.
- Helpman, E., Melitz, M. J., & Yeaple, S. R. (2004). Export versus FDI with heterogeneous firms. *American Economic Review*, 94(1), 300–316. doi:10.1257/000282804322970814
- Hutchinson, J., & Persyn, D. (2012). Globalisation, concentration and footloose firms: In search of the main cause of the declining labour share. *Review of World Economics*, 148(1), 17–43. doi:10.1007/s10290-011-0112-z
- Jaumotte, M. F., & Tytell, I. (2007). *How has the globalization of labor affected the labor income share in advanced countries?* (No. 7-298). International Monetary Fund. [https://econpapers.repec.org/paper/imfifwpa/07\\_2f298.htm](https://econpapers.repec.org/paper/imfifwpa/07_2f298.htm).



- Jia, K., & Shen, G. (2016). Corporate risk and labor share: Evidence from China's industrial sector. *Economic Research Journal*, 51(5), 116–129.
- Jia, N. S., Han, Y., & Zou, J. (2016). The effect of two-way FDI on industrial restructuring in China: Influence mechanism and empirical test. *Journal of International Trade*, 42(5), 109–120.
- Kaldor, N. (1957). A model of economic growth. *The Economic Journal*, 67(268), 591–624. doi: [10.2307/2227704](https://doi.org/10.2307/2227704)
- Kaplinsky, R. (2004). Spreading the gains from globalization: What can be learned from value-chain analysis?. *Voprosy Ekonomiki*, 47(2), 74–115. doi:[10.32609/0042-8736-2003-10-4-26](https://doi.org/10.32609/0042-8736-2003-10-4-26)
- Kim, S. (2000). Effects of outward foreign direct investment on home country performance: Evidence from Korea. In *The Role of Foreign Direct Investment in East Asian Economic Development*, NBER-EASE (Vol. 9, pp. 295–317). University of Chicago Press. <https://ideas.repec.org/h/nbr/nberch/8503.html>.
- Kojima, K. (1978). *Direct foreign investment: A Japanese model of foreign direct investment*. London: Croom Helm.
- Levinsohn, J., & Petrin, A. (2003). Estimating production functions using inputs to control for unobservables. *Review of Economic Studies*, 70(2), 317–341. doi:[10.1111/1467-937X.00246](https://doi.org/10.1111/1467-937X.00246)
- Lu, X. D., & Lian, Y. J. (2012). Estimation of total factor productivity of industrial enterprises in China: 1999–2007. *China Economic Quarterly*, 11(2), 541–558.
- Maarek, P. (2012). *Labor share, informal sector and development* (MPRA Paper 38756). Germany: University Library of Munich. <https://ideas.repec.org/p/pramprapa/38756.html>
- Melitz, M. J. (2003). The impact of trade on intra-industry reallocations and aggregate industry productivity. *Econometrica*, 71(6), 1695–1725. doi:[10.1111/1468-0262.00467](https://doi.org/10.1111/1468-0262.00467)
- Olley, G. S., & Pakes, A. (1992). The dynamics of productivity in the telecommunications equipment industry. *Econometrica, Econometric Society*, 64(6), 1263–1297. <https://ideas.repec.org/a/ecm/emetrp/v64y1996i6p1263-97.html>
- Onaran, Ö., & Stockhammer, E. (2008). The effect of FDI and foreign trade on wages in the Central and Eastern European countries in the post-transition era: A sectoral analysis for the manufacturing industry. *Structural Change and Economic Dynamics*, 19(1), 66–80. doi: [10.1016/j.strueco.2007.11.003](https://doi.org/10.1016/j.strueco.2007.11.003)
- Qiao, M., Li, G. Y., & Gao, S. J. (2015). The temporal and spatial effects of FDI on China's labour income share. *Journal of International Economic Cooperation*, 2, 71–77.
- Rodrik, D. (1998). Has globalization gone too far? *Challenge*, 41(2), 81–94. doi:[10.1080/05775132.1998.11472025](https://doi.org/10.1080/05775132.1998.11472025)
- Stockhammer, E. (2013). Why have wage shares fallen? An analysis of the determinants of functional income distribution. In *Wage-led growth* (pp. 40–70). London: Palgrave Macmillan.
- Wang, Y. (2015). Outward foreign direct investment of Chinese enterprise: Review and analysis. *Industrial Engineering & Management*, 4(3), 1–4. <http://dx.doi.org/10.4172/2169-0316.1000170>.
- Wu, S. (2011). On the determinants and mechanisms of labor share: A micro-model. *Economic Research Journal*, 9, 55–68.
- Yan, D. (2013). Location choice of China's outward FDI firms and the decisive factors. *Journal of International Trade*, 7, 128–135.
- Yang, Y. L., & Bin, Y. (2014). Research on the loss of China's outward foreign direct investment. *Times Finance*, 10, 22–27.