

On the Effect of Outward Direct Investment on Home Country's Happiness

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Abstract: Based on the fact that input factors of production can not be completely replaced, a large number of outward direct investment leads to the fluctuation of jobs, income, growth of economy and inflation etc in home country. And these changes lead to the change of happiness of residents in home country to a large extent. Taking the case of China, using the Ordered Logit model, the paper analysis the effect of Chinese outward direct investment on the Chinese residents' happiness. Results show that Chinese outward direct investment and domestic residents' happiness are positively correlated, but the effect of outward direct investment on different people's happiness varies.

1. Introduction

The economic globalization is constantly evolving and promotes global investment. Fast development of international investmeent raises hot debate on the effect of outward direct investment(ODI) on the home country's economy, science and technology, employment and other aspects. Lots of studies on the ODI's effect in developed countires, like US, Japan, etc, have been carried out by scholars all over the world. However, current studies have not attach enough importance to the effect of ODI on the happiness of home country's residents, as the ultimate goal of human activities is to obtain happiness. According to classical economics principle, the input factors of production can not be completely replaced. a large number of capital transfer affects jobs, incomes, economic growth, inflation, etc. And all these changes of factors lead to fluctuation of happiness in home country's residents. Based on this, this paper takes China as the object of study, explores the impact of China's ODI on the Chinese residents' happiness.

2. Theoretical Basis

2.1 Economy is an Important Index Affecting Happiness

National happiness is proposed firstly by Jigme Singh Wangchuck, Bhutan's fourth king, in 1972. Since then, the west has carried out a large number of practise and theoretical studies on happiness, like OECD Better Life Index(BLI), the United Nations global happiness index, Bhutan national happiness index, Japan happiness index, hexun.com happy index, the Kunming happiness index system, the Guangdong happy index system, Zhejiang happy index system, Chenzhou city happiness index, ect.

The above index systems show that, the existing happiness index systems basically contain

economic indicators, health indicators, environmental indicators, civilization and welfare indicators. Economic well-being embodied in the economic indicators is the material basis and the basic conditions for happiness. Economic indicators, including GDP per capita, disposable income per capita, Engel coefficient, the level of unemployment, household consumption rate, CPI, Gini coefficient and social security coverage and other two indicators are objective conditions for economic well-being.

2.2 ODI Affects Domestic Economic Factors

According to economic theory, ODI influences employment, income, economic growth, inflation and other economic factors in home country. The effect of ODI to the economic factors is complex and combined with negative effect and positive effects.

The effect of ODI on the employment lies in many aspects, including the total amount of employment, the industry allocation of employment, and district allocation of employment, ect. What worthes mentioning is that some effect is controvertial. But it is generally agreed that, with the outward trandfer of capital, ie ODI, the employment opportunity is getting less in home country, which means the increase of the unemployment rate. As for the structure of employment, it varies with industries and also the technical contents of industries. If ODI is substitive between host country and home country, it would harm home country workers. Or, if it is complementary, it is beneficial to home country workers. And the higher technology-intensive an industry is, the more employment opportunities will be created, while the lower technology-intensive an industry is, the less employment opportunities will be.

ODI does not only affect the income of workers in home country, and also the income gap. ODI has a significant impact on the wage^[1], and presents a "U" type trend^[2]. Enterprises of ODI significantly increase the average wage level of employees, and the positive wage spillover effect is persistent and increasing^[3-4]. Mao's study also confirms salary of the overseas staff is upgraded. ODI enterprises have higher the wage payroll than non-ODI enterprise. Compared to the central and western China, the impact in ODI enterprises in the eastern China is smaller. The influence of ODI enterprises on the wage level is from the productivity effect^[5]. ODI also significantly increases the wage gap within the enterprise^[3]. Slaughter (1993) and others believe that the popularization of computer and related technologies in the United States tend to employ technology-intensive workers, which lead to the expansion of wage gaps between the skilled technical workers and unskilled workers in United States^[6]. The results of the study in Taiwan and Singapore also confirm the above opinion^[7]. Qi Jianmei (2017) confirms the hypothesis that there is a nonlinear dynamic effect of ODI on the wage gap between Chinese enterprises^[8].

ODI also affects home country's economic growth. IDP (Investment Development Path) theory proposed by Dunning (1981) is considered as the cornerstone of the theory of ODI and economic growth^[9]. According to the IDP theory, ODI of a country (or region) relates to the net position of ODI and home country economic growth level. The higher economic growth is, the larger ODI is. Pichl(1989), based on the empirical study of the developed countries in the world, agrees with Dunning's view that the scale of a country's ODI depends on the level of economic development^[10]. Since then, many scholars have carried out theoretical research and empirical research on the way(like reference [11]) and the IDP phase of the countries^[12-15].

The impact of ODI on home country inflation. Studies on the relationship between home country's inflation rate and ODI are still in the primary stage. The current study shows that the two are correlated. There is a negative correlation between ODI and the inflation rate^[16-17].

In summary, effects of ODI on macroeconomic factors in home country may be of positive effect, or negative effect. The overall effect depends on the degree of impact of ODI on these factors, the weight and the degree of influence of these factors on people's happiness in home country. So the



effect of ODI on the happiness of home country people can be negative or positive. The total effect is the offset of the two effects. Different groups have different effects.

3. Empirical Test

3.1 Building Model

The calculation methods of national happiness are various, and there is no uniform formula and method. Referring to the study of Kanweri(2015)^[18] and Tella RD, et al(2007)^[19] and other related researches, this paper uses Ordered Logit Model to analyze the effect of ODI on the happiness of residents in home country as follows:

 $Happy_{st} = a_1 ODI_{st} + a_2 MACRO_{st} + a_3 MICRO_{ist} + \eta_s + \mu_t + \varepsilon_{ist}$ (1)

In the model (1), the explanatory variable, $Happy_{ist}$, indicates the subjective well-being in s province in year t. The independent variable ODI_{st} indicates the s province's ODI in year t.

The independent variables *MACRO_{st}* and *MICRO_{ist}* indicate the macroeconomic variables that can affect the individual's happiness and the micro level variables of individual happiness respectively. According to the "happiness gap" concept in the "happiness gap"^[20], Gini coefficient, increase of annual income, rate of inflation and unemployment are taken as factors.

As for the *MICRO*_{*ist*}, gender(*SEX*), age(*AGE*), education level(*EDU*), marital status(*MARI*), employment status(*EMPL*), self-rated health (*HEALS*), and the type of work(*PRO*), family income level (*INCOMS*) are taken as factors. η_s indicates dummy variable. ε_{ist} indicates the error term of the regression model.

3.2 Data and Data Description

ODI data is from the Ministry of Commerce "going out" enterprises directory data base in 2002, 2008, 2014. The datas of *INCOM*, *GINI*, *INFLA*, *UNEMP* are from "*Chinese Statistical Yearbook*". Data of *Happyist* are from the World Values Survey (WVS). The descriptive statistics of specific indicators and data sources are shown in table 1.

3.3 Model Estimation

Using Stata12.0, applying the Ordered Logit model maximum likelihood method, we carry out an regression analysis. The results are shown in table 2. Part (1) of the table is the result of the regression of *FOH* and the independent variables repectively, part (2) is the result of regression(1) plus independent variable *ODI*, part (3) is the result of regression (2) plus independent variable $\Delta INCOM$, part (4) is the result of regression (2) plus independent variable *GINI*, part (5) is the result of regression (2) plus independent variables $\Delta INCOM$ and *GINI*, part (6) is the result of regression (5) plus independent variable *INFLA*, part (7) is the result of regression (6) plu independent variable *UNEMP*.

Index	2nd degree In	description	Average	Standard error	Minimum	Maximum
Нарру	FOHst	1: very unhappy; 4: very				
		happy	3.009893	0.5997	1	4
ODI	ODIst	Numbers of enterprises invested aboad in a province	27.8749	36.2173	0	156
Macro	$\Delta INCOMst$	Average income of workers in				
		town in a province	4503.038	1519.401	2547	10021
	GINIst	Gini coifficient in a province	0.397539	0.0569	0.1965	0.496
	INFLAst	Inflation rate in a province	102.5828	1.5123	99.7	108.5
	UNEMPst	Unemployment rate in a				
		province	7.501514	11.0489	1.3	54.36
Micro	SEXist	1: maile; 2: femail	1.433636	0.4958	1	2
	AGEist	Note	3.379736	1.4747	1	6
-	EDUist	1: low; 2: midium; 3: high	1.885408	0.6391	1	3
	MARIist	Note	1.965375	0.5618	1	5
	EMPList	Note	4.830173	1.4325	1	8
	HEALSist	1: very bad; 5: very good	3.875618	0.8691	2	5
	INCOMSist	Note	1.339374	1.2496	1	7
	PROist	Note	2.992593	0.7802	1	7

Table 1 Data Description

Note: [1]Age: 1:15-24; 2:25-34; 3:35-44; 4:45-54; 5:55-64; 6:65--; [2]MARI: 1: married, 2: divorced; , 3: widow, 4: single, 5: living together; [3]EMP: 1: others, 2: house wife, 3: unemployment, 4: part time, 5: full time, 6: self-employed, 7: retiared, 8: students; [4]INCO: 1: Below5000, 2: 5000-10000, 3:10,000-20,000, 4: 20,000-50,000, 5: 50,000-100,000, 6: 100,000; [5]: PRO:1: Agriculture or farmer; 2: employer, 3: unskilled, 4: semi-skilled; 5: skilled, 6: professional, 7: others.

Table 2 Result of the Regressions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)		
	0.0046809***		.0040921**	.0022803	.0013833	.0011259			
ODI	(.0016129)		(.0016457)	(.0017395)	(.0017791)	(.0017879)			
A: MACRO	A: MACRO								
	0000697***	0000572*	0000909***		0001061***	0001004**			
$\Delta INCOM$	(.0000402)	(.0000406)	(.0000416)		(.0000421)	(.0000422)			
	-4.626242***	-4.074504***	-4.582523***	-4.495765***	-5.186384***	-5.284619***			
GINI	(1.0748)	(1.123487)	(1.147426)	(1.145512)	(1.179013)	(1.180609)			
	0599835*	0440156	0514533	0773175**	0948816**	0978352**			
INFLA	(.0405099)	(.0410331)	(.0413826)	(.0418085)	(.0424571)	(.0424965)			
	0085969*	0072894	0065103	0086692	0076174**	0082296**			
UNEMP	(.0053726)	(.0054103)	(.005447)	(.0054449)	(.0054793)	(.0055054)			
B: MICRO									
SEX [MALE for reference]									
	.1697713	.1599109	.1580391	.1708957	.1690407	.1198886	.1206105		
FEMALE	(.1214106)	(.1215046)	(.1215231)	(.1216113)	(.1216632)	(.124186)	(.1241946)		
0.01		.004622***	.0043581***	.0028327*	.0021925	.0014052	.0011472		
ODI		(.0016145)	(.0016254	(.0017028)	(.0017299)	(.0017798)	(.0017885)		
AGE [15-24 for reference]									
25.24	02236	.009321	.0059893	0040008	0118771	.0139421	.0177103		
25-34	(.2273486)	(.2274641)	(.2277018)	(.227791)	(.2281707)	(.2285619)	(.2285299)		
25.44	0643629	0406338	0651102	0453716	0863286	0546844	0452366		
35-44	(.2188754)	(.219044)	(.2198962)	(.2194478)	(.2205565)	(.2211754)	(.2213251)		



45-54	.0160679	.0609949	.0371949	.0331266	0106426	.0171508	.0215726
	(.2265665)	(.227136)	(.2278653)	(.2274615)	(.2285842)	(.229093)	(.2291192)
55 61	1912168	1374135	1558707	1534738	1868978	1656995	1412399
55-64	(.2348779)	(.235558)	(.2361534)	(.2357011)	(.236602)	(.2368371)	(.2374261)
	.26466	.3221916	.3107671	.3097069	.2868736	.2943761	.3142123
03-	(.2702627)	(.2710882)	(.2710827)	(.2717292)	(.2719443)	(.2721126)	(.2724991)
0.7.1		.0047498**	.0044629**	.002973*	.0022874	.0014346	.0011972
ODI		(.0016209)	(.0016328)	(.0017096)	(.0017392)	(.0017891)	(.0017967)
EDU [LOW for	reference]	•					
	.255947***	.240814**	.2547749**	.2077738**	.2213193**	.2218399**	.2082472**
MIDDLE	(.1418131)	(.1419264)	(.1423046)	(.1422935)	(.142654)	(.1426816)	(.1431346)
	.5651962***	.511922***	.5897761***	.5153109***	.6309094***	.6198492***	.6051896***
HIGH	(.1926751)	(.1936173)	(.197942)	(.1932646)	(.1980389)	(.1981311)	(.1985363)
		.0042446***	.0037919***	.0024684	.0014984	.0006624	.000448
ODI		(.0016257)	(.0016426)	(.001713)	(.0017512)	(.0017996)	(.0018072)
Mari [MARRIEI) for reference]						
	.5898786**	.5979942***	.581286***	.5690992***	.5372166***	.5591941***	.5615608***
DIVORCED	(.1828989)	(.1827358)	(.1833771)	(.1828093)	(.1835099)	(.1840912)	(.184119)
	.4742438	.5343922	.512057	.5048706	.462345	.4713812	.4350476
WIDOWED	(.3788921)	(.3805862)	(.3814583)	(.3809534)	(.3819614)	(.3829642)	(.3841893)
	2.145431*	2.123657*	2.151522	1.959584	1.992622	1.951569	1.907085
SINGLE	(1.384025)	(1.383072)	(1.383683)	(1.387405)	(1.389656)	(1.390616)	(1.390667)
	4829166	4715819	4568488	6003412	5884374	5759663	5978684
LIVING T	(.4796797)	(.4826813)	(.4823281)	(.4846624)	(.4833185)	(.4833336)	(.4840966)
		.0047301***	.0045219***	.002972*	.0024099	.0014721	.0011892
ODI		(.0016136)	(.0016256)	(.0017007.)	(.0017298)	(.0017808)	(.0017902)
EMPL [OTHER	for reference]		((1111)
	.7761424***	.7666188**	.7914103**	.7434783**	.7755241**	.6920807	.6827485
HOUSWIF	(.4215836)	(.4216069)	(.4220785)	(.4229461)	(.4235376)	(.4237839)	(.4239335)
	693708*	6685337	6090284	8349845*	7653702	8026268	8205514*
UNEMPED	(.4905497)	(.4908747)	(.4920472)	(.4932291)	(.4934319)	(.4914029)	(.4919595)
	.1681642	.1685711	.1744266	.137918	.1424008	.0382631	.0381749
PTTIM	(.3733248)	(.3733427)	(.3736934)	(.3740308)	(.3745152)	(.3765811)	(.3767193)
	.0796429	.0442342	.0786947	.004264	.0507022	0006802	.0139161
FULTIM	(.3523877)	(.3526462)	(.3537061)	(.3534807)	(.354601)	(.3537619)	(.3540302)
	.5343813	.4908559	.5380602	.4207817	.4824029	.4741899	.4718174
SELFEMP	(.4507346)	(.4513705)	(.4525754)	(.4526502)	(.4538712)	(.4523713)	(.4524714)
	.3552462	.3600714	.4360692	.2447361	.3429337	.262168	.299546
RETIRED	(.3899897)	(.3902234)	(.3934274)	(.3920894)	(.3948361)	(.3952693)	(.3960423)
	.4207915	.3203664	.3855821	.2945894	.3868822	.3006742	.2953655
STUD	(.4656747)	(.4661874)	(.4681267)	(.466654)	(.468419)	(.4690143)	(.469149)
		.0046751***	.0040751***	.0027595	.0020762	.0012137	.0009491
ODI		(.0016344)	(.0016334)	(.0017276)	(.0017561)	(.0018125)	(.0018214)
HEALS [BAD for reference]							
VERYBAD							
, ENIDID	.738162***	.7156241***	.719883***	.7103928***	.7241906***	.6945843***	.6926016***
FAIR	(.2612121)	(.2615532)	(.2620952)	(.2616649)	(.2621296)	(.2636068)	(.2636465)
	1.617899***	1.589777***	1.590045***	1.589128***	1.590408***	1.56916***	1.566953***
GOOD	(.256521)	(.2570321)	(.2570109)	(.2571623)	(.2570968)	(.2585167)	(.2585648)
	3.322789***	3.284948***	3.284405***	3.249532***	3.245082***	3.246337***	3.239575***
VERYGOOD	(.2823372)	(.2831917)	(.2831756)	(.283562)	(.28352)	(.2849257)	(.2853165)
		.0028129*	.0027657	.0015616	.0012908	.0001048	.0000326
ODI		(.0017194)	(.0017299)	(.001799)	(.0018281	(.0018794)	(.0018868)
INCOMS [below	5000 for reference1	,		,			

5000 10000	.132339	.2326496	.162587	039411	1988955	.1649389	.1879569
5000-10000	(.5050013)	(.5072887)	(.5117885)	(.5203679)	(.5277863)	(.570829)	(.5736372)
	8894697	8482527	8771816	-1.195481*	-1.303816*	-1.042252	-1.068453
10,000-20,000	(.6788087)	(.6805999)	(.6780287)	(.6921167)	(.6889404)	(.7094413)	(.7104821)
	9497048***	8896909**	9518261**	9812761**	-1.099299**	7885322	7623208
20,000-50,000	(.4977769)	(.4981014)	(.4996484)	(.4968146)	(.4987897)	(.5345176)	(.5362205)
50,000-100,00	.3806085 (.7418263)	.4695457 (.744706)	.5578329 (.7442512)	.1550235 (.7611066)	.2597397 (.7603708)	.5508081 (.7856255)	.544452 (.7864541)
0	0145008	0942844	0575972	- 1927812	- 3015495	0165441	0550188
100,000-	(3417585)	(3436534)	(3446657)	(3538438)	(3568697)	(40689)	(4074949)
	(.5117505)	0047207***	0043892***	0025741	0016621	0013594	0011144
ODI		(.0016277)	(.0016414)	(.0017412)	(.0017804)	(.0017941)	(.001802)
PRO [AGRI/ FAI	RM for reference]	(1111)	()		(1111)		
	3069187	3462591	2828602	3529243	2468833	1964959	2029376
EMPEE	(.7253675)	(.7248855)	(.7315173)	(.7205122)	(.7290824)	(.7346422)	(.7345013)
	7074268***	6896878***	6695259***	6520184***	6146274***	6316204***	6332986***
UNSKIL	(.2368527)	(.2379471)	(.2383764)	(.2389762)	(.2396764)	(.2399496)	(.2399474)
OF MOVIN	4588799	4763712	440043	481517	4252077	3866172	3883025
SEMISKIL	(.4504533)	(.4497339)	(.449716)	(.4478465)	(.4471466)	(.4452744)	(.4456338)
	5167978	5584367	524674	5557367	5008143	5136517	5182881
SKILLED	(.536011)	(.5402944)	(.540977)	(.546665)	(.5477293)	(.5493584)	(.5495787)
DDOE	1675311	1486558	0131553	2735697	0669505	.0404454	0011086
PROF	(.8277892)	(.828731)	(.8321238)	(.8413358)	(.8444997)	(.8484995)	(.8528796)
0	7138298	6863493	6538148	5691152	5029617	4270688	39149
UTHER	(.5783829)	(.5792479)	(.5797166)	(.5797068)	(.5811192)	(.5811098)	(.5826008)
0.01		.0045131***	.0042508***	.0028338**	.0022139	.0012252	.0009661
ODI		(.0016257)	(.0016372)	(.0017118)	(.0017392)	(.0017948)	(.0018036)
Prov Dummy	YES	YES	YES	YES	YES	YES	YES
Year Dummy	YES	YES	YES	YES	YES	YES	YES
Obs	1214	1214	1214	1214	1214	1214	1214
Wald chi2	18.34	21.49	26.28	35.91	40.59	33.49	42.26
Pseudo R ²	0.38	0.48	0.62	0.65	0.69	0.55	0.61

Note: Numbers in the "()" is robust standard error ; ***, **, * indicate significant at 1%, 5% and 10% respectively.

4. Conclusion

China's ODI and the Chinese residents' happiness is positively correlated, ie, China's ODI is conducive to the improvement of domestic happiness. The income increase has little effect on the happiness of people in home country, and the Gini coefficient, the inflation rate and the unemployment rate decrease considerably the effect of ODI on the happiness of the people in home country, and the negative effect by Gini coefficient is higher than inflation and umployment.

The happiness coefficient of different groups were different. Among those of significant coefficients, the coefficient of the ODI's effect on happiness of the medium and high educated, the single, the divorced, housewives, the very-healthy and the relatively-healthy is positive; the happiness of the unemployed, the annual income between 20000-50000, the unskilled workers is negatively correlated with ODI.

The the trend of effect of ODI on the happiness of different populations is also different, but most of them is deteriorated. The happiness of the medium and high educated, the single, housewife, the relatively-healthy and the fair-healthy, the very healthy, the unskilled worker are slightly worsen because of the ODI. The happiness of the divorced, the groups of income of between 20000-50000 are improved by ODI.



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