Investigating sectoral aspect of FDI in OECD countries

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The main aim of this paper is to investigate sectoral aspect of FDI in OECD countries. In particular we create Sectoral Inward FDI performance index and Sectoral Outward FDI performance index which allow us to draw conclusions about comparative advantages of a particular country in a certain sector. In addition, sectoral concentration of FDI is calculated in order to measure whether foreign investment (in a certain sector) is concentrated in one or a limited number of countries, or, contrary, evenly distributed across countries. Moreover, for the same six sectors we present the results of FDI regulatory restrictiveness index to capture discrimination against foreign investment. We find all of the investigated indices vary significantly across sectors, and this should be taken into account by policy-makers

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1. Introduction

The literature on foreign direct investment (FDI) is increasingly paying attention to comparative studies of countries' attractiveness for FDI. The United Nations Conference on Trade and Development

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(UNCTAD) has for that reason developed several indices, which serve as a benchmark for comparative purposes. In 2002 UNCTAD introduced the Inward FDI Performance Index (IPI), which captures a country's relative success in attracting global FDI. The index is calculated in the following manner:

$$〚IPI〛\_i = (〚FDI〛\_i / 〚FDI〛\_w)/(〚GDP〛\_i / 〚GDP〛\_w) \quad (1)$$

where, IPI_i stands for the Inward FDI Performance Index of the i^{th} country, FDI_i and FDI_w represent the FDI inflows in the i^{th} country and the World, respectively, while GDP_i and GDP_w stand for GDP in the i^{th} country and the World, respectively.

The interpretation of the index is as follows: IPI equals one means that the shares of global FDI flows and global GDP are equal. Countries with a value of IPI higher than one attract more FDI than could be expected on the basis of their relative GDP size, while countries with values of the index lower than one receive less FDI than would be expected from their size (a negative value means that foreign investors disinvest in that period).

This index, thus, captures the influence on FDI of factors other than market size, under the assumption that, *ceteris paribus*, size is the benchmark for attracting investment. These other factors can be various, such as: business conditions, economic and political stability, natural resources, infrastructure, skills and technologies, opportunities for participating in privatisation or the effectiveness of FDI promotion.

Inward FDI Performance Index is commonly used in the assessment of FDI performance in different countries and regions. However, given that FDI is unevenly distributed in different industries, and given that, as shown by Buigues and Jacquemin (1994), FDI is industry and not country specific, it seems logical to calculate sectoral FDI performance index. For this reason in this paper we calculate sectoral inward and outward FDI performance index for

Organization for Economic Cooperation and development (OECD) members in the period 2005-2010. In addition, average sectoral concentration of FDI is calculated in order to measure whether foreign investment (in a certain sector) is concentrated in one or a limited number of countries, or, contrary, evenly distributed across countries. Finally, we also calculate FDI regulatory restrictiveness index which captures discrimination against foreign investment. When it is combined with other factors that have an influence on FDI decisions, it has proven to be a good predictor of countries' inward FDI performance. All this gives us grounds for investigating sectoral aspect of FDI in OECD countries. To the best of our knowledge, no similar analysis and/or calculations have been done before.

The rest of the paper is organised as follows. Section 2 analyses Sectoral Inward FDI performance index, Section 3 investigates Sectoral Outward FDI performance index, while in Section 4 average sectoral concentration of FDI is calculated. Section 5 presents FDI regulatory restrictiveness index for the same sectors used previously, and finally, Section 6 concludes.

2. Sectoral Inward Performance index

Following the UNCTAD and Malešević Perović and Golem (2013) approach, we calculate the Sectoral Inward FDI performance index, which captures a country's relative success in attracting global FDI in a certain sector. More precisely, the index is calculated as follows:

$$[\![SIPI]\!]\_ij = ([\![FDI]\!]\_ij / [\![FDI]\!]\_wj) / ([\![GDP]\!]\_ij / [\![GDP]\!]\_wj) \quad (2)$$

where, $SIPI_i$ stands for the Sectoral Inward FDI Performance Index in country i, in sector j, FDI_{ij} and FDI_{wj} represent the FDI inflows in sector j in the i^{th} country and the World, respectively, while GDP_{ij} and GDP_{wj} stand for GDP in sector j in the i^{th} country and the World, respectively.

The data sources are OECD International Direct Investment Database (OECD, 2013) for FDI stocks[2] of a particular country and UNCTAD World Investment Report (UNCTAD, 2013) for the World FDI. Due to data limitations, GDP is approximated with GVA and obtained from UNCTAD National Accounts (UNCTAD, 2013a). We calculate SIPI for six sectors only since merging of the above-mentioned data sources resulted in such composition of sectors. Sector comparison by different data sources, as well as full sector names are provided in Table A1 in the Appendix.

Inward FDI Performance Index is usually calculated as three-year moving average in order to offset annual fluctuations in the data. For this reason we calculate average value of SIPI and IPI in the period 2005-2010. The results are presented in Table 1, while the data for each year separately is available upon request.

Let us firstly note that only Greece in Manufacturing, mining and utilities has SIPI equal to one, which means that the shares of global FDI stock and global GVA in this sector in Greece are equal. Furthermore, Chile, Czech Republic, Estonia, Finland, Hungary, Poland, Slovakia, Sweden and UK have the sectoral FDI performance index higher than one in all the sectors, which suggest that these countries attract more FDI in all sectors than could be expected on the basis of their relative GDP size. Interestingly, most of these countries are ex transition countries. Countries whose SIPI is lower than one in all sectors include Japan and Korea. An analysis of each sector separately reveals that Chile has the highest index in Agriculture, hunting, forestry and fishing. Two other countries also achieved a high value of the index in this sector, and these are Estonia and Norway. As far as Construction is concerned, Estonia seems to be the most successful in this sector, attracting more FDI than suggested by its GDP. As for the other sectors, Netherlands attracts the most FDI in Mining, manufacturing and utilities, Belgium in Other services,

[2] Stocks are used instead of flows due to data unavailability.

and Transport, storage and communications and Hungary in Wholesale, retail trade, restaurants and hotels. Japan, Korea and Israel have persistently low (below one) values of SIPI index in all the sectors, while Germany, Italy, Turkey and United States could also be included in this group apart from the fact that they have the index above one in only one sector. The latter four are large economies that attract large amounts of FDI, albeit low in relation to their GDP. Japan, on the other hand, has traditionally been closed to FDI, which explains the results form Table 1.

When we compare sectoral indices with the overall FDI performance index (last column), several conclusions emerge. For example, Austria's overall index is 1.56 suggesting that it attracted more FDI that would be expected based on its GVA. Sectoral structure, however, reveals that this result is due to two sectors only: Wholesale, retail trade, restaurants and hotels and Other services. In all other sectors Austria is an underperformer (relative to its size). France, similarly, owes its high (higher than one) overall index to Mining, manufacturing and utilities and Other services. Iceland is rather interesting to observe; its overall index is 2.65, and this is due to Iceland performing well in Mining, manufacturing and utilities, Transport, storage and communications and Other services, and sectoral indices in these sectors are rather high. In the three remaining sectors, Iceland, however, performs rather badly, with low sectoral indices. This goes to show the importance of looking at the sectoral aspect of FDI performance. Slovenia, unlike other countries (formerly in transition) that have relatively recently joined the EU, does badly in attracting FDI. It's overall index is close to one due mainly to their good performance in attracting FDI in Wholesale, retail trade, restaurants and hotels and Other services, while all other sectors record low sectoral indices.

Table 1

Average sectoral and overall Inward FDI performance index in 2005-2010 for OECD members

	AGR	CON	MAN	OTH	TRA	WHO	ALL
Australia	1.84	3.48	1.90	0.61	1.81	1.65	1.27
Austria	0.34	0.09	0.51	2.65	0.75	1.65	1.56
Belgium		2.08		9.73	4.47		2.64
Canada	3.66	0.69	1.83				0.47
Chile	17.72	1.44	2.16	2.34	2.54	1.50	2.01
Czech R.	3.29	2.80	2.10	2.73	2.04	2.04	2.26
Denmark	0.03	0.52	1.18	2.65	2.78	2.39	2.06
Estonia	13.42	3.60	1.80	5.11	1.60	3.32	3.11
Finland		1.32	1.09	1.55	1.99	1.66	1.15
France	0.80	0.45	1.03	2.08	0.50	0.94	1.48
Germany	0.48	0.20	0.31	1.91	0.63	0.78	0.96
Greece	0.09	0.88	1.00	0.41	1.06	0.40	0.56
Hungary	5.30	2.94	2.39	2.44	3.33	3.62	2.68
Iceland	0.10	0.97	3.64	3.36	1.48	0.54	2.65
Ireland				4.57	1.27	2.84	0.52
Israel		1.16	0.54	0.78	1.02	0.24	0.29
Italy	1.84	0.39	0.64	0.68	0.68	0.53	0.62
Japan	0.09	0.01			0.10		0.01
Korea	0.51	0.08	0.25	0.37	0.34	0.37	0.32
Luxembourg							
Mexico							
Netherlands	0.62	1.01	4.49	3.19	1.77	2.73	3.35
New Zealand							0.00
Norway	11.74	1.12	1.07	0.87	1.65	1.51	1.22
Poland	2.92	3.20	1.43	1.65	1.62	1.69	1.58
Portugal		1.35			0.64	1.12	0.19
Slovakia	2.54	2.21	2.58	2.14	1.82	1.94	2.34
Slovenia	0.91	0.32	0.87	1.58	0.42	1.48	0.97
Spain	1.29	2.06	1.84	1.54	1.68	0.83	1.39
Sweden		1.34	4.11	1.52	2.05	2.36	2.39
Switzerland					1.38		0.08
Turkey	0.28	0.83	0.72	0.82	1.37	0.68	0.80
United Kingdom	3.99	1.69	2.59	1.26	3.30	2.01	1.68
United States	1.38	0.40	0.73	0.40	0.62	0.71	0.53

Source: OECD (2013), UNCTAD (2013 and 2013a) and author's calculations

3. Sectoral Outward Performance index

In addition to calculating the Sectoral Inward FDI performance index, we also calculate Sectoral Outward FDI performance index which captures a country's relative success in investing globally. To the best of our knowledge this is the first calculation of this sort. The index is calculated as follows:

$$〚SOPI〛_ij = (〚FDI〛_ij / 〚FDI〛_wj)/(〚GDP〛_ij / 〚GDP〛_wj) \quad (2)$$

where, $SOPI_i$ stands for the Sectoral Outward FDI Performance Index in country i, in sector j, FDI_{ij} and FDI_{wj} represent the FDI outflows in sector j in the i^{th} country and the World, respectively, while GDP_{ij} and GDP_{wj} stand for GDP in sector j in the i^{th} country and the World, respectively. As before, we use FDI outward stock rather than flows and approximate GDP with GVA for reasons already explained.

Table 2 gives the results for the average Sectoral Outward FDI performance index in the period 2005-2010. Let us firstly note that Australia in Other services, Finland in Wholesale, retail trade, restaurants and hotels and France in Transport, storage and communications have SOPI equal to one. Iceland, Netherlands, Sweden and UK have the outward FDI performance index higher than one in all the sectors, which suggest that these countries invest more FDI globally, than would be expected based on their relative GDP size. Countries whose SOPI is lower than one in all the sectors include: Czech Republic, Greece, Hungary, Poland, Portugal, Slovakia and Turkey. An analysis of each sector separately reveals that Norway has the highest index in Agriculture, hunting, forestry and fishing. The other countries which have also achieved a high value of the index in this sector include Canada, Denmark and Iceland. As far as Construction is concerned, Sweden achieves the highest index, followed by the UK. As for the other sectors, Netherlands invests the most FDI globally in Mining, manufacturing and utilities, Belgium in

Other services, United Kingdom in Transport, storage and communications and Iceland in Wholesale, retail trade, restaurants and hotels.

When we compare sectoral indices with the overall outward FDI performance index, it can be observed that countries that have the overall performance index higher than 1 generally have above-one indices in majority of sectors. This is in contrast with the inward performance indices whereby sectoral results were, in comparison to the overall result, more dispersed.

Table 2

Average sectoral and overall Outward FDI performance index in 2005-2010 for OECD members

	AGR	CON	MAN	OTH	TRA	WHO	ALL
Australia		1.19	2.04	1.00	0.42		0.50
Austria	2.02	2.62	1.91	1.97	0.60	2.33	1.57
Belgium		0.96	5.01	9.91	2.62		3.14
Canada	21.61	0.41	3.11				0.39
Chile	7.57	0.23	0.89	0.99	0.53	2.07	0.65
Czech R.	0.46	0.46	0.21	0.39	0.02	0.30	0.23
Denmark	12.78	0.71	4.45	2.07	3.87	3.05	2.36
Estonia	1.78	1.85	0.31	2.03	0.98	1.11	1.07
Finland		2.07		0.69	1.23	1.00	0.52
France	0.97	0.94	2.94	2.75	1.00	1.66	2.23
Germany	6.29	0.49	1.28	1.96	1.04	2.34	1.33
Greece	0.42	0.23	0.40	0.69	0.59	0.22	0.45
Hungary	0.19	0.20	0.94	0.50	0.08	0.91	0.52
Iceland	13.65	1.71	7.77	3.76	2.46	6.56	3.59
Ireland			1.36	3.54	0.16		0.48
Israel	0.33	1.28	2.49	0.60	0.04	0.89	0.47
Italy	2.54	1.51	1.12	1.10	0.09	0.81	0.84
Japan	1.94	0.11			0.18		0.01
Korea	2.77	1.01	1.02	0.22	0.19	1.53	0.42
Luxembourg							
Mexico							
Netherlands	3.90	3.23	12.92	3.78	3.72	3.93	4.87

New Zealand							0.00
Norway	31.20	0.48	2.27	0.46	2.98	1.03	1.32
Poland	-0.01	0.53	0.18	0.19	0.01	0.18	0.15
Portugal		0.89			0.11	0.52	0.07
Slovakia	0.06	0.05	0.09	0.19	0.02	0.27	0.12
Slovenia	3.46	0.54	0.68	0.50	0.43	2.65	0.50
Spain	1.64	1.79	3.01	1.68	2.89	0.88	1.53
Sweden	9.06	4.17	8.68	1.83	2.74	4.20	2.68
Switzerland					1.02		0.08
Turkey	0.03	0.41	0.17	0.14	0.04	0.10	0.10
United Kingdom	3.67	3.44	9.36	1.39	5.32	3.48	2.17
United States	1.57	0.09	1.13	1.01	0.32	0.79	0.84

Source: OECD (2013), UNCTAD (2013 and 2013a) and author's calculations

4. Sectoral concentration of FDI

We, additionally, following Nauwelaerts and van Beveren (2005), calculate another index – Sectoral concentration of FDI (SCFDI) for OECD members. This index measures whether foreign investment (in certain sector) is concentrated in one or a limited number of countries, or, contrary, evenly distributed across countries. The index is calculated as follows:

$$SCFDI_i = \sum_{j=1}^{m} \left| \left(\frac{OP_{ij}}{\sum_{j=1}^{m} OP_{ij}} \right) - \left(\frac{IP_{ij}}{\sum_{j=1}^{m} IP_{ij}} \right) \right| * 100 \qquad (3)$$

where $SCFDI_i$ is sectoral concentration of FDI for sector/industry i (in percentage); OP_{ij} is outward FDI position of country j in sector i and IP_{ij} is inward FDI position of country j in sector i. The value of index ranges between zero and 200. The extreme case of 200 indicates that one country is the only recipient of inward foreign investment in a particular sector, while another country is the sole outward foreign investor. The higher the value of SCFDI, the more concentrated inward investment and the more strongly dominated by few countries outward investment is. As before, we use inward and outward FDI stocks available from OECD International Direct Investment

Database. Average value of SCFDI for the period 2005-2010 and the same sectors used above is given in Table 3.

Table 3

SCFDI 2005-2010 average

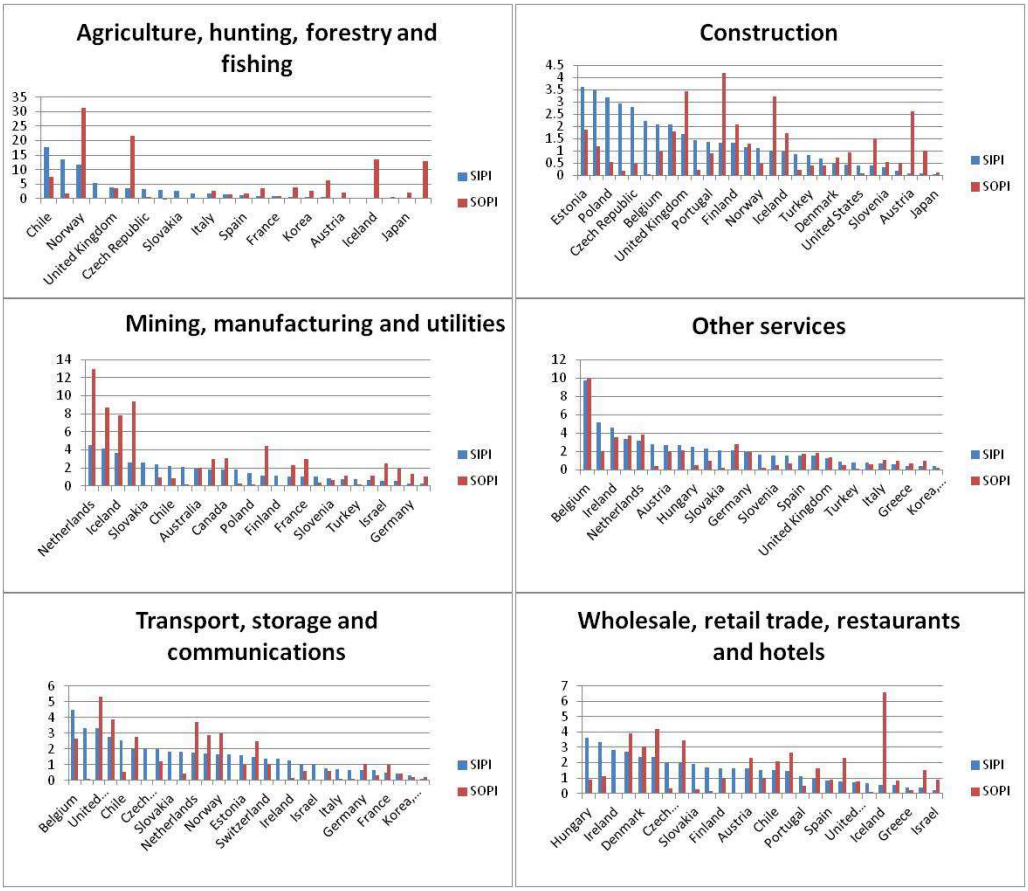
Sector	SCFDI
AGR	83.45
CON	81.49
MAN	35.65
OTH	36.47
TRA	66.44
WHO	35.34

Source: OECD (2013) and author's calculations

Relatively lower SCFDI indices characterise the following sectors: Wholesale, retail trade, restaurants and hotels; Mining, manufacturing and utilities and Other services. This suggests that FDI in these sectors is more dispersed. We would expect more FDI concentration in manufacturing, where specific assets such as know-how, technology, patents, entry barriers or scale economies are important. Less concentrated FDI in Wholesale, retail trade, restaurants and hotels and Other services can be explained through lower entry barriers and scale economies, and the lesser importance of firm specific assets or knowledge capital in these sectors. Agriculture, hunting, forestry and fishing; Construction and Transport, storage and communications, on the other hand, have higher SCFDI index, meaning that in these sectors FDI are less dispersed across countries.

Figure 1 presents the results from Tables 1 and 2 for each sector. In each figure the inward indices are sorted from the largest to the smallest and these are then compared with the outward indices.

Figure 1
Inward and outward sectoral performance index in OECD across sectors



Source: OECD (2013), UNCTAD (2013 and 2013a) and author's calculations

As can be seen from the first panel in Figure 1, in the sector of Agriculture, hunting, forestry and fishing only few countries reach high levels of SIPI (Chile, Estonia, Norway and Hungary) and, similarly, only few countries accomplish high levels of SOPI (Norway, Canada, Iceland and Denmark), and in general these are not the same countries. This explains the results from Table 3, whereby the high

SCFDI index for the sector of Agriculture, hunting, forestry and fishing indicates that FDI in this sector is concentrated in a small number of countries. A limited number of countries is, typically, well-endowed in natural resources which would explain a small number of FDI recipients in this sector, while at the same time, outward FDI is also mainly dominated by a few countries which specialise in these industries. The Construction sector also exerts a relatively high SCFDI index, suggesting that the FDI is less dispersed across countries. The evidence from the second panel in Figure 1 supports this view; only few countries reach high SIPI and SOPI scores and these are usually not the same countries. It should be stressed that the indices in this figure are all below 4.5, therefore we draw these conclusions by looking at only those countries whose scores are higher than 3 (as an arbitrary rule). As noted by Markusen (2002), industries characterised by a higher degree of capital requirements, know-how and knowledge capital tend to have higher SCFDI scores. Construction is one of these industries. In Mining, manufacturing and utilities situation is different, as presented in Figure 1. The first four countries with highest SIPI score are also those with the highest SOPI score. In general it is visible from that there is a lot less differentiation between inward and outward FDI performance indices. This is further supported by the SCFDI results whereby SCFDI is relatively low in this sector suggesting that it is more dispersed among countries. According to UNCTAD (2004), FDI in manufacturing is increasingly geared to capital knowledge- and technology-intensive activities. This finding is a bit surprising as we would normally expect FDI to be more concentrated in industries where know-how and technology play an important role. This finding is probably the result of merging of the sectors whereby we joined mining, manufacturing and utilities. While the arguments put forward above would apply to manufacturing, the same is not the case with mining and utilities, and this probably messes up the overall results. It is interesting to note that both the

results from Figure 1 and Table 3 tell the same story, even though the approaches differ significantly.

In the sector of Other services the situation between inward and outward FDI performance index is even more balanced, supporting the conclusions from Table 3 where SCFDI index is rather low. As noted by Nauwelaerts and van Beveren (2005), FDI is progressively more reallocating towards services. Since many services are by nature non-tradable and need to be produced when and where they are consumed, for most services the only way of serving foreign markets is by setting up local operations through the FDI. Low SCFDI index indicate that more and more countries participate in FDI in this sector.

As shown in the last row of Figure 1, in Transport, storage and communications we can, once again, notice that those countries that have the highest SIPI, do not, at the same time, have the highest SOPI (with the exception of UK and Denmark); rather, countries in the middle of SIPI rankings are those reaching the highest SOPI scores. From Table 3 we can see that the SCFDI index for this sector is 66.44, which is higher than SCFDI for Other services but not as high as SCFDI for Agriculture, hunting, forestry and fishing and Construction. Since this sector also represents services, most conclusions that followed Mining, manufacturing and utilities can be applied here also.

Last panel in Figure 1, finally, presents the results for SIPI (sorted from the largest to the smallest) and the corresponding SOPI for Wholesale, retail trade, restaurants and hotels. Once again, since all these activities belong to the services sector, we expect the FDI to be more distributed across countries, and this is indeed confirmed by Figure 1, as well as by the low SCFDI index.

5. FDI regulatory restrictiveness index

In addition to indices calculated so far we present yet another index – FDI regulatory restrictiveness index (RR) published by the OECD (2013a), which measures statutory restrictions on foreign direct investment and covers 22 sectors. Namely, besides the size of a country that was taken to be an important determinant of FDI in SIPI and SOPI calculation, a country's ability to attract FDI will be affected by other factors too. One of these factors is FDI rules, and unlike geography, FDI rules are something over which governments have control. Restrictiveness is measured on a 0 to 1 scale, with 0 representing full openness and 1 a prohibition of FDI.

The RR index measures the restrictiveness of a country's FDI rules by looking at the following types of restrictions on FDI: foreign equity limitations; screening or approval mechanisms; restrictions on the employment of foreigners as key personnel and operational restrictions, e.g. restrictions on branching and on capital repatriation or on land ownership.

In order to investigate this aspect of FDI we, therefore, next adapt the data for 22 sectors published by the OECD, so as to comply with our six sectors (sector comparison is given in Table A1 in the Appendix) and present the results in Table 4. Since this index is calculated for 6 years only (1997, 2003, 2006, 2010, 2011 and 2012), we present the results for 2010, so that it is comparable to our other results.

Table 4

RR index in OECD countries in 2010

	AGR	CON	MAN	OTH	TRA	WHO
Australia	0.075	0.075	0.077	0.204	0.289	0.075
Austria	0.167	0.000	0.263	0.174	0.061	0.005
Belgium	0.039	0.023	0.023	0.098	0.053	0.025
Canada	0.200	0.100	0.106	0.056	0.531	0.100

Chile	0.200	0.000	0.000	0.010	0.275	0.000
Czech R.	0.033	0.000	0.000	0.337	0.025	0.000
Denmark	0.075	0.000	0.000	0.421	0.028	0.000
Estonia	0.000	0.000	0.000	0.112	0.050	0.000
Finland	0.017	0.009	0.028	0.019	0.037	0.009
France	0.203	0.000	0.001	0.019	0.066	0.000
Germany	0.092	0.000	0.000	0.002	0.075	0.000
Greece	0.075	0.000	0.011	0.076	0.088	0.002
Hungary	0.000	0.000	0.000	0.302	0.056	0.000
Iceland	0.284	0.112	0.225	0.155	0.143	0.112
Ireland	0.180	0.000	0.000	0.086	0.042	0.000
Israel	0.073	0.020	0.208	0.092	0.354	0.020
Italy	0.167	0.000	0.003	0.006	0.171	0.002
Japan	1.000	0.000	0.173	0.033	0.449	0.000
Korea	0.333	0.000	0.104	0.017	0.524	0.000
Luxembourg	0.000	0.000	0.000	0.001	0.025	0.000
Mexico	0.492	0.100	0.102	0.133	0.513	0.150
Netherlands	0.083	0.000	0.000	0.001	0.028	0.000
New Zealand	0.367	0.200	0.200	0.211	0.294	0.200
Norway	0.192	0.000	0.006	0.199	0.158	0.000
Poland	0.067	0.000	0.000	0.301	0.155	0.000
Portugal	0.008	0.000	0.000	0.006	0.028	0.001
Slovakia	0.000	0.000	0.000	0.334	0.025	0.000
Slovenia	0.000	0.000	0.000	0.004	0.050	0.000
Spain	0.000	0.000	0.006	0.038	0.100	0.000
Sweden	0.183	0.000	0.000	0.017	0.231	0.000
Switzerland	0.000	0.000	0.125	0.156	0.239	0.000
Turkey	0.000	0.000	0.006	0.375	0.211	0.000
United Kingdom	0.206	0.023	0.023	0.016	0.128	0.023
United States	0.208	0.000	0.062	0.014	0.303	0.000

Source: OECD (2013a) and author's calculations

Table 4 leads to several conclusions. In Agriculture, hunting, forestry and fishing Japan exhibits maximum restrictions, with RR index equal to 1. On the other side, Estonia, Hungary, Luxembourg, Slovakia, Slovenia, Spain, Switzerland and Turkey have the RR index equal to 0, meaning that this sector is fully open to FDI in these countries. Most of the remaining countries also have low values of RR index in this sector, with only Korea, New Zealand and Mexico exerting indices higher that 0.3 (which is still relatively low). As for Construction, majority of countries have the RR index in this sector equal to 0, indicating that Construction is fully open to FDI. New Zealand and Iceland have the highest indices, which are 0.2 and 0.112, respectively, still pointing toward the openness of this sector to FDI. In Mining, manufacturing and utilities countries are also quite open to FDI, with the highest RR index being 0.263 in Austria. Other services tell a similar story, although FDI is a bit more restricted in this sector compared to the last two, whereby Poland, Hungary, Slovakia, Czech Republic, Turkey and Denmark have RR indices above 0.3, and the rest of the countries lower than that. The sector of Transport, storage and communications is also quite open to FDI in most countries, while restrictions are more present in United States, Israel, Japan, Mexico, Korea and Canada. Finally, Wholesale, retail trade, restaurants and hotels is, after Construction, the sector most open to FDI, with RR index being the highest in New Zealand and equal to 0.2.

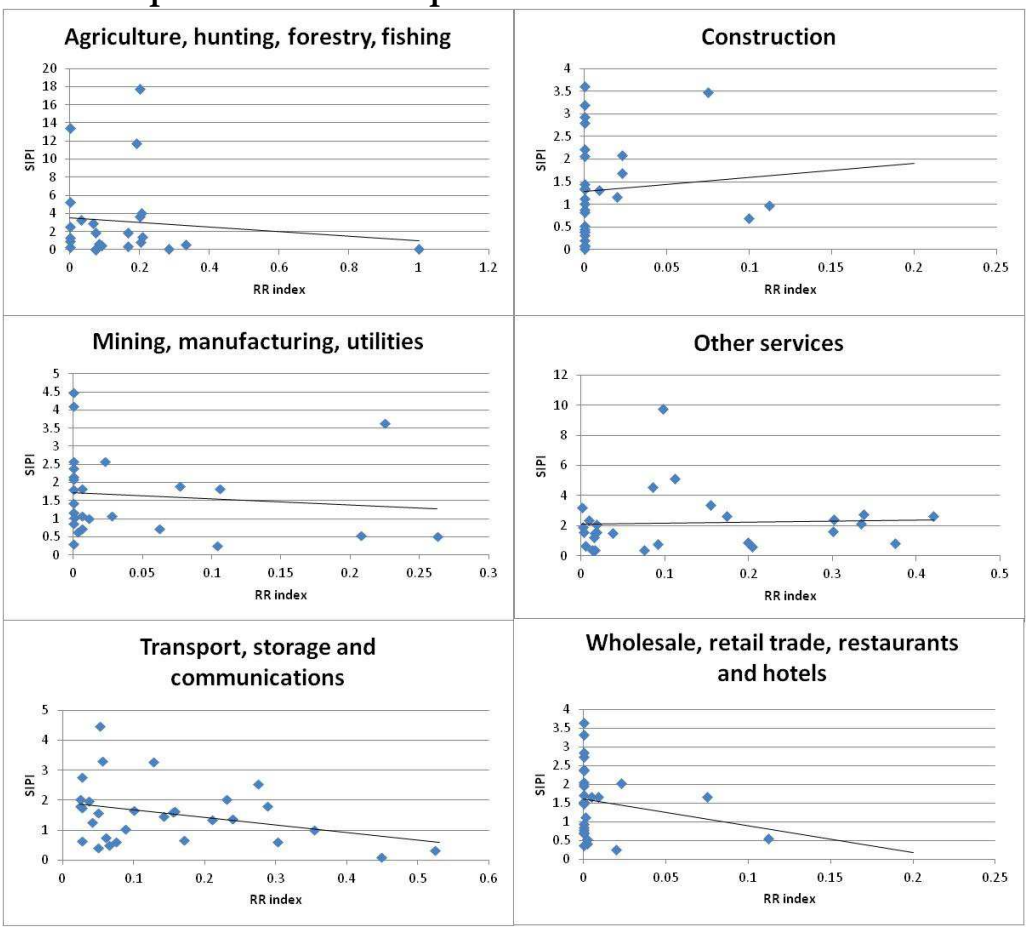
In general, FDI restrictions tend to arise mostly in sectors such as mining, fishing and agriculture, but also in media and transport and this is confirmed by our results. Construction and Wholesale, retail trade, restaurants and hotels are the two sectors most open to FDI.

We next explore a country's performance in attracting FDI in certain sector for a given level of restrictiveness. For each sector we present a scatter chart and add a linear trend line (Figure 2) in order to observe the relationship between FDI performance (measured by SIPI) and openness (measured by RR index).

In majority of sectors the relationship between SIPI and RR index is, expectedly, negative, implying that the more open to FDI a country is, the more FDI it obtains. In Construction, however, this relationship is positive, while in Other services it is neutral. The result for Construction sector is due to an outlier – Australia, with the highest SIPI of 3.48 in this sector, and this relationship becomes negative upon the exclusion of this country. As for Other services, no clear pattern between FDI performance and openness emerges, resulting in a (practically) horizontal trend line.

Figure 2

FDI performance vs. openness in OECD across sectors



Source: OECD (2013 and 2013a) and UNCTAD (2013 and 2013a) and author's calculations

6. Conclusions

Trade liberalisation and the rise of global supply chains have led to FDI being progressively more used to restructure business operations, stimulate trade and enhance profitability, and, more generally, growth, which is why countries nowadays compete to attract FDI. Moreover, the literature on foreign direct investment focuses

more and more on comparative studies of countries' attractiveness for FDI. UNCTAD and OECD have developed several indices which serve as a benchmark for comparative purposes, and some of these (adapted) indices are at the core of this research.

More precisely, this paper provides calculations of Sectoral inward and outward FDI performance index for OECD countries as well as interpretation of these indices. The results suggest that sectoral indices vary greatly in comparison to the overall FDI performance index. Namely, a high overall index is often found to be a result of good FDI performance in only one or two sectors. An excellent example is Iceland, whose overall index is 2.65, which is due primarily to high sectoral indices in Mining, manufacturing and utilities, Transport, storage and communications and Other services. In the three remaining sectors, Iceland, however, performs rather badly, with low sectoral indices. Sectoral outward performance index tells a different story, whereby countries that have the overall performance index higher than 1 generally have above-one indices in majority of sectors.

In order to further investigate the importance of sectoral diversification of FDI, we calculate sectoral concentration of FDI index (SCFDI). The evidence suggests that FDI is more dispersed across countries in the following sectors: Wholesale, retail trade, restaurants and hotels; Mining, manufacturing and utilities and Other services. Namely, here we find relatively low SCFDI indices, which suggests that foreign investment in these sectors is not concentrated in one or a limited number of countries, but rather a large number of countries participates in FDI. In Agriculture, hunting, forestry and fishing; Construction and Transport, storage and communications, on the other hand, FDI is found to be more concentrated, allowing only a small number of countries to participate in such investments. This finding is compatible with those of Sectoral inward FDI performance index, as we, in general, find that sectors which exert a relatively high

SCFDI index also display high disbalance between Sectoral inward and outward FDI performance index.

At last, calculations of FDI regulatory restrictiveness are also provided, and the results suggest that Construction and Wholesale, retail trade, restaurants and hotels are the two sectors most open to FDI exerting the lowest RR indices.

Overall, our analysis shows that sectoral structure of inward FDI should be given special attention, since various FDI indices at a whole economy level often blur the overall results.

Finally, it should be stressed that this analysis could benefit from an improved data availability, which would allow higher diversification of sectors (i.e. more than six sectors) and consequently more precise analysis and better policy recommendations. The results of this paper can, however, be used as an input in future research and thus represent an important contribution to the large literature in this field.

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