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## **“FDI PATTERNS AND GLOBAL VALUE CHAINS IN THE DIGITAL ECONOMY”**

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# FDI Patterns and Global Value Chains in the Digital Economy

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## **Abstract**

The modern process of digitalization of the world economy entails global flows of investment in technology-based industries and knowledge activities located upstream of value chains. This work exploits the wealth of information offered by the fDi Markets database to provide an overview about the geographical patterns of FDI and of specialization in digital industries and in technological activities. We show remarkable differences across both advanced and emerging economies in this respect. Europe is both a big attractor and a big investor in digital related business, but relies on emerging economies more to offshore production than to set up R&D labs in these countries. By contrast, North American economies are more prone to engage in knowledge intensive FDI towards the most dynamic emerging countries than is the case of Europe. Emerging economies also play a large variety of roles in global flows of investment in digital industries. However, with the relevant exceptions of China, India and the Four Asian Tigers, inward and outward FDI of Emerging economies are predominantly production-oriented, with a lower involvement in R&D, Design and ICT activities. Hence, the observed patterns of FDI appear to consolidate existing hierarchies in digital related global production networks, creating limited upgrading opportunities in the case of most emerging economies.

## **Keywords:**

Foreign direct investment, globalization, digitalization, global value chains

## **JEL codes:**

F12, F21, F23, F60, L23, M21, O30

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## 1. Introduction

We investigate the patterns of inward and outward FDIs in advanced and emerging economies focusing on what we label as digital industries, namely those in which ICT expenditure is relevant and technologies linked to the modern process of digitalization are developed and introduced. We also provide a broad picture of international division of labour as drawn by global investment flows related to different value added activities along global value chains (GVCs), comparing the dynamics of multinational corporations' investments aimed at carrying out technological activities, manufacturing stages of production or sales and post-sales business functions.

Digital industries play a key role in the global transformation of production systems. In the last few years, Industry 4.0 and, more generally speaking, the digitalization of the economy has been identified as a new phase of technological development, building on the previous diffusion of Information and Communication Technologies (ICTs). A set of advanced digital technologies – including industrial robots, additive manufacturing and 3D printing, big data and cloud computing, computer-aided design and computer aided manufacturing, artificial intelligence and machine learning – have emerged in advanced countries, offering opportunities for drastic changes in value added activities, linking firms in global networks, integrating manufacturing and related services, shortening product cycles, increasing flexibility and variety, reducing costs and employment (OECD, 2017; Roland Berger, 2016; UNIDO, 2017). Indeed, Industry 4.0 has to be seen in the context of the evolution of technologies, that is best understood as a succession of techno-economic paradigms (Freeman and Louca, 2001).<sup>1</sup>

In the context of Industry 4.0 large firms and government policies invest in accelerating digitalization and automation of manufacturing and services, with important efforts in the areas of robotization, Big Data, Internet of things, Cloud computing and Platform economy. This model of digitalization and automation raises major challenges to the future of economic activities in terms of business strategies and location of production, quantity and quality of jobs, education and training, employment contracts, etc (World Bank, 2016; Pianta, 2018).

For advanced economies the promise of Industry 4.0 is to achieve a leap in the development and use of advanced digital technologies increasing control over labour, global supply chains, markets. Lower production and labour costs may create the conditions for a 're-shoring' of production in advanced countries, reducing the opportunities of less developed economies to be integrated in GVCs (Eden, 2016).

For emerging economies the challenge of Industry 4.0 opens up possibilities for a leapfrog in their growth trajectory, using the new technologies as a way to catch up faster the technological leaders (Morrison et al., 2008). At the same time, they suffer the risk of losing high value added activities – including research, design and marketing – that may be further concentrated in advanced countries; in this case, emerging countries could be

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<sup>1</sup> Building on the work of Kondratieff (Kondratieff and Stolper, 1935) and Schumpeter (1934, 1939), we can argue that capitalist development is characterised by a succession of techno-economic paradigms based on a cluster of core technologies with a major diffusion potential across the economy and with rapidly reducing costs (Perez, 2009). Steam power and the textile machines of the industrial revolution were the key elements of the first techno-economic paradigm; the present one has emerged in the 1980s and is based on Information and Communication Technologies (ICTs), with a current acceleration in digitalization, networks and automation of production and Industry 4.0 technologies.

subject to premature deindustrialization phenomena (Rodrik, 2016) and run the risk of “value added erosion” (Caraballo and Jiang, 2016).

The concept of Industry 4.0 originated in Germany to support the digital transformation of production, challenging US monopoly power in digital networks and platforms. Governments of many advanced countries, particularly in Europe, identified the specific goal of spreading advanced digital technologies such as robotics and automation, cloud computing, big data, sensors, 3D printers and introduced a wide range of measures. Policies generally included incentives for R&D, investment in 4IR machinery, venture capital benefits, high tech infrastructures and university and secondary education support (European Commission, 2017).

These policies have generally played a positive role in bringing attention to the technological upgrading of industry and the need for an innovative leap; they have favoured a significant increase in demand for automation equipment and for advanced industrial machinery, stimulating a rise in investment patterns that have generally be stagnant after the global financial crisis (for the case of Italy see Nascia and Pianta, 2018). ‘Industry 4.0’ programmes are having a positive modernization effect and have provided a stimulus to business investment (Gestrin and Staudt, 2018). It remains to be seen whether these effects reach beyond the most advanced group of manufacturing firms and favour a broader technological upgrading of industry. These concerns apply even more to the case of emerging countries, where the group of ‘leading’ technology-based firms tends to be smaller and the bulk of firms have more limited technological capabilities.

A large number of studies and reports by international organizations have addressed the role of technology for the development of emerging countries (UNIDO, 2015). More recent studies have focused on the challenges of digitalization and Industry 4.0 for emerging countries (ILO, 2018; Lopez-Gomez et al., 2017; Mayer, 2018a; McKinsey Global Institute, 2016; Sturgeon, 2017; UNCTAD, 2017; World Bank, 2016). Several studies have focused on the potential employment impact of digitalization in emerging countries (Chang and Huynh, 2016; Hallward-Driemeier and Nayyar, 2017; Mayer, 2018b). The policies by emerging countries governments on Industry 4.0 have been reviewed by Santiago (2018).

The present work exploits the wealth of information offered by the fDi Markets database to provide an overview about the geographical patterns of FDIs and of specialization in digital industries and in technological activities. We will illustrate the role played by different groups of advanced and emerging countries in FDI flows in industries and activities that are relevant for the development of advanced technological capabilities and for digitalization. We will also provide a very broad picture of how countries and regions specialize in attracting FDIs in digital industries and related to technological activities.

## 2. The fDi Markets database

### 2.1 The database

The empirical analysis performed in the present work relies on fDi Markets, an online database provided by fDi Intelligence – a specialist division of Financial Times Ltd – which monitors cross-border investments covering all sectors and countries worldwide from 2003 onwards. The database represents one of the main data source in UNCTAD’s World Investment Report (notably, fDi Markets is the only source on greenfield FDIs used by UNCTAD) and has been exploited in publications by the Economist Intelligence Unit.<sup>2</sup>

fDi Markets is an event-based (or deal-based) database, i.e. each entry is a project, which collects detailed information on announced cross-border greenfield investments (i.e. new wholly-owned subsidiaries, including joint ventures whether they lead to a new physical operation) from several publicly available information sources, including nearly 9000 media sources, over 1000 industry organizations and investment agencies, and data purchased from market research and publication companies. The detected projects are cross-referenced against of a plurality of sources and over 90% of projects are validated with company sources (Castellani, Jimenez and Zanfei, 2013; Castellani and Pieri, 2013).<sup>3</sup>

fDi Markets reports an amount of information related to the type and geographical dimension of the investment. In particular, it contains the name of the parent and investing company together with their geographical localization, namely the home country, region and city, as well as the host country, region and city in which the investment takes place. Most important, the database provides details related to the type of investment, such as the cluster, industry and subsector the investment is directed to, presenting also information on the main business activity involved in the project and a brief description of each individual FDI. The classification of business activities the investment project is related to is a key distinctive characteristic of the database and constitutes a crucial element for analyzing the linkage between FDI patterns and GVCs. Business activities monitored by fDi Markets include both upstream stages, such as Research and Development (R&D), Design, development and testing (DDT), and more downstream ones such as Manufacturing, Retail and Logistics.<sup>4</sup>

In addition, fDi Markets reports the date of the project (year and month), the amount of capital invested in monetary terms and the number of jobs created by the investment, although the latter two information refers, almost exclusively, to estimated values. As criteria for value estimation are not made explicit, we perform our investigation mostly relying on the number of FDI projects rather than on the value of capital involved. Furthermore, since we focus on the global patterns of FDIs highlighting their localization (i.e. the location strategies of MNCs), we follow Crescenzi et al. (2015, p. 33) holding that often the number of investment decisions in a given geographical destination is likely to be a more proper unit of analysis than the value of the project insofar as such decisions have been demonstrated to be broadly independent from the amount of capital invested (Amighini et al., 2014; Sutherland and Anderson, 2014). Consistently, a number of

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<sup>2</sup> Sectoral level data on greenfield investments drawn from fDiMarkets are published by UNCTAD at <https://unctad.org/en/pages/DIAE/World%20Investment%20Report/Annex-Tables.aspx>

<sup>3</sup> Further information on fDi Markets is available at <https://www.fdimarkets.com/>.

<sup>4</sup> See Section 2.2 for a detailed list and description of business activities included in fDi Markets database.

empirical works using fDi Markets have been performed exploiting the number of FDI projects rather than the data on capital investment (Castellani, Jimenez and Zanfei, 2013; Castellani and Pieri, 2013, 2015; Castellani et al., 2016; Crescenzi et al., 2014, 2015; Ramasamy et al., 2012). Nevertheless, given that this choice involves disregarding the scale of investments and might bias our results, we report the most meaningful descriptive statistics using also data on capital investment. In this way, we are able to assess the size of investment projects according to different geographical and industrial dimensions, while checking the consistency of computed indicators with the ones based on the number of FDIs.<sup>5</sup>

We have access to the data recorded from 2003 to 2014. During this period, fDi Markets includes more than 143.000 investment projects worldwide carried out by over 56.000 investing companies controlled by more than 41.000 parent companies.

One shortcoming of the fDi Markets database is that it includes planned future greenfield investments. It follows that some of these projects might not be carried out or may be realized in a form which differs from the one reported by the database. Nonetheless, the latter is daily updated and projects which have not been successful are deleted from the database. Another limitation of fDi Markets concerns the inclusion of greenfield investments only (as well as major extensions of existing projects), while it does not cover information on mergers and acquisitions (M&As), providing a partial picture of global flows of FDI. Not considering M&A might introduce a downward bias in the evaluation of inward investments in advanced economies, as brownfield investments are the more likely to occur the greater the business opportunities offered by the host economy. From this perspective, considering only greenfield investments may well overestimate the attractiveness of emerging countries especially in high-technology industries and activities, and underestimate the prospects of entry in dynamic markets wherein cherry-picking FDIs could be undertaken. On the other hand, the importance of M&A should not be over-emphasized. In fact, according to the World Investment Report 2018, over the period 2008-2014 the value (the number) of greenfield FDIs were twice (more than twice) as large as the value (the number) of net cross-border M&A deals (UNCTAD, 2018, pp. 7-8). It follows that focusing on greenfield investments allows to capture a large portion of FDI flows, reassuring us about the representativeness of the data we employ.<sup>6</sup> Moreover, as underlined by Castellani et al. (2016), the drivers of the spatial distribution of greenfield investments are rooted in the structural economic conditions of destination areas, while M&As are strongly affected by the existence and characteristics of target firms. It follows that, since we focus on the relative attractiveness of economic areas, data on greenfield FDIs fit better our objective.

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<sup>5</sup> In order to check the reliability of the distribution of the number of investment projects included in fDi Markets, Castellani and Pieri (2013, p. 1592) computed the Pearson correlation coefficient between the distribution of inward and outward FDIs by EU countries provided by fDi Markets and the one of FDI flows as reported by UNCTAD over the period 2003-2006 and found a correlation coefficient higher than 0,80. In another work, the same authors (Castellani and Pieri, 2015, p. 6) found a correlation coefficient closer to 0,90 over the period 2003-2007. A similar robustness check at country level has been performed by Crescenzi et al. (2014, p. 1065), which found a correlation of 0,54 over the period 2003-2008. These authors also computed the correlation in the number of investments in Europe at the NUTS2 level recorded by fDi Markets and the Euromonitor database (which provides information on FDI flows in Europe based on a completely independent source) and found that it is equal to 0,75. See also Ascani et al. (2016).

<sup>6</sup> Although our analysis covers the period 2003-2014, it is worth noting that since 2013 the value of M&As markedly increased to the point that in 2015 it reached the value of greenfield FDIs and since then the former is roughly equal to the latter. Nonetheless, in terms of number of FDIs, greenfield investments remained more than twice as large as M&A deals (UNCTAD, 2018, pp. 7-8).

## 2.2 FDI flows in digital industries and technological activities

fDi Markets assigns each FDI project into one of 17 clusters, i.e. broadly defined classes detected on the basis of the kind of production the foreign investments are aimed at. The list of macro-sectoral clusters is reported in Table 1, which also provides the distribution of inward FDIs in each of these clusters over the whole period worldwide. For the purpose of this work, it is worth noting that ‘ICT & Electronics’ represented the largest cluster (covering 17,8% of total FDIs) and that together with ‘Financial Services’ and ‘Transport Equipment’ included about 40% of total investments (although the projects involving financial services experienced a marked decrease after the global financial crisis).<sup>7</sup>

**Table 1. Number of inward FDIs by cluster, 2003-2014**

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total	% by cluster
ICT & Electronics	1616	1935	2080	2237	2138	2461	1966	2226	2369	2134	2177	2118	<b>25457</b>	17,8
Financial Services	701	739	902	1326	1357	1873	1518	1482	1681	1380	1289	1402	<b>15650</b>	10,9
Transport Equipment	982	949	920	1027	1111	1382	1091	1332	1485	1380	1182	1290	<b>14131</b>	9,9
Industrial	472	630	693	874	849	1101	828	886	1206	1189	1085	1067	<b>10880</b>	7,6
Professional Services	264	316	347	526	717	964	794	946	1075	1103	885	833	<b>8770</b>	6,1
Food, Beverages & Tobacco	509	565	454	487	583	793	804	795	873	755	713	750	<b>8081</b>	5,6
Creative Industries	291	354	371	517	483	647	658	741	948	1032	970	900	<b>7912</b>	5,5
Transportation, Warehousing & Storage	267	467	563	628	619	836	670	592	676	675	768	685	<b>7446</b>	5,2
Physical Sciences	797	672	719	567	597	751	503	630	717	416	361	324	<b>7054</b>	4,9
Life sciences	393	418	437	501	540	677	687	681	666	613	597	618	<b>6828</b>	4,8
Construction	368	400	484	761	747	1057	577	458	454	431	430	435	<b>6602</b>	4,6
Energy	523	362	403	418	387	699	729	514	565	442	429	433	<b>5904</b>	4,1
Environmental Technology	88	90	150	281	456	729	657	701	748	496	443	361	<b>5200</b>	3,6
Consumer Goods	387	401	358	386	364	471	435	529	533	430	405	388	<b>5087</b>	3,6
Tourism	355	314	295	325	352	636	439	435	335	298	310	214	<b>4308</b>	3,0
Wood, Apparel & Related Products	362	341	320	292	287	323	243	300	327	241	264	287	<b>3587</b>	2,5
Retail Trade	48	34	25	17	11	8	12	10	19	13	18	16	<b>231</b>	0,2
<b>Total</b>	<b>8423</b>	<b>8987</b>	<b>9521</b>	<b>11170</b>	<b>11598</b>	<b>15408</b>	<b>12611</b>	<b>13258</b>	<b>14677</b>	<b>13028</b>	<b>12326</b>	<b>12121</b>	<b>143128</b>	<b>100</b>

Source: Authors’ elaboration on fDi Markets database.

At a higher level of sectoral disaggregation, fDi Markets assigns each project to one of 39 industries, whose list is reported in Table 2, which provides also the number of inward FDIs directed to them over the whole period worldwide.<sup>8</sup>

It is worth noting that four of the top five major industries were service industries, capturing nearly 40% of total investments. Moreover, for our goals it is interesting to observe that the greatest share of incoming FDIs targeted the ‘Software & IT Service’ industry (equal to 12,6% of total investments), while ‘Communication’ industry was the fifth largest one (drawing 5,2% of projects).<sup>9</sup>

<sup>7</sup> Information on capital investment of inward FDIs by cluster is reported in Appendix A, Table A.1.

<sup>8</sup> Financial Times’ fDi Intelligence division maintains that there is a high correspondence with NAICS 2007 industry classification. Stollinger (2019) provides the correspondence table to convert fDi Market sub-sectors into NACE Rev. 2 classification.

<sup>9</sup> Information on capital investment of inward FDIs by industry is reported in Appendix A, Table A.2.

**Table 2. Number of inward FDIs by industry, 2003-2014**

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total	% by industry
Software & IT service	888	1152	1205	1377	1516	1604	1359	1446	1799	1831	1878	1937	17992	12,6
Business Services	447	545	616	872	1005	1455	1386	1626	1878	1907	1495	1274	14506	10,1
Financial Services	646	659	806	1214	1238	1732	1370	1325	1524	1217	1093	1201	14025	9,8
Industrial Machinery, Equipment & Tools	347	444	448	541	627	857	801	839	1001	833	816	815	8369	5,8
Communications	401	425	586	614	503	682	660	677	730	688	767	752	7485	5,2
Transportation	239	399	493	528	557	693	614	540	649	647	731	608	6698	4,7
Chemicals	472	467	365	438	424	484	445	537	594	479	448	457	5610	3,9
Metals	457	393	556	467	498	645	371	477	601	439	310	340	5554	3,9
Automotive Components	427	452	415	427	391	481	299	411	503	596	484	497	5383	3,8
Food & Tobacco	326	375	288	277	331	463	457	452	505	433	425	455	4787	3,3
Real Estate	184	196	248	480	598	927	426	338	295	350	286	439	4767	3,3
Electronic Components	210	263	301	350	377	486	406	557	499	433	339	319	4540	3,2
Coal, Oil and Natural Gas	405	261	307	299	269	531	486	293	280	202	192	192	3717	2,6
Hotels & Tourism	300	282	262	298	312	558	382	366	269	220	249	147	3645	2,5
Automotive OEM	329	268	259	274	285	322	274	318	329	220	169	212	3259	2,3
Plastics	214	233	253	269	225	274	199	308	349	274	292	258	3148	2,2
Pharmaceuticals	206	212	213	213	217	265	258	247	219	197	207	191	2645	1,8
Consumer Products	160	171	158	200	168	260	231	237	272	264	249	227	2597	1,8
Alternative/Renewable energy	39	26	57	145	250	382	320	260	333	214	253	191	2470	1,7
Textiles	150	147	143	146	167	161	148	189	213	143	165	193	1965	1,4
Consumer Electronics	190	184	151	145	138	137	130	181	180	104	104	103	1747	1,2
Business Machines & Equipment	136	178	185	154	127	147	138	159	123	126	137	106	1716	1,2
Medical Devices	89	96	98	148	128	160	174	155	175	152	161	156	1692	1,2
Semiconductors	207	232	182	222	170	141	90	117	108	73	81	63	1686	1,2
Building & Construction Materials	75	100	124	141	142	183	112	86	95	84	132	90	1364	1,0
Aerospace	62	57	71	110	103	163	131	145	142	151	92	131	1358	0,9
Paper, Printing & Packaging	128	128	112	115	116	132	76	107	116	84	108	98	1320	0,9
Rubber	104	102	95	96	92	126	94	123	128	75	113	95	1243	0,9
Beverages	109	101	69	97	101	135	129	86	107	102	83	81	1200	0,8
Warehousing & Storage	79	77	82	124	90	129	110	120	83	80	79	108	1161	0,8
Non-Automotive Transport OEM	45	58	53	63	70	101	89	108	105	61	82	83	918	0,6
Ceramics & Glass	82	83	68	76	74	108	46	61	82	39	37	39	795	0,6
Biotechnology	46	46	59	61	64	86	85	68	58	68	69	56	766	0,5
Engines & Turbines	24	17	28	46	48	110	75	97	99	60	49	39	692	0,5
Healthcare	34	28	26	33	50	88	73	62	82	60	41	69	646	0,5
Wood Products	81	65	76	52	55	70	53	39	30	26	29	35	611	0,4
Leisure & Entertainment	52	30	27	23	19	49	36	39	46	49	31	16	417	0,3
Minerals	25	22	31	23	36	57	44	39	43	27	30	25	402	0,3
Space & Defence	8	13	5	12	17	24	34	23	33	20	20	23	232	0,2
<b>Total</b>	<b>8423</b>	<b>8987</b>	<b>9521</b>	<b>11170</b>	<b>11598</b>	<b>15408</b>	<b>12611</b>	<b>13258</b>	<b>14677</b>	<b>13028</b>	<b>12326</b>	<b>12121</b>	<b>143128</b>	<b>100</b>

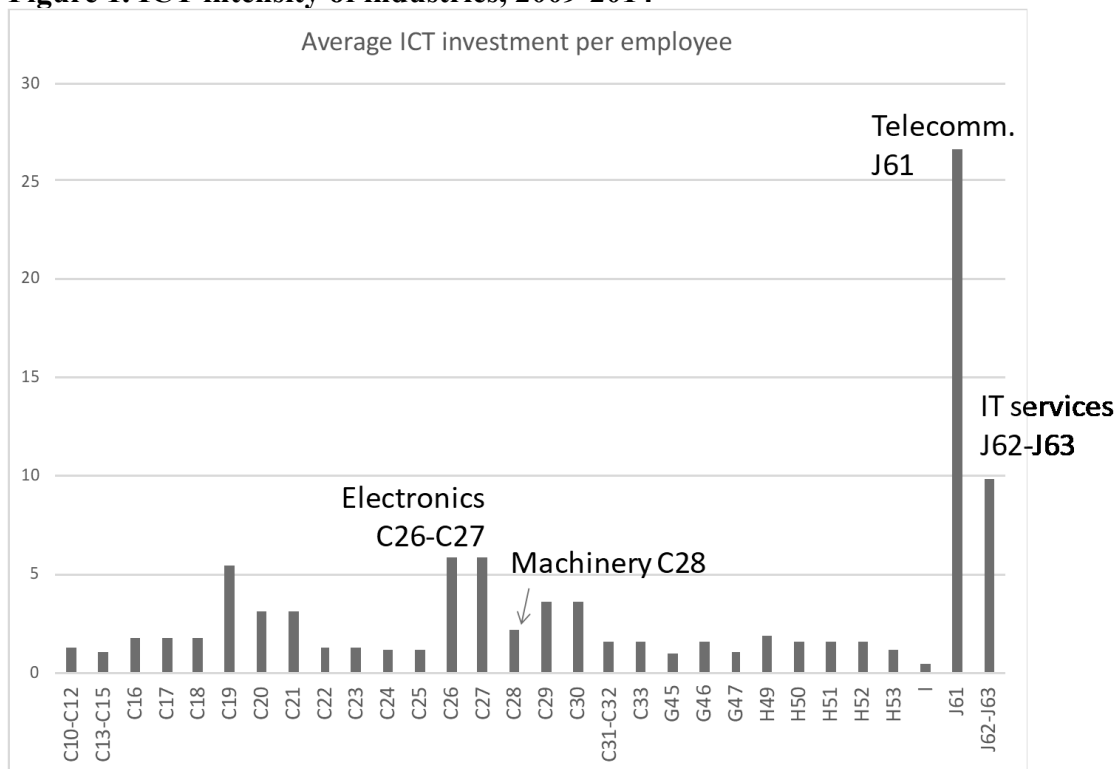
Source: Authors' elaboration on fDi Markets database.

To identify the most digital related industries, we rely on OECD studies (Calvino et al., 2018) and on the findings of innovation surveys in other countries.

Figure 1 summarizes the evidence on the highest relevance of ICTs in industries in the ISIC Rev. 3.1 classification. We report the importance of ICT investment per employee for the average of the six major EU countries (France, Germany, Italy, the Netherlands, Spain, the United Kingdom) over the period 2009-2014. 'Information technology' (IT) services and 'Electronics' present significantly high values. The IT services industry includes Computer and related activities, while the Electronics industry includes the subfields of Office, accounting and computing machinery; Electrical machinery and apparatus; Radio, television and communication equipment. 'Post and telecommunications' sector has by far the highest ICT intensity as most of its investment is in ICT activities. Note that in these fields industries specificities are such that the ranking of industries is stable across countries, both advanced and emerging.



**Figure 1. ICT intensity of industries, 2009-2014**



Note: ICT investment per employee are average values, expressed in millions of Euros at current prices, over the period 2009-2014 for major European countries: DE, FR, ES, IT, NL, UK. ICT investment is the sum of investment in computing equipment, investment in communication equipment, investment in software and databases (all part of gross fixed capital formation), divided by number of employees. Industries are classified according to the Nace Rev. 2 industry classification.

Source: Authors' elaboration on SID database (see Pianta, Coveri, Reljic, 2019).

Although the sectoral disaggregation adopted by fDi Markets differs in some cases from standard industry classifications,<sup>10</sup> it is quite accurate to say that the ISIC class of Electronics includes the fDi Markets fields of 'Business Machines & Equipment', 'Electronic Components' and 'Semiconductors'. The IT services industry largely corresponds to the fDi Markets sector of Software & IT service. The Post and telecommunications industry includes a large part of the fDi Markets Communications sector, although some of these services are present in other industry groups.

Based on this sectoral correspondence and on the evidence on ICT investment illustrated in Figure 1, we can thus regard the five industries that are shaded in Table 5 as those in which digitalization is arguably more relevant (UNCTAD, 2017). These are: Software & IT Service and Communication industry in the case of service industries; and Business Machines & Equipment, Electronic Components, and Semiconductors in the case of manufacturing industries. These five industries are thus the ones on which our analysis is going to be focused on.

Table 3 reports the distribution of FDIs in the five digital related industries and in their main subsectors, in terms of both frequency and capital invested.

<sup>10</sup> See footnote 8 in this respect.

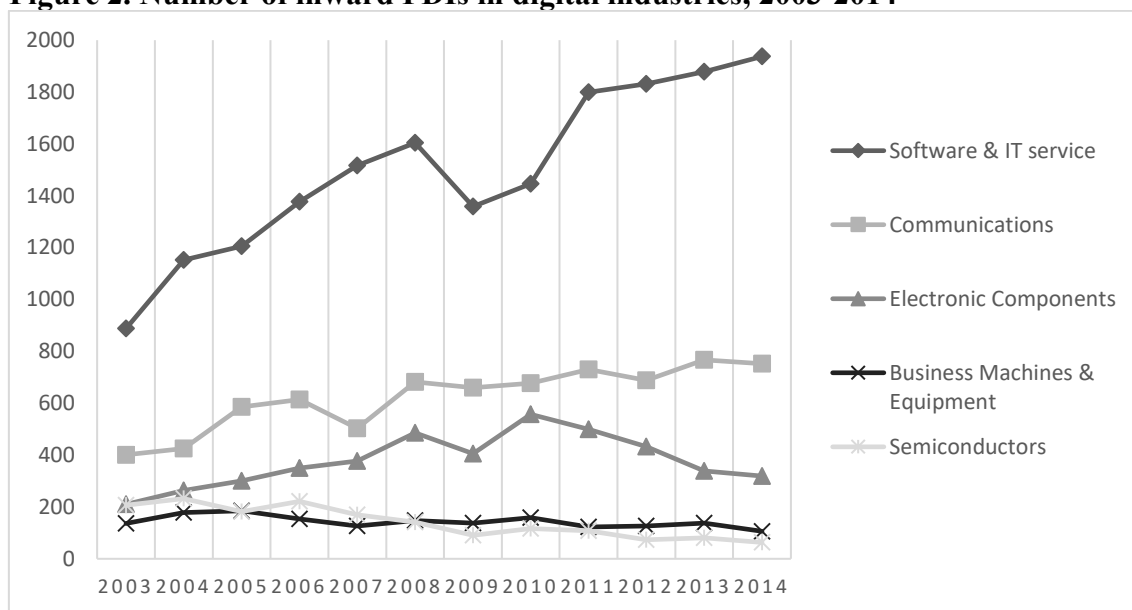
**Table 3. The sectoral breakdown of FDI projects in digital industries, 2003-2014**

Industry	No. of FDI projects	Capital investment (million \$)	% within industry (No.)	% within industry (Capital)	Average value of FDI (million \$)
<b>Manufacturing</b>					
<b>Business Machines &amp; Equipment</b>	<b>1716</b>	<b>57.226</b>	<b>100</b>	<b>100</b>	<b>33</b>
Computer and peripheral equipment	1598	55.531	93,1	97,0	35
Other	118	1.695	6,9	3,0	14
<b>Electronic components</b>	<b>4540</b>	<b>210.594</b>	<b>100</b>	<b>100</b>	<b>46</b>
All other electrical equipment & components	2890	157.817	63,7	74,9	55
Electric lighting equipment	390	11.293	8,6	5,4	29
Electrical equipment	342	11.765	7,5	5,6	34
Communication, energy wires and cables	278	7.119	6,1	3,4	26
Audio and video equipment	268	4.921	5,9	2,3	18
Batteries	188	12.371	4,1	5,9	66
Wiring devices	129	2.965	2,8	1,4	23
Magnetic and optical media	48	1.503	1,1	0,7	31
Other	7	840	0,2	0,4	120
<b>Semiconductors</b>	<b>1686</b>	<b>199.473</b>	<b>100</b>	<b>100</b>	<b>118</b>
Semiconductors and other electronic components	1686	199.473	100	100	118
<b>Services</b>					
<b>Software &amp; IT services</b>	<b>17992</b>	<b>240.346</b>	<b>100</b>	<b>100</b>	<b>13</b>
Software publishers, except video games	10403	123.112	57,8	51,2	12
Custom computer programming services	3469	59.982	19,3	25,0	17
Internet publishing, broadcasting and web search	2577	32.396	14,3	13,5	13
Computer systems design services	712	9.889	4,0	4,1	14
Video games, applications and digital content	619	11.109	3,4	4,6	18
Other (Software and IT services)	96	1.435	0,5	0,6	15
Computer facilities management services	61	1.285	0,3	0,5	21
Other computer related services	44	936	0,2	0,4	21
All other information services	11	200	0,1	0,1	18
<b>Communications</b>	<b>7485</b>	<b>444.929</b>	<b>100</b>	<b>100</b>	<b>59</b>
Communications equipment	2184	79.011	29,2	17,8	36
Wireless telecommunication carriers	1815	151.840	24,2	34,1	84
Wired telecommunication carriers	1291	96.748	17,2	21,7	75
Data processing, hosting and related services	1052	93.309	14,1	21,0	89
Radio and TV broadcasting	518	5.921	6,9	1,3	11
Motion picture and sound recording industries	311	7.612	4,2	1,7	24
Satellite telecommunications	114	5.295	1,5	1,2	46
Navigational instruments	91	2.213	1,2	0,5	24
Other telecommunications	72	2.318	1,0	0,5	32
Cable and other subscription programming	37	661	0,5	0,1	18
<b>Total</b>	<b>33419</b>	<b>1.152.568</b>			<b>34</b>

Source: Authors' elaboration on fDi Markets database.

Table 3 also provides the average value of FDI projects in such industries, showing that Semiconductors is the manufacturing sector in which investments tend to be the largest (average value equal to \$118 million), while projects in the sector of Business Machines & Equipment and Electronic components have on average a smaller capital size (\$33 and \$46 million, respectively). As regards service industries, although the frequency of investments directed to Software & IT services (nearly 18.000 projects) has been more than twice the one to Communication sector (almost 7.500 projects), the amount of invested capital is double in the former with respect to the former. The dynamics of inward FDIs in these digital industries is shown in Figure 2.

**Figure 2. Number of inward FDIs in digital industries, 2003-2014**



Source: Authors' elaboration on fDi Markets database.

The service component of digital related industries is the one exhibiting the most striking dynamics over the past decade, with Software and IT services attracting the highest and most rapidly increasing amount of FDIs, while manufacturing sectors have attracted a minor and lowering share of investments, with the partial exception of Business Machines & Equipment. Notably, the divergence of the increasing service component from the diminishing manufacturing component of digital industries, in terms of inward FDIs, has become even more apparent after the global crisis.

As mentioned earlier, one of the most important features of fDi Markets is that it assigns each project to one of 18 business activities, allowing to draw key insights about GVCs and the crucial role played by FDIs in building and reshaping them. The activities included in the database span from Headquarters to Research & Development (R&D), Design, development and testing (DDT), ICT and Internet infrastructure, Extraction, Manufacturing, Sales, marketing and support (SMS), Retail, etc. The complete lists of business activities classified by fDi Markets, together with the evolution over time of their relative weights in terms of number of FDIs, is reported in Table 4.<sup>11</sup>

<sup>11</sup> For information on capital investment of inward FDIs by type of business activity see Appendix A, Table A.3.

**Table 4. Number of inward FDIs by type of business activity, 2003-2014**

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total	% by activity
Sales, Marketing & Support	1257	1851	2318	2722	2956	3912	3265	3504	3967	3960	3657	3469	<b>36838</b>	25,7
Manufacturing	3189	3165	2887	3157	3056	3748	2663	3290	3683	2624	2548	2697	<b>36707</b>	25,6
Business Services	1007	951	1131	1725	1997	2762	2423	2651	3058	2756	2342	2304	<b>25107</b>	17,5
Logistics, Distribution & Transportation	424	569	592	734	685	750	737	681	725	676	837	824	<b>8234</b>	5,8
Design, Development & Testing	314	368	368	484	537	625	515	551	710	636	660	738	<b>6506</b>	4,5
Headquarters	329	385	366	444	525	574	664	616	674	679	602	586	<b>6444</b>	4,5
Construction	496	429	433	580	673	1213	636	474	347	331	334	320	<b>6266</b>	4,4
ICT & Internet Infrastructure	153	137	136	112	118	230	229	285	295	250	383	345	<b>2673</b>	1,9
Research & Development	256	314	334	368	194	233	208	179	147	134	138	105	<b>2610</b>	1,8
Extraction	461	264	370	133	134	311	239	137	124	50	52	43	<b>2318</b>	1,6
Electricity	78	57	61	115	182	340	314	197	267	189	231	178	<b>2209</b>	1,5
Customer Contact Centre	174	156	147	155	133	138	185	183	159	184	139	133	<b>1886</b>	1,3
Maintenance & Servicing	110	78	82	104	108	166	177	158	167	203	138	119	<b>1610</b>	1,1
Education & Training	55	82	69	78	90	204	192	178	171	198	115	104	<b>1536</b>	1,1
Shared Services Centre	75	81	99	125	63	62	48	65	61	57	63	68	<b>867</b>	0,6
Technical Support Centre	24	78	98	98	79	76	68	69	71	54	49	61	<b>825</b>	0,6
Recycling	21	22	30	36	68	64	48	40	51	47	38	27	<b>492</b>	0,3
<b>Total</b>	<b>8423</b>	<b>8987</b>	<b>9521</b>	<b>11170</b>	<b>11598</b>	<b>15408</b>	<b>12611</b>	<b>13258</b>	<b>14677</b>	<b>13028</b>	<b>12326</b>	<b>12121</b>	<b>143128</b>	<b>100</b>

Source: Authors' elaboration on fDi Markets database.

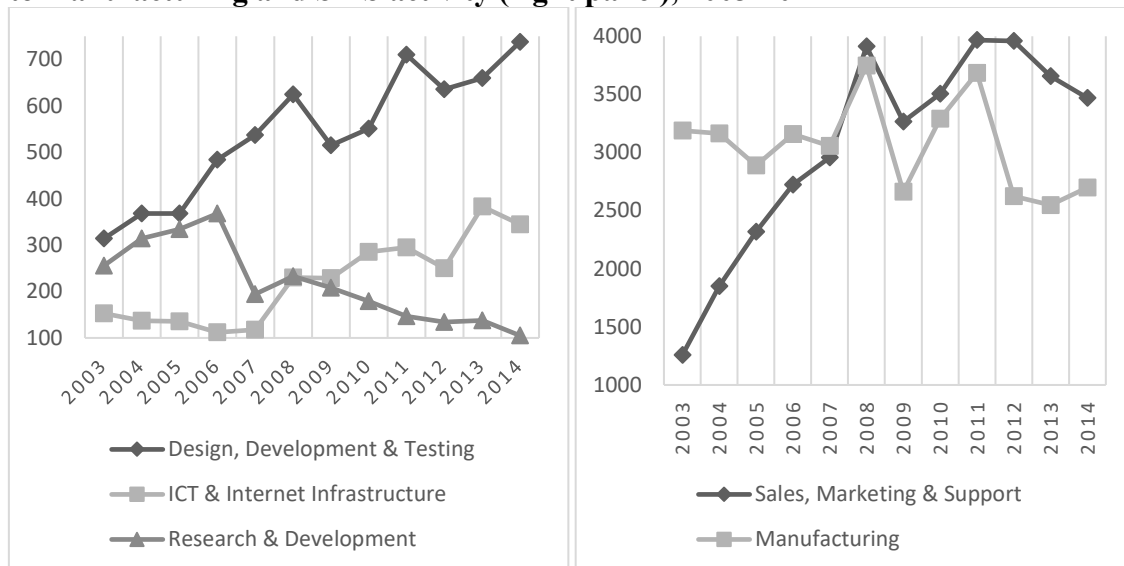
R&D activity is defined as “the discovery, design, or development of a product” which includes “pure research” and represents the most upstream function in the value chain being the most science-intensive type of research. DDT activity involves “designing, developing or testing a product”, e.g. software companies opening development centre involved in testing, mainly encompassing applied research and thus being closer to the commercialization of innovation. ICT and Internet infrastructure activity is defined as the one “providing the infrastructure for the ICT sector”, e.g. broadband infrastructure, internet data centres, data recovery centres etc.

Due to our focus on digitalization, we choose to concentrate our attention on these three high value added activities (namely R&D, DDT, and ICT infrastructure), which play a major role in technological change and are arguably strictly linked to the digitalization processes (UNCTAD, 2017). Nonetheless, a GVC approach to global investments leads us to analyze the patterns of FDIs related to technological activities comparing them to other value added activities, namely Manufacturing and Sales, marketing and support (SMS). The latter two categories of business activities are more downstream functions along the GVCs and are the most relevant drivers of the globalization of production, covering half of worldwide FDIs over the period, approximately a quarter each. The ones we identified as “technological activities” amount to slightly more than 8% of total FDIs over the entire period as a whole, with R&D representing the smallest share with less than 2% of the 143,000 investment projects registered in the dataset.

Figure 3 shows the patterns over time of inward FDIs related to technological activities we focus on and compare their dynamics with the one of investment projects concerning Manufacturing and SMS activities. With regard to the former, we note a remarkable rise of FDIs in DDT over the whole period, although a reduction is shown during the worst years of the global financial crisis, namely 2009 and 2012. Moreover, the figure shows a sharp decrease in FDIs related to R&D activity since 2007, i.e. just before the outbreak of the crisis, while projects linked to ICT and Internet infrastructure seemed to follow a specular trend, exhibiting a rise since 2007 (this trend is even stronger if expressed in value given the huge capital size of these investments). Looking at panel on the right-hand side of Figure 3, FDIs flows in manufacturing activity reported a slightly decreasing trend, characterized by high volatility during the crisis period. By contrast, global investment projects related to SMS activity experienced a continuous increase until 2008, overcoming since then the number of FDIs in manufacturing activities (although it

should be kept in mind that the capital invested in the latter is much higher than the one involved in SMS activity).

**Figure 3. Number of inward FDIs related to technological activities (left panel) and to manufacturing and SMS activity (right panel), 2003-2014**



Source: Authors' elaboration on fDi Markets database.

### 3. Global FDI patterns: the role of digital industries and technological activities

As mentioned, a strength of fDi Markets is that it covers all countries in the world. When dealing with globalization of production and FDI flows the geographical dimension is crucial especially because greenfield investments entail the construction of new production facilities changing the technological capabilities and productive capacity of the economies. Hence, we focus on the spatial dimension breaking down the world economy into thirteen areas belonging to both advanced and emerging regions. Advanced economies are EU28 – to which we add Norway and Switzerland (a sort of “EU30”) given their geographical proximity and similar GDP per capita –, North America, Japan, the Four Asian Tigers, and Australia & New Zealand. Emerging economies are Non-EU Europe (excluding Norway and Switzerland), Russia, China, India, the Rest of Asia, the Middle East & North Africa, Sub-Saharan Africa and Latin America.<sup>12</sup>

Figure 4 shows the dynamics of total inward FDIs drawn by advanced and emerging economies, illustrating that the number of inward FDIs attracted by advanced economies slightly exceeds the ones of emerging ones (see Appendix B, Table B.1-B.2 for details concerning the dynamics of greenfield investments both in numbers and in values).<sup>13</sup>

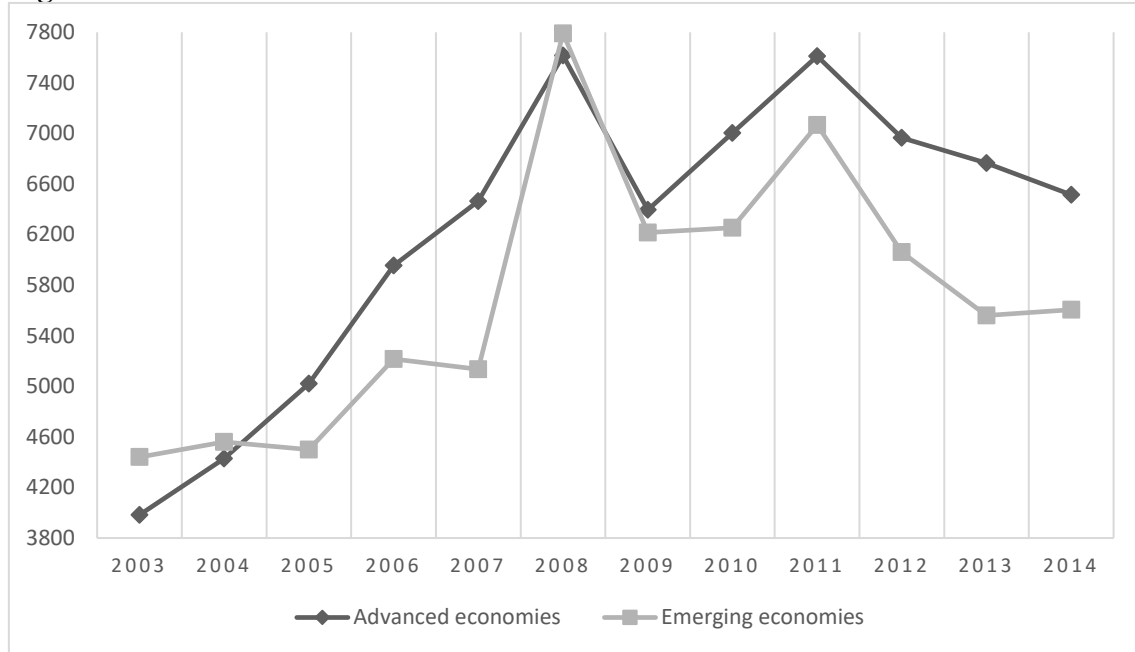
Another aspect that should be mentioned is the link between FDI patterns and the global financial crisis. As shown by Figure 4, after 2008 there has been a sharp decrease in the number and especially the size of capital investments towards both advanced and emerging countries. Despite significant differences between the rates of variation in number and capital invested of FDI projects, North America and Latin America appear

<sup>12</sup> The complete list of countries included in the selected regions is reported in Appendix H.

<sup>13</sup> On the dynamics of outward FDIs by region of origin see Section 3.2.

to have recorded a substantial increase of inward greenfield investments since 2009, while Russia and China, but also India and countries belonging to Non-EU Europe, registered a strong reduction of incoming FDI (see Appendix B, Table B.3 for details).

**Figure 4. Number of total inward FDI**



Source: Authors' elaboration on fDi Markets database.

In what follows we exploit fDi Markets to provide an overview of the global patterns of FDI showing both the quantity and quality of investment projects the economies are able to attract and forward. In this context, we put major attention on global investment flows linked to digitalization processes and technology-driven functions along GVCs, providing insights about the technological capabilities of both advanced and emerging economies in drawing and promoting investments tied to digital technologies and upgrading.

For this purpose, we focus on the aforementioned disaggregation of world economy in thirteen regions and compute the percentage share of inward and outward FDI flows over the whole period. Moreover, since some geographic regions are constituted by an aggregation of countries, it follows that an amount of inward and outward FDI in such regions comes from and is directed to countries constituting the region itself (intra-region FDI flows). This may result in a biased picture of the capabilities of our regions to attract from and promote investment projects abroad, making comparisons among economies areas more difficult. Hence, we also computed the percentage share of intra-region FDI, i.e. the region's portion of incoming and outgoing FDI from/to countries belonging to the region itself.<sup>14</sup>

<sup>14</sup> For example, the European region is an aggregate of 30 formally independent developed countries, reason why the share of intra-region FDI is likely to be very high. Economic regions constituted by one country only present a share of intra-region FDI equal to zero by definition.

### 3.1 The patterns of inward FDIs

We start by focusing on the dynamics of inward FDI flows. Main results are reported in Table 5, which allows to appreciate the overall attractiveness of regions (last pair of columns) and to compare it with the share of FDIs in digital industries (first pair of columns) and related to technological activities (second pair of columns); nonetheless, in the third and fourth pair of columns we also report the share of FDIs related to manufacturing and SMS activities respectively, enabling to detect regions which are at the forefront in drawing investments linked to digitalization processes and those which mainly attract other value added activities.

First, a rather circumscribed number of regions of the world attracts the highest shares of inward FDIs. This is true when it comes to both inward FDIs as a whole and, even more so, when inflows of FDIs in digital industries and related to technological activities are considered.<sup>15</sup> In particular, EU28+, North America and Japan together account for 45% of the total number of FDI projects (over 50% including also Australia and New Zealand), while the Four Asian Tigers, India and China account for a further 20%. The same groups of countries altogether account for 76% of total FDIs in digital industries and for 79% of total FDIs in technological activities. As shown in Table 5, the Four Tigers, Japan, and India and, to a lesser extent, Europe 28+ and North America, reveal the largest divergence between the share of total FDIs and the share of FDIs in digital industries. India and China both attract proportionally more FDIs in technological activities than FDIs in general, but it is the former that exhibits the largest difference between its share of FDIs in technological activities (13,1%) and its share of total FDIs (5,8%).<sup>16</sup>

North America appears to attract a relatively low share of FDIs in technological activities, also in consideration of the higher intra-regional component of FDIs in this case. This result might be explained looking at data in terms of capital investment. The number of inward FDIs in R&D and DDT activities accruing to this area is not high, but their size in value is on average greater than in the case of other regions (this applies both to the United States and to Canada, but it is particularly the case when the focus is on FDIs in DDT activities directed towards Canada, and on R&D FDIs towards the USA). Quite symmetrically, the capital amount of manufacturing FDIs is on average lower than the one of investment projects received by other regions (this holds for the US in particular). The same reasoning applies to North America's incoming FDIs in digital industries: looking at data in terms of capital invested, we note that the share of gross investment flows in digitally relevant industries captured by this region was even larger

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<sup>15</sup> Europe, North America and China appear to be the biggest attractors of overall foreign investments, while Sub-Saharan Africa, Australia & New Zealand, Russia and Non-EU Europe are those which attracted the lowest number of FDI projects (apart from Japan, whose low share is mainly due to its very small size). Interestingly enough, Europe was the only one region in which the share of intra-region FDIs is higher than 50% (25.868 inward FDIs from European countries over a total of 46.800 inward FDIs from World), hence European countries have attracted more FDIs from within Europe than from outside (see Appendix C, Table C.1-C.2). This feature is especially marked for what concerns FDIs related to manufacturing activity (over 60% of total FDIs linked to manufacturing towards Europe came from European countries), which may reflect inter alia intensive offshoring processes carried out by German firms in Central and Eastern Europe during the last decade (Simonazzi et al., 2013; Celi et al., 2018).

<sup>16</sup> Further details on the number of FDIs in digital industries and related to technological activities as well as SMS activity are reported in Appendix C, Table C.4-C.6, C.7-C.9 and C.13-15, respectively.

than the one reported by Table 5. This reflects in particular the large size of FDI in Semiconductors and Software & IT Services industries.<sup>17</sup>

Second, while India and China represent, among the emerging economies, the largest attractors of FDI flows in digital industries and in technological activities, China attracted the greatest share (15,6%) of investment flows related to manufacturing activity worldwide, followed by the Rest of Asia (over 10,5%) and Latin America (nearly 10%). Notably, even Europe and North America attracted a share equal to about 10% net of intra-region FDI.<sup>18</sup>

Third, for all destination regions the largest share of inward FDI comes from advanced economies, especially Europe and North America, but also Japan and the Four Asia Tigers. As illustrated in details in Appendix C (see Table C.3), the European region draws 28% of total inward FDI from North America, while the latter receive 55% of inward investment projects from Europe and 10% from Japan. In turn, 46% of Japan's inward FDI originate from North America, 34% from Europe and 8% from the Four Asian Tigers. Concentrating on emerging economies, China draws 33% of total inward FDI from Europe, 30% from North America and 15% from the top Asian investors, i.e. Japan and the Four Asian Tigers. The pattern of India's inward FDI has been roughly the same. Most of FDI directed to India originate from Europe and North America (each accounting for 37% of total investments in this country) while Japan and the Four Asian Tigers account for 9% and 6% of inward FDI in India. With regard to Latin America, about three fourth of total inward FDI originate from Europe and North America, while Japan covered a very high share (equal to 11%) in the case of FDI projects in manufacturing activities.

Overall, the emerging economies' incoming FDI predominantly originate from advanced economies in the case of FDI in manufacturing, while a greater role is played by the most dynamic among the emerging economies as areas of origin in the case of foreign investments in digital industries and related to technological activities. Interestingly, this trend is partially contradicted by North America: inward FDI coming from this region are much higher when considering investments either in digitally relevant industries or in the most science based activities, while the share of manufacturing FDI flowing from North America towards emerging countries is apparently lower than average. This might reflect a division of labor wherein emerging countries serve as manufacturing hubs for large part of the world, but less so for North American investors, which appear to involve emerging Economies in more knowledge intensive, higher value added activities than investors from other advanced areas do. In the next section we deepen this finding analyzing the patterns of outward FDI.

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<sup>17</sup> See Appendix C, Table C.19-C.27. We shall return on this point in Section 4, reporting descriptive evidence based on both number and capital investment of inward FDI by region of destination. See also Appendix G, Table G.1-G.2.

<sup>18</sup> These findings are substantially confirmed by data in terms of capital invested; see Appendix C, Table C.19-C.27. Further details on the number of FDI related to manufacturing activity are reported in Appendix C, Table C.10-C.12.



**Table 5. Share of gross and intra-region flows of inward FDIs (computed on number of FDI projects) in digital industries and related to business activities (% region of destination), 2003-2014**

	Digital industries		Technological activities		Manufacturing		Sales, Marketing & Support		Total	
	gross flows	intra-region	gross flows	intra-region	gross flows	intra-region	gross flows	intra-region	gross flows	intra-region
EU28+Norw+Swiz	35,9	41,5	31,9	41,7	27,1	61,8	35,4	49,9	32,7	55,3
North America	11,6	16,9	10,5	19,4	11,7	14,4	10,8	16,4	10,9	17,4
Japan	2,1	-	1,7	-	0,4	-	2,3	-	1,2	-
Four Asian Tigers	7,5	3,7	7,9	2,6	2,4	3,4	6,7	4,1	5,2	3,6
Australia & New Zealand	3,3	4,8	2,4	2,5	0,8	7,2	2,9	5,7	2,2	5,0
India	7,4	-	13,1	-	5,9	-	5,1	-	5,8	-
China	8,6	-	11,4	-	15,6	-	8,5	-	10,0	-
Latin America	7,9	14,0	7,4	11,3	10,7	8,2	7,0	11,7	8,4	10,1
Middle East & North Africa	5,3	9,9	3,9	9,0	4,7	14,1	7,7	13,9	7,4	17,4
Rest of Asia	5,4	3,2	4,8	3,2	11,4	7,6	6,8	6,0	8,2	8,0
Sub-Saharan Africa	2,5	14,7	2,5	21,0	2,9	12,4	2,8	14,1	3,4	18,7
Russia	1,5	-	1,6	-	4,0	-	2,5	-	2,8	-
Non-EU Europe	1,0	2,1	1,0	2,5	2,5	2,9	1,5	3,8	1,8	2,6
<b>Total</b>	<b>100</b>		<b>100</b>		<b>100</b>		<b>100</b>		<b>100</b>	

Source: Authors' elaboration on fDi Markets database.

### 3.2 The patterns of outward FDIs

Following the same methodology introduced in the previous section, we move to the analysis of global patterns of outward FDIs. Table 6, which mirrors the structure of Table 5, illustrates the dynamics of outward FDIs for our thirteen regions over the whole period under investigation.

As expected, advanced economies as European countries and North America represent the lion's share, even more so than in the case of inward FDIs, covering over 70% of total gross outward FDI flows.<sup>19</sup> Moreover, Sub-Saharan Africa, Latin America, the Rest of Asia and the Middle East & North Africa, which cover less than 8% of total outward FDIs, also exhibit very large shares of intra-region investments (which spans from 66,4% of Sub-Saharan Africa to 33,9% of the Middle East & North Africa). Among advanced economies, the region recording the greatest share of intra-region FDIs is of course Europe, with almost 40% of its outward FDI projects directed to Europe itself.

Most important, advanced economies, especially the European region and Japan, as well as the Four Asian Tigers, are characterized by a smaller share of outward FDIs in digital industries and in high value added activities, namely technological activities as well as SMS activity, than the overall share of outward FDI projects. Accordingly, the opposite holds for the share of outward FDIs in manufacturing activity (which is generally higher than the overall share of outward FDIs). This further illustrates that, when it comes

<sup>19</sup> Advanced economies all together promoted 86% of total number of projects. This evidence is substantially confirmed by data on capital investment, which shows that advanced economies covered nearly 80% of outward FDIs (see Appendix B, Table B.4-B.5). Nonetheless, we found that emerging economies are assuming an increasingly relevant role as global investors, Sub-Saharan Africa, China, Latin America and India being regions which experienced the higher increase in both number and capital invested of outward FDI flows after the crisis (see Appendix B, Table B.6). See also Appendix G, Table G.3-G.6.

to FDI in digital industries and in high value added activities, including technological activities, most advanced economies mainly foster investments towards other advanced regions. A substantial part of such digital and technological related outward FDI is also intra-regional, much more so than in the case of overall FDI. By contrast, advanced economies invest in emerging economies mostly to offshore manufacturing stages of value chain.<sup>20</sup>

As noted already, such a pattern seems partially contradicted by North America only, whose share of digital related outward FDI was higher than the overall share, while the opposite is found for FDI related to manufacturing activity (also the intra-region share of manufacturing FDI is also higher than average in North America).<sup>21</sup>

Consistently, North America is the leading region in terms of outward FDI in innovation intensive industries and activities, reporting by far the highest share of gross outgoing investment flows in digitally relevant industries and in the most technological (upstream) functions of the value chain over total outward investments worldwide (40% and 43%, respectively).

A large fraction of North American FDI in digital industries and related to technological activities do flow towards advanced countries, with Europe being the largest single recipient region (39% of North American FDI in digital industries, and 33% of FDI in technological activities are directed towards EU28+). Nonetheless, the majority of North American FDI in digital related sectors and in technological activities target emerging economies.<sup>22</sup> Notably, about one fifth of North America's outward FDI in digital industries and over one third of those related to technological activities are carried out in China and India (the shares of European outward FDI in digital industries and in technological activities targeting the two Asian giants are much lower, amounting to a total of 10% and 18%, respectively). Correspondingly, North American investments represent a very important portion of these high value added FDI in most emerging countries: they account for 47% of all FDI in technological activities accruing to China, 51% of those towards the Four Tigers, and 62% of those towards India; while they account respectively for 43%, 47% and 60% of FDI in digital industries towards these countries.

FDI flows in digital industries from Japan targeted mainly China (20%), the Rest of Asia (17%) and the Four Asia Tigers (11%) – in addition to Europe (22%) and North America (11%). The share of Japanese investments towards the latter region is even higher (22%) when looking at FDI in technological activities. However, the largest share of Japanese outward FDI seems related to offshoring of manufacturing production. The pattern of outward FDI projects in digital industries coming from the Four Asian Tigers substantially mirrors the one of Japan, with a stronger projection towards India for what concerns investments in technological activities (while the bulk of outward FDI flows from the Four Tigers is still associated with manufacturing offshoring).

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<sup>20</sup> Given the object of the present work, we use interchangeably the expression 'offshoring' and 'captive offshoring' to indicate the internationalization of production through setting up a productive facility in a foreign country, although the latter expression would be more accurate as 'offshoring' usually refers to the global fragmentation of production fostered by trade of intermediate inputs, i.e. through the propensity to import intermediate inputs for production from abroad.

<sup>21</sup> These findings are broadly confirmed by data in terms of capital invested. See Appendix C, Table C.16-C.30.

<sup>22</sup> On what follows see Appendix C, in particular Table C.6, C.9, C.12 and C.15 concerning data in terms of number of FDI and Table C.21, C.24, C.27 and C.30 for data in terms of capital invested.

As for outward FDI originating from emerging economies, those reported in the two lower blocks of regions in Table 6 exhibit a similar pattern in terms of global investment strategies. These are very heterogeneous groups of emerging economies, wherein a large component of laggard countries prevails, including inter alia Sub-Saharan African countries and the least dynamic part of Asian countries. As shown in Table 6, these regions are characterized by a higher share of SMS-related outward investment flows, a disproportionately low share of outward FDI in digital industries, and an even lower share of FDI related to technological activities. Such dynamics might detect a lack of local competencies and the existence of structural constraints to the internationalization of innovation, leading this group of emerging economies to engage mainly in offshoring of downstream activities of GVC. Outward FDI from emerging economies in digital industries and in technological activities are thus a relatively rare phenomenon and when they take place they either involve close-by countries (between 70 and 80% of capital outflows in digital sectors or in technological activities are intra-regional FDI) or target advanced economies. For example, in these fields Latin America FDI are mainly directed to North America and even more towards Europe. The Rest of Asia directed a great share of outgoing FDI in digital industries towards China (17%), but also towards the Four Asian Tigers (13%) and Europe (10%).

In this context it is worth giving a closer look to outward investment patterns of China and India. Both countries promoted digitally relevant investment flows mainly towards Europe and North America. Nevertheless, China targeted also the Four Asian Tigers and to a lower extent Latin America. India followed instead a different trajectory, characterized by a remarkable projection towards the African continent, i.e. the Middle East & North Africa as well as Sub-Saharan Africa (nearly 20% of total outgoing Indian FDI projects). This result seems confirmed by the patterns of outward FDI in both manufacturing and SMS activity originating from China and India. While both Asian “giants” offshored manufacturing stages of value chain mainly towards the Rest of Asia (25% in the case of China and 20% in the case of India), nearly one third of total outward FDI projects originating from India have been performed in the Middle East & North Africa and Sub-Saharan Africa. Such patterns hold even with regard to SMS-related outward FDI, with China targeting mainly Europe, the Four Asian Tigers and North America, while India mostly target Europe, Middle East & North Africa and North America as the most attractive destination markets.<sup>23</sup>

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<sup>23</sup> These results are broadly confirmed by data on capital investment; see Appendix C, Table C.15-C.30.

**Table 6. Share of gross and intra-region flows of outward FDIs (computed on number of FDI projects) in digital industries and related to business activities (% by region of origin), 2003-2014**

	Digital industries		Technological activities		Manufacturing		Sales, Marketing & Support		Total	
	gross flows	<i>intra-region</i>	gross flows	<i>intra-region</i>	gross flows	<i>intra-region</i>	gross flows	<i>intra-region</i>	gross flows	<i>intra-region</i>
EU28+Norw+Swiz	36,5	40,8	36,6	36,3	46,0	36,4	44,3	39,9	45,5	39,8
North America	39,9	4,9	42,9	4,7	20,1	8,4	29,0	6,1	26,7	7,1
Japan	5,7	-	6,6	-	14,3	-	6,8	-	7,5	-
Four Asian Tigers	4,9	5,7	3,5	5,8	6,8	1,2	3,7	7,5	4,8	3,9
Australia & New Zealand	1,7	9,7	0,7	8,8	1,0	5,9	2,0	8,3	1,6	6,7
India	2,5	-	2,6	-	1,9	-	2,1	-	2,3	-
China	2,5	-	2,2	-	2,3	-	2,6	-	2,2	-
Latin America	1,6	70,1	1,0	81,8	1,7	52,9	1,5	55,8	1,5	54,9
Middle East & North Africa	2,2	23,8	1,8	19,3	2,3	28,6	3,9	27,7	3,8	33,9
Rest of Asia	0,7	26,6	0,5	30,5	1,8	48,6	1,4	29,6	1,6	40,4
Sub-Saharan Africa	0,7	50,4	0,7	69,3	0,6	63,6	0,7	55,3	0,9	66,4
Russia	0,9	-	0,7	-	0,8	-	1,5	-	1,1	-
Non-EU Europe	0,3	8,3	0,1	20,0	0,5	14,1	0,6	8,8	0,5	9,5
<b>Total</b>	<b>100</b>		<b>100</b>		<b>100</b>		<b>100</b>		<b>100</b>	

Source: Authors' elaboration on fDi Markets database.

## 4. FDI specialization in digital industries and technological activities

An effective way to deepen the analysis of the patterns of global investment flows described in the previous section is computing the indices of specialization for both advanced and emerging economies in terms of inward FDIs in digital industries and related to technological as well as manufacturing and SMS activities. Building on the rationale behind the Balassa's specialization index (Balassa, 1965), developed in the realm of international trade theory, in this section we thus make a step ahead introducing inward FDI-based indices of relative attractiveness for our thirteen destination regions. Such device shall allow us to provide key insights about the way advanced and emerging economies face the digitalization challenge as well as their positioning in GVCs.

### 4.1 FDI specialization in digital industries

In this context, we compute the specialization indices in a given industry for a given economy as the share of inward FDIs drawn in that industry by such economy over the share of total inward FDIs attracted by such economy in all industries worldwide. From this perspective specialization indices can be considered as indicators of relative attractiveness, insofar as the share of inward FDIs received in a given industry by a given economy is normalized according to the same share computed for the world as a whole, namely the global average.<sup>24</sup>

<sup>24</sup> Further descriptive statistics are provided in Appendix D, Table D.1.

The inward FDI-based specialization index ( $SP$ ) in industry  $i$  for the economy  $k$  is thus computed as follows:

$$SP_k^i = \frac{\frac{FDI_k^i}{\sum_k FDI_k^i}}{\frac{\sum_i FDI_k^i}{\sum_k \sum_i FDI_k^i}} \quad (1)$$

The specialization index for a given economy is by construction greater than one when the economy shows a relative specialization in (drawing FDI in) that industry, i.e. when the share of FDIs received by the economy in that industry overcomes the average weight of the economy in the world in terms of FDIs in all industries. As mentioned, the specialization index that we built mirrors the Balassa index – aimed at detecting revealed comparative advantages in international trade (Balassa, 1965) –, the main difference being that the latter is based on exports instead of inward FDIs.

We computed the specialization indices in each digital industry and in all digital industries together for our thirteen destination regions and plotted them against their relative size in terms of inward FDIs, i.e. the numerator of the specialization index reported in (1). This allows us to assess the relative specialization of the economies in digital technologies while accounting for their absolute weight as global attractors. The graphs identify countries characterized by a specialization index above or below 1, and above or below the median size in terms of the number of FDI projects, calculated with reference to all the 13 regions. We suggest that exhibiting both a specialization in attracting FDIs (specialization index greater than 1) and a relative size above the median number of inward FDIs is potentially associated to a strong transformational impact of foreign capital inflows. In fact, a combination of FDI specialization and of FDI size should reveal both an ability to attract FDIs that is greater than other areas; and a volume of investments that can be thought of as conducive to a substantial effects on the host economy, in terms of structural change, agglomeration economies and potential technological spillovers accruing to local firms and institutions (Antonietti et al., 2015; Baldwin and Venables, 2013; Stollinger, 2015).

The results of this descriptive exercise are reported in Figure 5.<sup>25</sup> First, looking at the last panel concerning the indices computed on FDI projects in all digital industries, the first striking finding is that India is the only one developing country reporting a specialization index higher than 1. All the other regions in the right hand side of the chart are advanced economies, with Europe exhibiting both the highest specialization index and the largest relative size, while Japan and Australia & New Zealand are specialized in attracting these industries, but the number of FDIs they absorb is lower than the median.<sup>26</sup> This result confirms the role of advanced economies as technological leaders at the forefront of the development of digital devices. In particular, while Europe has a rather strong specialization in attracting FDIs in all digital related industries, it is particularly specialized in the attraction of FDIs in Software & IT Services. North America also exhibits a strong specialization and a remarkable number of FDIs in the latter industry. Japan reports a high specialization index in all digital related sectors, but systematically attracts a number of FDIs below the median of all regions except in Semiconductor

<sup>25</sup> See also Appendix D, Table D.4.

<sup>26</sup> We plotted the specialization index for Europe net of intra-region FDIs with the aim of making comparisons easier and more meaningful.

industry. The Four Asian Tigers exhibit a high specialization in all digital industries, especially in semiconductors, where they also attract a number of inward FDIs well beyond the median value. A good combination of specialization and relative size in terms of number of FDI projects can also be observed in the case of Electronic components and Software and IT services. Australia & New Zealand are found in the rightmost part of the charts when Communications and Software & IT industries are considered. However, they never reach a critical mass in terms of FDI projects attracted in any of these industries.

With regard to emerging economies, Table 5 highlights the efforts pursued by India to emerge as a global player in technologically advanced industries – especially Software & IT Services, but also in Semiconductors and Electronic components – taking advantage of both agglomeration economies and knowledge spillovers. Furthermore, China and Latin America also show an overall specialization index in digital industries close to 1, the former especially in digital related manufacturing production such as Electronic components and Semiconductors sectors – but also in Business Machines & Equipment – while the specialization for Latin America is substantially driven by the Communication services industry. Finally, the performance of the other emerging regions reflects their heterogeneity and the role played by laggard countries which appear to be largely unable to attract substantial FDIs in almost all digital industries.<sup>27</sup>

Our results induce caution in inferring development perspectives from the diffusion of digital technologies especially in the case of emerging regions. What seems to emerge is that greenfield FDIs, which potentially impact on the production matrix of countries and their technological capabilities, mainly flow towards economies already at the forefront of the technological frontier. Only a few, highly dynamic emerging countries appear to have been involved in a process of digitalization via FDI inflows. Those that eventually get involved in this process may not even be able to capture the bulk of gains engendered by the emerging digital paradigm. With the partial exception of China, India and the Asian Four Tigers – which show an important diversification in most industries relevant for digitalization – the patterns of global productive-capacity-creating investments driven by agglomeration economies appear to have reinforced the diverging dynamics between developed and emerging economies. In other terms, our findings suggest that global flows of investment in advanced technologies are likely to strengthen polarization patterns – resembling those circular and cumulative processes detected by Myrdal (1957) – which poses major challenges for the development trajectories of emerging economies.

Such a trajectory appears to be confirmed by Figure 6, which compares for all destination regions the pre- and post-crisis specialization patterns in digital industries allowing to assess converging and diverging patterns in terms of FDI attractiveness in digitally relevant industries among advanced and emerging economies.<sup>28</sup> The European

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<sup>27</sup> We also computed the specialization indexes using data on capital investment of FDI projects in place of the number of FDIs. Results strengthen our findings, showing even higher specialization indexes for advanced economies, especially North America, in digital industries; as already stressed in Section 3.1, this is due to the fact that the capital size of FDIs in Semiconductors and Software & IT Services industry has been averagely much greater for North America than the one of FDIs towards other economies. Concerning emerging economies, specialization indexes computed in terms of capital invested strongly confirm the picture we drawn, rising the specialization indexes for India in Electronic components and especially Software & IT industry, for China in Electronic components and especially Business Machines & Equipment, for Latin America in the Communications industry. See Appendix D, Table D.5.

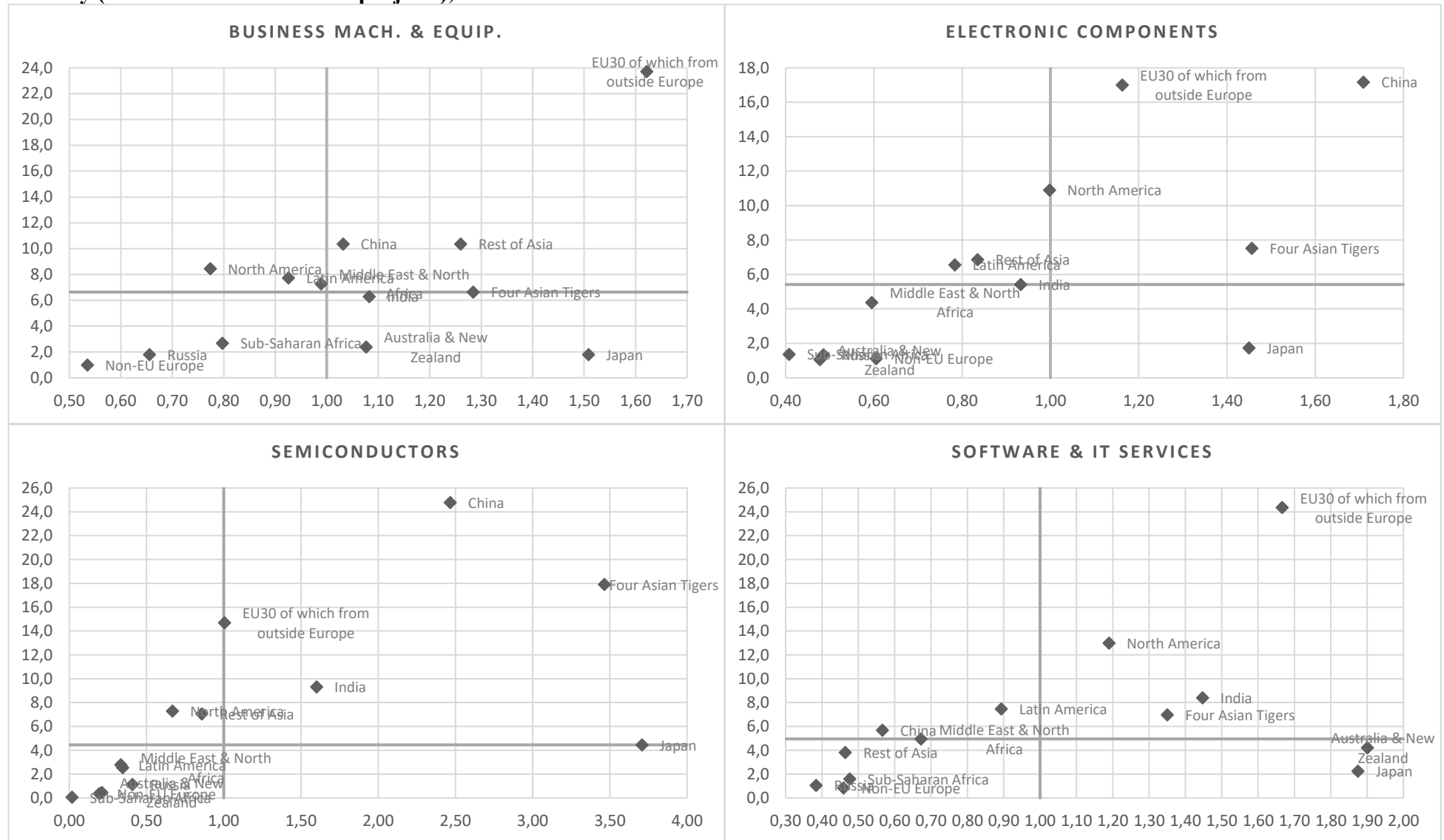
<sup>28</sup> More detailed evidence is provided in Appendix D, Table D.2-D.3.

and North American regions, as well as Australia & New Zealand, which already reported digital related specialization indices higher than one before the crisis, experienced – with the only exception of the Four Asian Tigers – an increase in the values of such indicator. In particular, North America increased its specialization index in Business Machines & Equipment, Electronic components and Software & IT industry; Europe in Business Machines, Semiconductors and Software & IT sector. Finally, Japan maintained its overall high specialization in digital industries while the Four Asian Tigers are the only developed region experiencing a reduction of the index after the crisis.

Conversely, emerging economies experienced a rather general reduction of their specialization indices in terms of digital inward FDI flows, being Russia and Sub-Saharan Africa the only ones having shown a significant increase (mainly driven by the Communications industry), still exhibiting specialization degrees lower than one, though. Interestingly, the most remarkable reduction has been experienced by Asian countries, especially India but also China and the Rest of Asia – a reduction primarily driven by the Communications and Software & IT industry (see Appendix D, Table D.6-D.7 and Figure D.1).

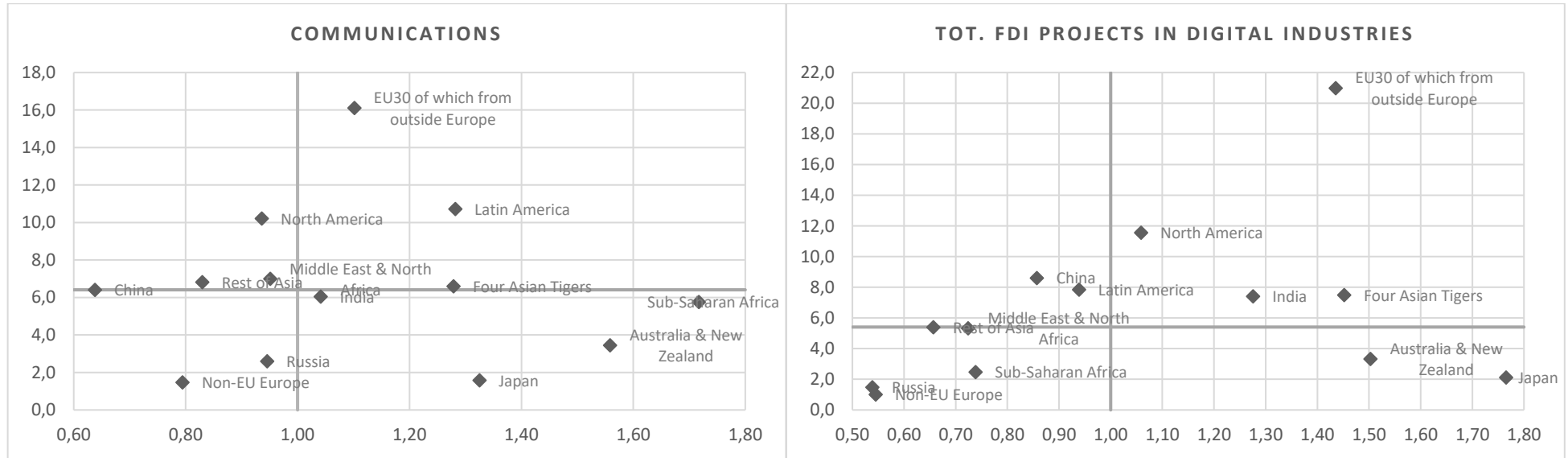
This evidence has important policy implications. Market-oriented approaches – inspired by Ricardo’s trade theory of comparative advantages – have long argued that the efficient operation of markets processes leads countries to become more specialized in the activities where they are (relatively) better than others. In this case, we can expect that FDIs mainly direct to countries in the fields in which the former already present existing production and trade specialization. However, not all fields are equal in terms of learning processes, technological intensity, digital potential, and the emerging countries specializing in less dynamic, low technology fields are likely to end up with slower overall performances and more difficulties in catching up. Conversely, policy views that emphasize the need for a long term national development strategy based on backward and forward linkages and diversification (Cimoli et al., 2009; Hausman et al., 2007) emphasize the importance of entering – and specializing – in high technology, high growth industries. Given the importance of digitalization, this analysis sheds light on the ability of some emerging countries to move out of traditional specializations and to develop capabilities and economic activities in digital-intensive fields.

**Figure 5. Comparison between the specialization indices (horizontal axis) and relative size of destination regions (vertical axis) by digital industry (based on number of FDI projects), 2003-2014**



Source: Authors' elaboration on fDi Markets database.

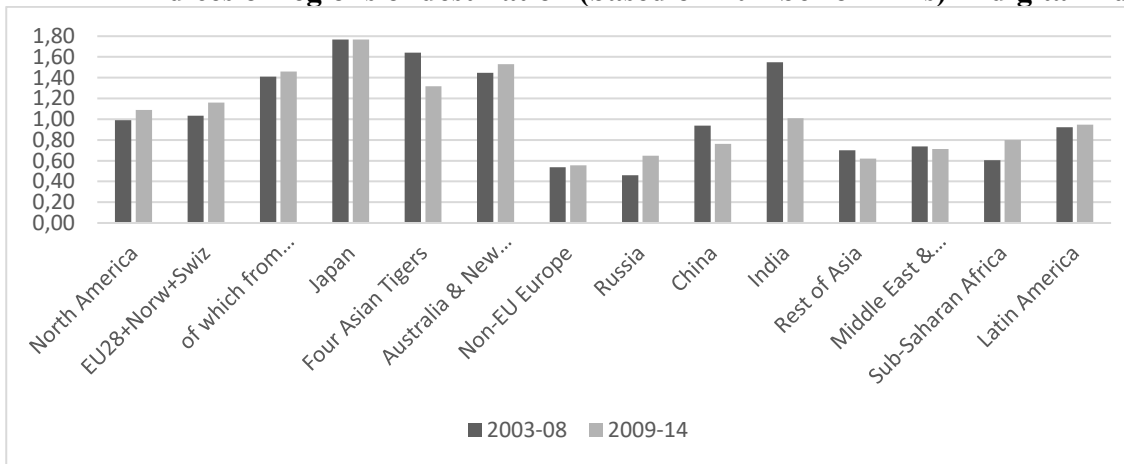




Source: Authors' elaboration on fDi Markets database.

Note: the drawn vertical grey line plots the critical value of specialization index, i.e. equal to one, while the drawn horizontal grey line plots the median value of the relative size of area by digital industry.

**Figure 6. Comparison between pre- (2003-2008) and post-crisis (2009-2014) specialization indices of regions of destination (based on number of FDIs) in digital industries**



Source: Authors' elaboration on fDi Markets database.

## 4.2 FDI specialization in technological activities

The global investment strategies of multinational corporations represent a key driver of modern process of international fragmentation of production which reshaped the patterns of international trade and induce changes in GVCs (Milberg and Winkler, 2013). Following the same methodology introduced in the previous section, we thus move to the investigation of specialization patterns of the economies focusing on business activities involved by global FDI flows (Stollinger, 2019; Timmer et al., 2019). In particular, we exploit the information potential offered by fDi Markets dataset that allows to distinguish FDIs according to the business activity characterizing such projects. We thus compute the specialization indices for both advanced and emerging economies concentrating on inward FDI projects in technological activities, namely R&D, DDT and ICT & Internet infrastructure, while comparing them with the most relevant production and post-production activities located in more downstream position along the GVCs, i.e. Manufacturing and SMS activities. As already argued, insofar as technological activities are also the most linked to the introduction and development of digital technologies, we assess the potential role played by destination regions in riding the wave of digitalization.

The inward FDI-based specialization index (SP) as an indicator of relative attractiveness of the  $a$ -th business activity for the  $k$ -th economy is adapted from the ratio (1) described in Section 4.1 and is computed as follows:

$$SP_k^a = \frac{\frac{FDI_k^a}{\sum_k FDI_k^a}}{\frac{\sum_a FDI_k^a}{\sum_k \sum_a FDI_k^a}} \quad (2)$$

where the share of inward FDIs related to a given business activity received by a given economy (the numerator) is normalized according to the same share computed for the world as a whole, namely the global average (the denominator). As the indicator reported in (1), this is a Balassa-like index computed in terms of inward FDIs instead of exports, and, in addition, the index reported in (2) is defined on the basis of the value chain activity instead of industries.<sup>29</sup>

The results are reported in Figure 7, which plots the activity related specialization indices for our thirteen destination regions against their relative size in terms of the same activity related inward FDIs, i.e. the numerator of the specialization index reported in (2), so as to account at the same time for the absolute weight of the economies in terms of global attractiveness.<sup>30</sup> Quite similar to the discussion undertaken in Section 4.1, we identify regions taking into account both dimensions and see to what extent their specialization in terms of FDIs related to technological activities is (or is not) coupled with the size of such FDI inflows, measured in terms of number of investment projects accruing to the region.

Looking at the last panel regarding the indices computed on FDI projects related to technological activities, we note that all advanced economies – with the exception of North America – report a specialization index higher than one, while China and especially India are the only two emerging economies presenting an overall specialization in such activities. In particular, India emerges as a huge attractor highly specialized in drawing

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<sup>29</sup> Further descriptive statistics are provided in Appendix E, Table E.1.

<sup>30</sup> See also Appendix E, Table E.4.

FDIs related to R&D and especially DDT activity, while the value for China is mainly driven by a strong specialization in R&D activity; India reports values higher than China for both activities, though.<sup>31</sup>

Moreover, it should be highlighted that Non-EU Europe, Sub-Saharan Africa and Latin America are the only emerging economies which show a specialization index higher than one in attracting FDIs related to ICT & Internet infrastructure, while they present much lower values for more knowledge intensive value added activities as R&D and DDT functions. Actually, the Rest of Asia and Latin America have much lower values of FDIs in these activities than in the previous industry-based picture; these countries appear to concentrate in production activities, with less capabilities in R&D and design. This breakdown of FDIs can thus provide new insights on the ability of emerging countries to move into production in highly innovative sectors and to move up in the type of business activities that are required for expanding technological capabilities. It appears that for emerging countries firms the barriers to entry are higher for the knowledge intensive business functions – namely R&D and DDT – than for the high technology industries as such, where an emerging countries firm could be integrated in GVCs or subcontracting activities even in a context of low investment in advanced technological activities.

With the partial exception of North America – emerging economies are the only ones specializing in the attraction of manufacturing FDIs, with China and the Rest of Asia emerging as huge factory economies. The African regions (namely Middle East & North Africa and Sub-Saharan Africa) are the only developing areas exhibiting a specialization index lower than one in manufacturing FDIs. In addition, the SMS scatter plot in Figure 7 shows that, with the rather surprisingly exception of Middle East & North Africa, there are no emerging economies specialized in the Sales, marketing and support value chain activity (while all developed regions present a specialization index equal to or above one in such activity).<sup>32</sup>

Overall, our results draw a picture in which the diverging patterns between advanced and emerging economies seem strengthened by the choices in terms of geographical localization and technological content of greenfield FDI flows taken by multinational corporations. In addition to what emerged focusing on industries, in this context we also have a ‘counterfactual’, since we compared the specialization patterns related to

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<sup>31</sup> As previously done, we plotted the specialization index for Europe net of intra-region FDIs with the aim of making comparisons simpler and more meaningful.

<sup>32</sup> We also computed the specialization indices using data on capital investment of FDI projects in place of the number of FDIs. Once again, results strengthen our findings, showing even higher specialization indices for advanced economies, especially North America, in attracting FDIs related to technological activities (and, among them, to R&D and DDT activity, with the partial exception of Australia & New Zealand only). Concerning North America, the relatively low specialization index in technological activities (equal to 0,96) as reported in Figure 7 is due to the fact that – as already noted in Section 3.1 – this region draws a relatively small number of inward FDIs related to R&D and DDT activity but capital amounts were on average greater than the ones which targeted the other regions. The relatively high number of inward FDI flows related to manufacturing activity instead showed a capital size averagely lower than the one of investment projects received by other regions. As for emerging economies, specialization indices computed in terms of capital invested mirror the ones based on number of FDIs and, inter alia, confirm the very low specialization of China in value added activity linked to ICT & Internet infrastructure (whose even lower value is totally responsible for the reduction below one of its technological activities related specialization index). On the other hand, Latin America and Sub-Saharan Africa show a specialization index higher than one in such activity only and, since the value in terms of capital invested are even higher for these regions, it fully explains the increase of their technological activities related specialization index when computed on data in terms of capital investment. See Appendix E, Table E.5.

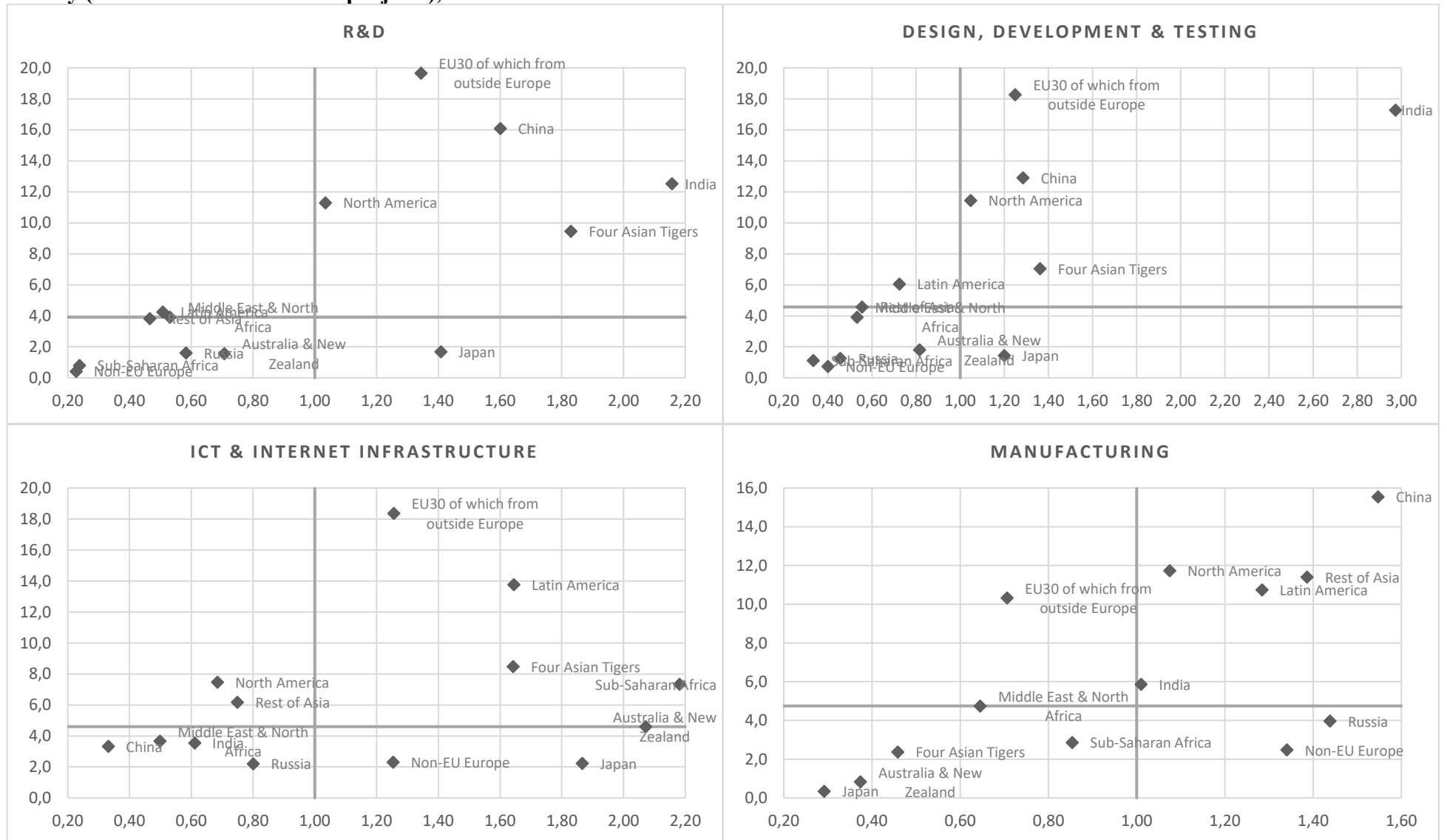
technological activities with other value added functions of GVCs. In this respect, our findings allow to appreciate the functional specialization in terms of FDI attractiveness between developed and emerging regions. The former appear to be specialized in drawing investment projects involving the most upstream and downstream activities of the value chains, while the latter mainly attracted investments in production and assembly (we shall return on this point in Section 4.3).

In addition, there is no evidence that such dynamics is going to change, softening the polarization patterns among advanced and developing regions. Figure 8 shows the comparison between the specialization indices related to both technological and manufacturing activities computed over the period before and after the crisis.<sup>33</sup> With the partial exception of North America (see footnote 31), we note that advanced economies – especially Europe and Japan – consolidated their strong relative attractiveness of FDI linked to the most technology-intensive activities, while reducing their specialization in manufacturing stage of production in GVCs. Roughly the opposite holds for emerging economies, which experienced an overall increase in their manufacturing related specialization indices, while just a few of them moved in the direction of increasing their capacity to attract advanced technological activities. Among the latter we find, on the one hand, Non-EU Europe and Russia (which move from very low values, though) and, on the other hand, Sub-Saharan Africa and Latin America, even though their growth in terms of relative attractiveness of technological activities related FDI is driven by investments linked to ICT & Internet infrastructure (see Appendix E, Table E.6-E.7 and Figure E.3). In any case, it should be noted that none of these countries reached a specialization index in advanced technologies equal to one. Once again, the patterns of global investment flows appear to have played a role in reinforcing the diverging dynamics between the productive structure and technological capabilities of economies at different stages of development.

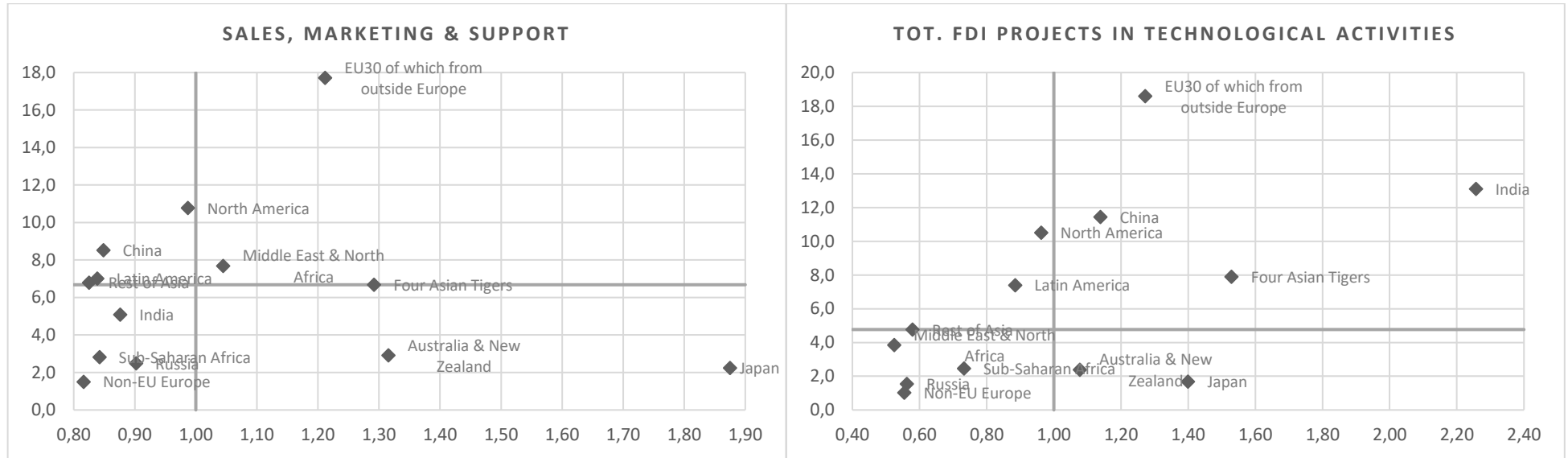
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<sup>33</sup> More detailed evidence is provided in Appendix E, Table E.2-E.3.

**Figure 7. Comparison between the specialization indices (horizontal axis) and relative size of destination regions (vertical axis) by type of activity (based on number of FDI projects), 2003-2014**



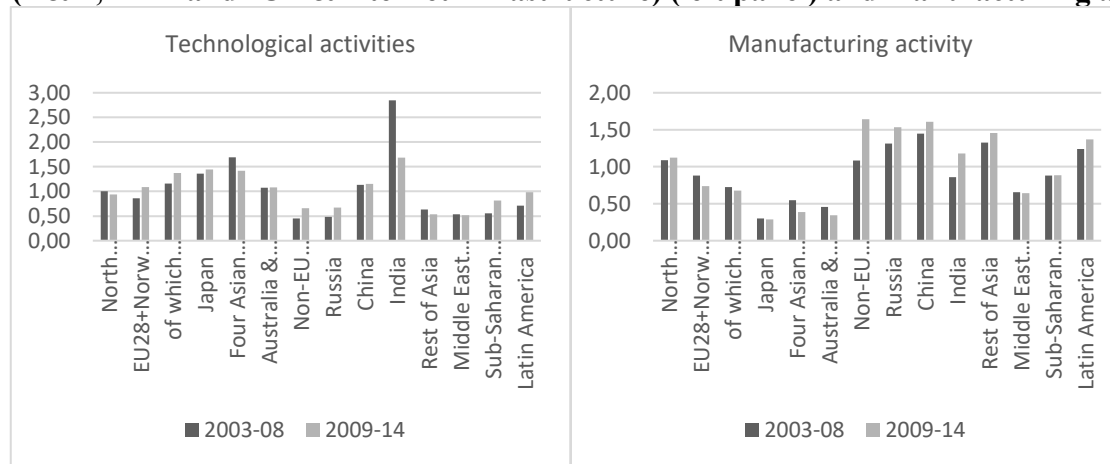
Source: Authors' elaboration on fDi Markets database.



Source: Authors' elaboration on fDi Markets database.

Note: the drawn vertical grey line plots the critical value of specialization index, i.e. equal to one, while the drawn horizontal grey line plots the median value of the relative size of area by type of activity.

**Figure 8. Comparison between pre- (2003-2008) and post-crisis (2009-2014) specialization indices of regions of destination (based on number of FDI) related to technological (R&D, DDT and ICT & Internet infrastructure) (left panel) and manufacturing activity (right panel)**



Source: Authors' elaboration on fDi Markets database.

### 4.3 Regions' FDI specialization and Global Value Chains: the Smile curve

The way in which global investment flows have shaped the international division of labour and thus the positioning that economic regions occupy along GVCs can be better assessed referring to the literature on the so-called Smile curve hypothesis (Baldwin, 2013; Baldwin et al., 2014, 2015; Mudambi, 2008). The smile curve was first proposed at the beginning of the Nineties by Stan Shih, the founder of the IT company Acer Inc. headquartered in Taiwan, and built on his analysis of the personal computer industry (Shih, 1996; Shin et al., 2012). According to his proposition, the more upstream and downstream value chain activities represent the highest value added phases of the value chain, in the sense that companies located in those value chain positions are able to command a higher value added than the ones specialized in the middle-part of the value chain, especially manufacturing and assembly. The rationale is fundamentally linked to the different degree of competitiveness which prevails in value added functions the value chains are composed by. In this context, knowledge intensive activities as R&D and design, aimed at the development of advanced technologies featured by strong dynamic returns to scale and high barriers to entry, as well as post-production activities as branding, marketing and post-sales services requiring high-skill labour, capture the largest share of the final product value added in the form of monopoly rents (Stollinger, 2019). On the other hand, the activities located in the central part of the value chain, mainly consisting in manufacturing and assembly functions, involve the most labour-intensive and routinary activities, mostly performed by relatively lower skilled workers and, with the advent of automation, potentially substituted by highly advanced machinery and robots. It follows that those who are specialized in the most upstream and downstream value added activities gain economic rents thanks to their position along the value chain at the expense of economic actors situated in the middle-part of it (Mudambi, 2008).

Nonetheless, as long as the product value chain was to a large extent “contained” within national boundaries, the disparity in terms of degree of competitiveness among actors performing different value added functions were limited by the common institutional framework and available technologies constituting the National Systems of Innovation (Freeman, 1995; Lundvall, 1992; see also Pietrobelli and Rabellotti, 2011). However, the liberalization of capital movements together with strong reduction of transportation and communications costs spurred production offshoring, leading trade in intermediate inputs and global capacity-creating FDI flows performed by multinational corporations to gain major prominence (Baldwin, 2013, 2016).

The result has been the building of hierarchical GVCs based on the vertical specialization of regions in terms of value added activities. It is therefore in the context of the modern global organization of production that the smile curve hypothesis gains major relevance. On the one hand, since technological capabilities, labour cost and institutional frameworks are strongly different among regions and especially between advanced and emerging economies, what followed has been an increase in the “steepness” of the smile curve, i.e. a higher heterogeneity in the ability of regions specialized in different value chain segments in capturing a relatively large share of value added from production (Baldwin, 2013; Baldwin et al., 2014). On the other hand, it follows that such ability in seizing value added directly depends on the position occupied by different regions along the GVCs (which explains their hierarchical nature) (Milberg and Winkler, 2013).

In this framework it is hence worth checking the relative specialization of economies in different value chain activities, insofar as – if the smile curve hypothesis holds – it should define their position in the international division of labour and thus the economic rents they are able to reap from the geographical fragmentation of production. For this purpose, we use as proxy of production specialization of both advanced and emerging economies the specialization indices computed on the basis of inward FDI projects related to R&D, DDT, manufacturing and SMS activity (see expression (2) in Section 4.2), as long as they constitute the most important value added functions along the value chain.<sup>34</sup> Consistent with the evidence provided in previous sections, our expectation is that low-wage, labour-abundant and relatively laggard emerging economies are likely to attract (mostly from advanced economies) activities located in the central part of the value chain. Hence they will specialize in attracting this type of FDIs and de-specialize from R&D, DDT and SMS related investment projects. In other words, we expect to find a “reversed” FDI-based smile curve for these regions (Sturgeon and Memedovic, 2011). The opposite is likely to hold for advanced economies, for which we expect of being able to replicate the standard smile curve using specialization indicators based on inward FDI data.

The results are reported in Figures 9 and 10, largely confirming our expectation. Five out of six advanced economies, namely the European region (using both gross and net of intra-region FDIs data), Japan, the Four Asian Tigers and Australia & New Zealand, present higher specialization indices in the most upstream and downstream segments of GVCs, drawing rough variants of the “smile” curve. Conversely, although presenting relevant differences among them, none of the eight emerging economies we focus on show a specialization pattern such as to plot a “smile” curve.<sup>35</sup>

These findings strengthen the conclusions we drew at the end of previous section. Assuming that the smile curve hypothesis holds, our results suggests that the subordinate position occupied by emerging economies along GVCs hinders their possibility to capture a relevant share of value added and thus to gain access to key resources for making a leap forward in technological and social upgrading (Stollinger, 2018). Furthermore, it rises the risk that global FDI flows fostered by multinational corporations might reinforce these tendencies, strengthening structural and technological asymmetries between core and periphery regions and locking-in the latter in a weaker position along GVCs (Wade, 2018).

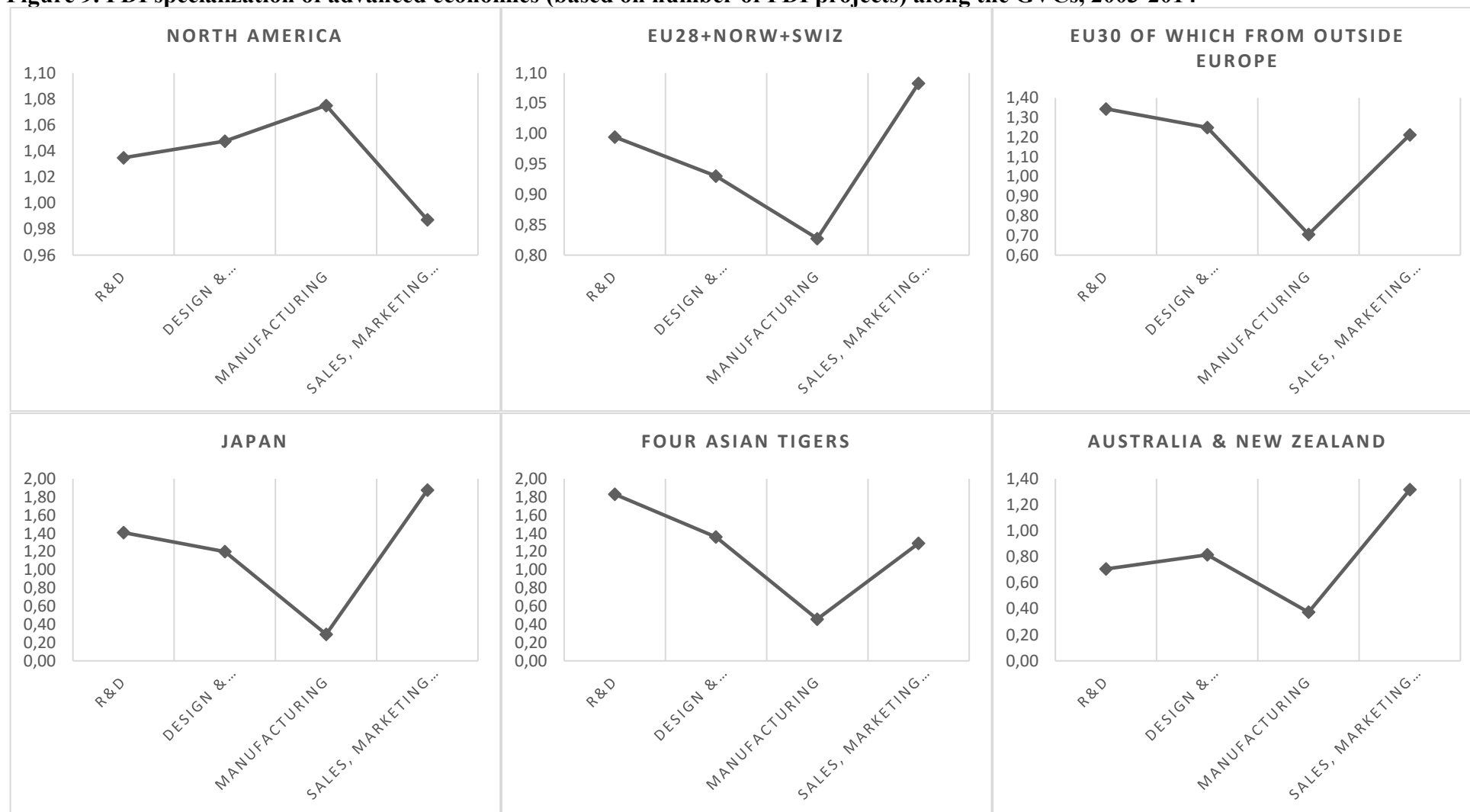
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<sup>34</sup> Unlike the previous sections, we do not consider in this context the activity related to ICT & Internet infrastructure since its more ambiguous nature does not allow to properly detect its position along the value chain.

<sup>35</sup> As mentioned in footnote 31, we computed the specialization indices in value chain activities for both advanced and emerging economies also using data on capital investment of FDIs and they substantially confirm our main findings. See Appendix E, Table E.5 and Figure E.1-E.2.

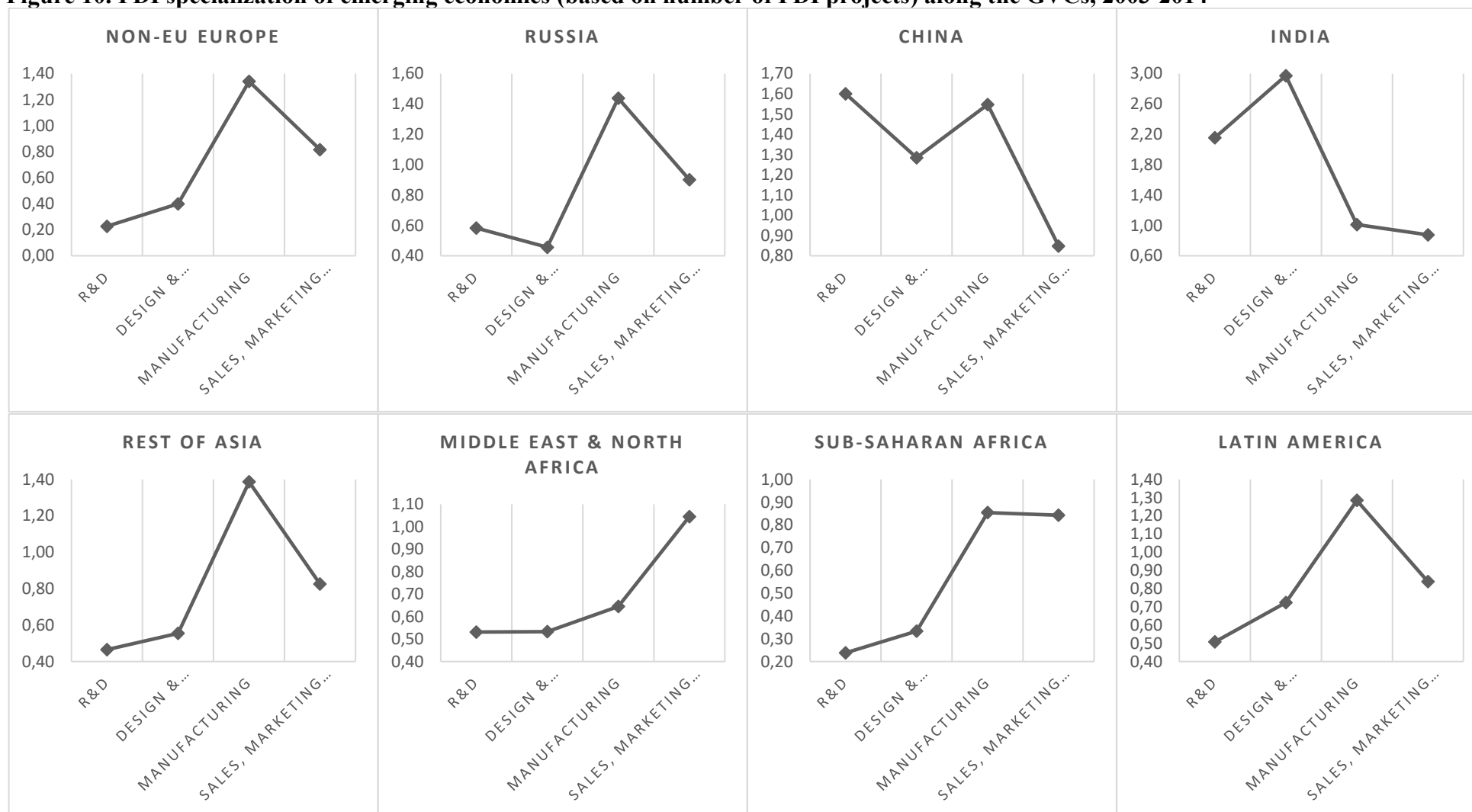


**Figure 9. FDI specialization of advanced economies (based on number of FDI projects) along the GVCs, 2003-2014**



Source: Authors' elaboration on fDi Markets database.

**Figure 10. FDI specialization of emerging economies (based on number of FDI projects) along the GVCs, 2003-2014**



Source: Authors' elaboration on fDi Markets database.

#### 4.4 Global Value Chains in Digital industries

The “smile curves” we have shown and discussed in Section 4.3 illustrate the specialization of our regional blocks in terms of inward FDIs received by these groups of countries in different value chain activities. This can provide a very broad picture of how countries and regions specialize in attracting FDIs that contribute to value creation processes. The previous analysis can thus constitute a general background to analyze value chain activities in specific industries. Studies on GVCs have been proliferating with reference to individual industries and selected countries/regions, providing valuable insights on the state of affairs and development potential in these specific contexts (Gereffi, 1999; Sturgeon et al., 2008; Saliola and Zanfei, 2009). Moreover, a number of recent works empirically assessed the smile curve hypothesis focusing on the value added contribution of primary, manufacturing and service sector to production and exports (Baldwin et al., 2014, 2015). Stollinger (2019), in unpublished working paper, computed the functional specialization for three major world regions, namely European Union, NAFTA and South East Asian countries with no focus on digital industries. However cross-sectoral analyses and well documented empirical works placing individual industries, and digital related sectors in particular, in a global context are still largely missing.

As an initial attempt to fill this gap, we use fDi Markets data to explore how inward FDI specialization in the key business activities vary across our groups of countries with reference to digital industries. In other words, we mean to evaluate the extent to which the specialization of countries in different value chains activities that can be observed when considering FDIs in all sectors is confirmed in the case of this specific set of industries. Such a close-up would require a much more detailed and thorough analysis of the mechanisms underlying specialization strategies of countries, and ultimately of firms, within complex global production networks, which is beyond the scope of this paper. Nevertheless, we believe this exploratory exercise might help devise the relative position of regions in the ongoing process of digitalization, and evaluate the potential for upgrading that is likely to be associated with such positioning in GVCs for the production of digital equipment and services.

We thus continue along the line sketched above, i.e. we will draw “smile curves” using the same set of value creation activities and based on the same specialization indices that we refer to in Fig. 9 and 10 above, but with a focus on digital related industries. Figure 11 does so for advanced economies.<sup>36</sup> What remains confirmed of the smile curve hypothesis is that all developed regions, which have the highest capacity to invest for the development of, and to extract market opportunities from, digital industries, tend to attract FDIs more in high value added activities than in manufacturing activities. This applies in particular to high value creating activities that are located downstream in the digital GVC, namely Sales, marketing and support activities. As far as upstream activities are concerned, only the Four Asian Tigers appear to specialize in the attraction of FDIs in both R&D and DDT activities. With the relevant exception of the Four Tigers, all advanced economies are better off at attracting FDIs in DDT than in R&D activities, and are more prone to receive FDIs in commercialization activities than in research, design and testing of technologies. Moreover, none of these advanced areas (except the Four Tigers) exhibits specialization indices greater than one in both the upstream technological activities, that is they do not attract FDIs in R&D and DDT activities more than observed

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<sup>36</sup> See Appendix F, Table F.1 for further details.

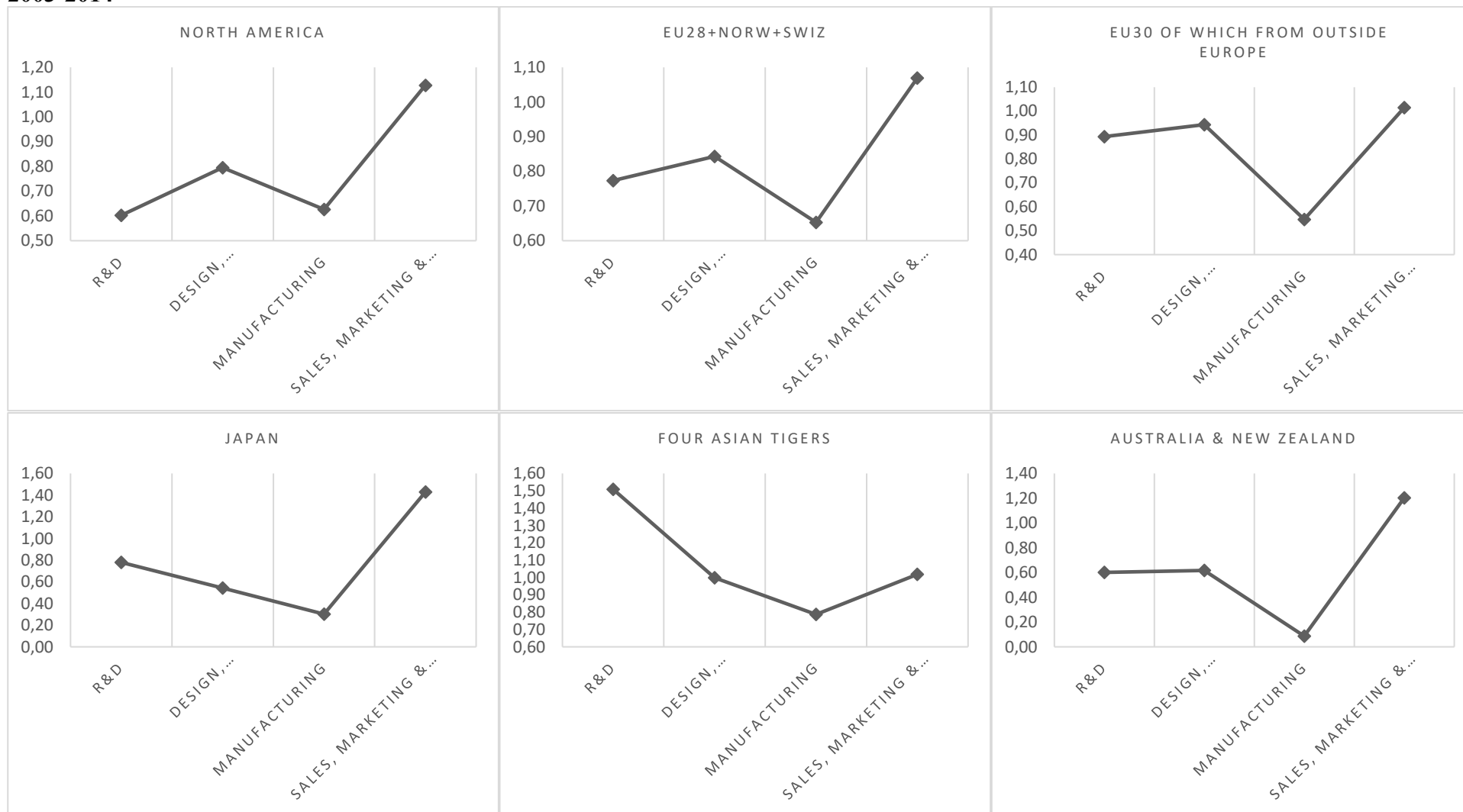
on average in all countries of the world. Indeed, only EU28+ countries present specialization indices equal to or slightly greater than 1, when it comes to attracting FDI in DDT activities from outside the region. This pattern of specialization across global value chain activities in digital industries can be partially explained observing data on FDI in capital values (see Appendix F, Figure F.1). If data are expressed in value, both the top advanced regions of the world, North America and Europe, appear to have a clear specialization also in DDT activities; and EU28+ countries exhibit a high specialization in R&D-related FDI as well. Hence, the top advanced countries attract a relatively low number of FDI in DDT and even less so in R&D activities when digital industries are considered, but the unit value of such investment projects is likely to be very high. At any rate, the relatively low number of FDI in R&D and DDT activities observed for all advanced economies might have to do with a specific feature of GVCs in digital industries. One may suggest that this finding reflects the fact that advanced countries are more prone to invest national (or supra-national) resources than to attract FDI to favor the technological development of these highly strategic industries. It remains that advanced economies are very attractive for FDI in high value added commercialization activities, especially in the case of the most valuable digital services.

Figure 12 illustrates the FDI specialization of emerging economies in value chain activities, once again in the case of digital industries. Two features of these specialization patterns are quite striking here. First, FDI in manufacturing activities play a key role in the specialization of four areas of the emerging world in these industries: China, Non-EU Europe, Latin America, and some of the least dynamic regions of Asia (Rest of Asia). This is particularly the case of China that confirms its role as the largest and very competitive factory of the world in the production of digital equipment and components in particular. Our finding here is consistent with the high investment capacity of China particularly in such digital related industries as semiconductors and other electronic components, as highlighted already in Section 4.1. Second, only a few, very important areas of the emerging world appear to be specializing in the attraction of FDI in high value added, knowledge intensive upstream activities. The top performing country in this respect is clearly India, which exhibits a very high specialization in both R&D and, even more so, in DDT activities. This reflects mostly the key role played by this country in the field of software and IT services. To a lesser degree we observe a similar pattern in the case of China, which plays a remarkable role in attracting R&D FDI in these industries; and Russia, which however has a much less prominent profile. All other areas of the world appear to have virtually no capacity to attract FDI related to R&D and DDT activities. The very heterogeneous African and Latin American regions reveal some specialization in attracting FDI in downstream activities (SMS). These however are most likely to be market seeking FDI activities that can hardly be vehicles for the development of these areas of the emerging world.<sup>37</sup>

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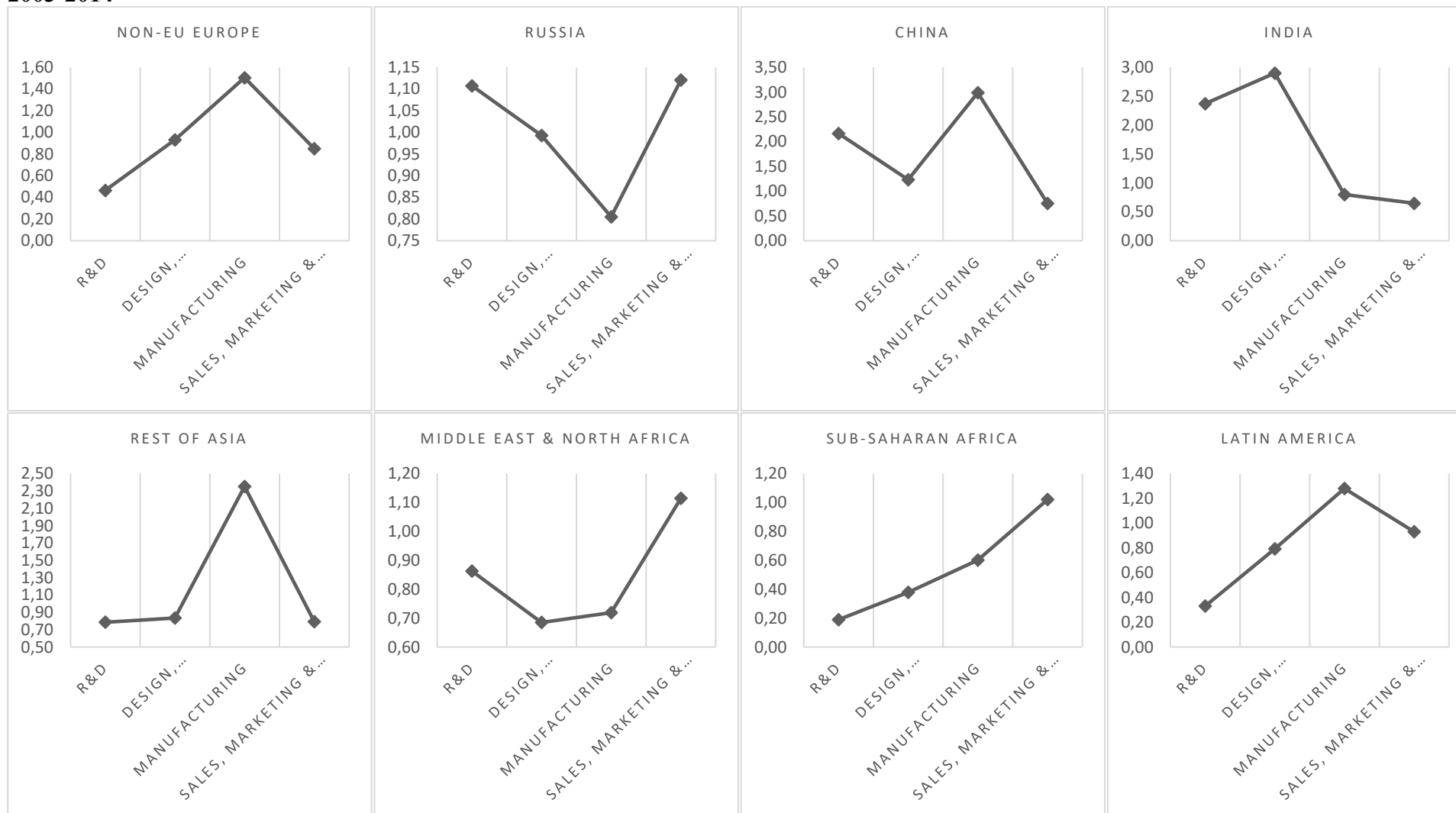
<sup>37</sup> These patterns of specialization in terms of value chain activities in digital industries for emerging economies are substantially confirmed by data on capital investment of FDI. See Appendix F, Figure F.2.

**Figure 11. FDI specialization of advanced economies by type of activity, computed on the base of the number of FDI projects in digital industries, 2003-2014**



Source: Authors' elaboration on fDi Markets database.

**Figure 12. FDI specialization of emerging economies by type of activity, computed on the base of the number of FDI projects in digital industries, 2003-2014**



Source: Authors' elaboration on fDi Markets database.

## 5. Conclusion

The evidence provided in the present work highlights the environment where both advanced and emerging economies find themselves in terms of FDI flows in the industries and activities that are relevant for the development of advanced technological capabilities and for digitalization.

Remarkable diversities can be observed in this respect across different areas of both the advanced and emerging economies. European and North American regions appear have undertaken rather different patterns of inward and outward FDIs in digital industries and in the key value chain activities. Europe is both a big attractor and a big investor in digital industries and in technological activities, but relies on emerging economies more to offshore production than to set up R&D labs in these countries. By contrast, North American economies are more prone to engage in outward investments towards the most dynamic emerging economies than is the case of Europe.

The overall outlook for emerging countries has different shades. Positive factors are the large number of FDI projects and of capital investment attracted by their economies, also in highly innovative sectors of manufacturing and services that are relevant for digitalization.

The findings that are more problematic for the prospects of emerging countries include the prevalence of production-oriented FDIs in the patterns of incoming but also outgoing investments from emerging countries, with less attention to R&D, Design and ICT activities. Domestic investments and inward FDIs are mainly used by most emerging countries to increase production capabilities, and to a lesser extent to improve high value added commercialization activities and even less so to gain access to cutting edge technology and development abilities. Greater efforts are needed to move into learning processes and high innovation activities and emerging countries appear to follow a well established technological trajectory in this regard. The speed of their expansion in manufacturing production is much higher than their current capability to ‘move up’ and enter high knowledge business functions (Eden, 2016).

China, India and Asian Four Tigers represent special cases of success in attracting strong FDIs flows also in technological activities, building a diversified industrial system and important innovative capabilities. In the case of China specific studies have explored the rise of its knowledge economy (Rodriguez-Pose and Wilkie, 2016) and the country’s policy for industry modernization, automation and digitalization are outlined in its plan for manufacturing 2025 (European Union Chamber of Commerce in China, 2017; Li, 2018).

Conversely, for other emerging countries the evidence on FDI flows suggest that the technological gap is likely to remain strong. The economies of the Rest of Asia have experienced strong growth in industrial production, but lag behind in the case of digital industries and technological activities; in Latin America technological upgrading is taking place mainly in the telecom industry, and similar lags and prevalence of telecoms are found in the Middle East and North Africa, as well as for Sub-Saharan Africa, Russia and Non-EU Europe.

The patterns of technological flows, the opportunities for learning and catching up, the potential of digital technologies and Industry 4.0 are therefore likely to be highly differentiated within emerging countries, with a significant number of firms becoming global players in FDIs, as well as in GVCs and in technology networks, but with persisting hierarchies in the high knowledge activities that are closer to digital frontier.

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## Appendix A

### Table A.1 Capital investment of inward FDI by cluster, 2003-2014

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total	% by cluster
Energy	221.832	172.125	168.081	195.333	132.430	325.259	244.491	133.416	142.104	64.109	82.658	80.845	1,962.683	21.1
Construction	33.509	49.891	51.373	121.925	128.078	223.617	107.704	57.040	47.169	61.430	87.974	109.690	1,079.399	11.6
ICT & Electronics	77.861	79.696	77.123	96.728	74.132	81.763	91.208	100.783	102.538	64.171	88.869	97.121	1,031.993	11.1
Transport Equipment	77.253	65.888	61.871	72.417	77.802	98.152	78.025	110.918	101.020	87.703	71.766	94.019	996.833	10.7
Physical Sciences	102.577	73.179	89.874	52.688	94.042	108.977	67.923	77.249	103.616	44.283	35.517	36.400	886.326	9.5
Environmental Technology	9.758	6.633	11.951	30.437	55.509	116.270	94.878	65.524	79.735	52.239	68.056	51.925	642.915	6.9
Financial Services	22.561	24.093	29.273	40.010	50.318	58.519	44.597	45.603	48.968	39.256	36.422	38.397	478.018	5.1
Transportation, Warehousing & Storage	20.052	27.452	30.561	39.611	41.770	57.251	34.621	28.598	31.905	34.245	43.727	44.891	434.686	4.7
Tourism	40.324	25.079	29.752	30.571	46.045	80.892	39.087	31.009	21.530	19.831	23.425	12.468	400.012	4.3
Food, Beverages & Tobacco	18.964	18.627	16.472	21.755	21.894	39.403	41.472	32.341	45.746	33.807	26.177	29.373	346.030	3.7
Industrial	21.101	21.843	29.188	33.302	21.694	42.828	20.738	25.009	38.158	28.162	22.893	35.728	340.644	3.7
Life sciences	16.064	13.796	11.068	16.339	18.435	18.614	22.321	19.049	17.886	15.052	17.596	21.855	208.077	2.2
Wood, Apparel & Related Products	23.061	18.833	15.439	12.842	17.453	21.638	7.730	10.571	16.530	5.089	11.938	12.012	173.135	1.9
Consumer Goods	9.441	10.497	8.274	12.250	10.535	10.875	11.096	13.344	16.035	10.383	10.356	11.226	134.312	1.4
Professional Services	2.093	3.240	3.578	6.117	11.310	13.630	12.612	11.412	11.592	11.756	8.969	12.242	108.549	1.2
Creative Industries	5.086	5.387	5.497	5.705	5.913	7.380	7.814	7.976	9.599	10.335	10.480	9.085	90.257	1.0
Retail Trade	2.162	1.756	950	1.159	214	73	256	353	318	75	214	163	7.692	0.1
<b>Total</b>	<b>703.699</b>	<b>618.014</b>	<b>640.324</b>	<b>789.188</b>	<b>807.574</b>	<b>1,305.141</b>	<b>926.573</b>	<b>770.194</b>	<b>834.449</b>	<b>581.927</b>	<b>647.039</b>	<b>697.440</b>	<b>9,321.561</b>	<b>100</b>

Source: Authors' elaboration on fDi Markets database.

Note: Values on capital investment are in millions of dollars at current prices.

### Table A.2 Capital investment of inward FDI by industry, 2003-2014

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total	% by industry
Coal, Oil and Natural Gas	191.445	154.139	152.883	176.004	120.171	275.640	218.275	118.101	124.143	54.471	72.310	78.539	1,736.120	18.6
Real Estate	26.197	42.066	40.454	103.011	122.920	228.980	102.742	47.493	40.753	62.371	46.521	120.716	984.226	10.6
Metals	77.015	53.475	87.956	49.554	84.462	116.143	53.790	77.484	89.735	38.744	25.393	35.141	788.892	8.5
Automotive OEM	55.067	40.247	37.604	43.957	46.703	55.845	46.048	62.151	55.499	39.729	29.824	51.082	563.755	6.0
Alternative/Renewable energy	7.520	5.164	9.770	24.659	43.886	90.704	83.196	45.691	63.626	46.326	55.149	45.022	520.712	5.6
Chemicals	44.886	39.138	24.524	41.106	29.020	56.857	37.158	38.793	56.400	39.618	30.543	28.608	466.650	5.0
Financial Services	21.750	22.603	28.058	38.143	49.375	58.426	43.644	43.224	47.710	37.716	34.246	36.129	461.024	4.9
Communications	20.825	20.954	22.880	25.883	20.073	28.403	48.737	46.506	54.935	33.057	60.495	62.183	444.929	4.8
Hotels & Tourism	33.939	22.614	26.073	28.245	38.091	62.258	35.713	27.058	18.957	14.215	20.752	9.104	337.019	3.6
Transportation	28.937	27.124	31.416	22.407	27.696	33.333	33.080	23.100	24.648	23.323	28.280	24.037	327.382	3.5
Software & IT services	13.750	14.198	17.685	19.624	21.370	24.186	18.731	17.170	23.447	21.414	24.158	24.613	240.346	2.6
Electronic Components	18.616	15.530	14.772	15.072	18.954	26.493	21.876	31.295	19.108	11.446	8.141	8.912	210.214	2.3
Semiconductors	23.196	25.228	19.109	37.038	21.848	11.552	9.807	15.456	14.928	6.574	6.746	7.989	199.473	2.1
Business Services	5.243	5.480	5.829	9.418	12.593	17.353	15.973	15.602	16.718	15.748	57.790	13.545	191.292	2.1
Food & Tobacco	11.836	11.116	7.652	11.211	12.231	18.635	23.451	13.914	24.581	18.453	15.466	16.922	185.467	2.0
Automotive Components	12.724	14.685	13.331	13.372	13.164	17.650	9.995	13.448	15.670	23.254	18.261	17.755	183.309	2.0
Warehousing & Storage	12.536	11.920	12.107	25.313	14.467	18.305	14.409	11.930	10.501	9.773	16.532	16.855	174.649	1.9
Industrial Machinery, Equipment & Tools	5.661	5.688	8.842	8.047	9.239	16.872	13.951	14.002	17.122	11.804	10.068	13.205	134.503	1.4
Building & Construction Materials	4.283	5.201	7.857	14.375	15.052	23.530	8.130	7.392	9.830	5.831	9.823	7.725	119.029	1.3
Paper, Printing & Packaging	14.451	12.441	9.921	8.294	11.763	17.196	3.414	7.260	12.787	3.783	4.180	4.960	110.450	1.2
Pharmaceuticals	10.898	8.848	6.676	10.156	10.771	8.018	10.995	8.650	9.692	6.769	8.302	8.450	108.225	1.2
Plastics	8.048	8.324	6.686	7.650	6.360	5.560	6.132	11.399	12.191	7.107	6.132	6.830	92.422	1.0
Rubber	5.225	6.408	5.387	4.479	6.277	8.048	7.688	9.871	11.559	5.734	9.836	4.888	85.401	0.9
Aerospace	3.080	3.892	3.124	5.752	3.587	8.365	5.851	10.518	6.089	8.648	4.249	5.025	68.178	0.7
Consumer Products	4.297	3.264	3.359	4.491	3.993	5.243	4.608	4.767	6.734	5.368	6.098	7.235	59.458	0.6
Business Machines & Equipment	4.414	7.858	5.727	6.669	3.203	5.122	4.364	6.245	4.083	3.388	2.011	4.142	57.226	0.6
Beverages	4.230	3.128	2.734	3.492	3.848	6.777	11.243	3.865	4.291	3.597	3.500	5.006	55.711	0.6
Consumer Electronics	5.655	5.972	3.963	7.075	4.969	3.208	4.254	5.077	5.432	2.037	3.047	2.678	53.367	0.6
Leisure & Entertainment	6.357	2.940	3.574	2.298	4.326	13.439	3.365	3.075	2.364	5.845	2.417	2.532	52.530	0.6
Textiles	4.254	3.598	3.015	3.129	4.474	3.502	2.990	2.961	4.355	1.263	6.171	7.243	46.955	0.5
Ceramics & Glass	3.190	3.283	3.928	3.912	3.909	8.889	2.406	2.927	3.950	1.905	1.465	3.014	42.777	0.5
Engines & Turbines	1.059	577	1.165	2.480	3.005	7.595	3.495	5.244	6.528	2.398	6.176	1.254	40.975	0.4
Non-Automotive Transport OEM	1.120	1.853	1.928	2.908	4.548	5.031	3.149	6.790	3.281	2.063	2.228	5.522	40.421	0.4
Wood Products	4.607	2.659	3.659	2.070	3.650	3.869	2.813	1.784	1.051	839	3.390	1.088	31.479	0.3
Medical Devices	1.768	1.427	1.549	3.091	1.842	3.437	4.235	3.037	2.569	2.478	2.769	3.058	31.260	0.3
Minerals	2.476	2.170	2.550	2.256	1.590	4.906	1.672	2.726	5.693	1.313	917	703	28.971	0.3
Biotechnology	2.415	2.158	1.531	1.579	2.659	2.371	3.221	1.805	1.694	1.098	2.869	3.002	26.400	0.3
Healthcare	541	496	787	773	1.266	2.789	1.472	1.991	1.291	2.040	405	2.323	16.172	0.2
Space & Defence	190	147	258	195	220	610	502	391	503	389	379	406	4.189	0.0
<b>Total</b>	<b>703.699</b>	<b>618.014</b>	<b>640.324</b>	<b>789.188</b>	<b>807.574</b>	<b>1,305.141</b>	<b>926.573</b>	<b>770.194</b>	<b>834.449</b>	<b>581.927</b>	<b>647.039</b>	<b>697.440</b>	<b>9,321.561</b>	<b>100</b>

Source: Authors' elaboration on fDi Markets database.

Note: Values on capital investment are in millions of dollars at current prices.

**Table A.3 Capital investment of inward FDIs by type of business activity, 2003-2014**

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total	% by activity
Manufacturing	305.103	293.590	277.029	367.332	315.432	469.028	312.091	344.504	393.842	225.427	207.437	247.589	<b>3.758.404</b>	40,3
Construction	67.225	66.567	69.105	129.389	160.327	298.457	137.598	74.411	58.103	77.978	106.040	126.339	<b>1.371.539</b>	14,7
Extraction	184.658	96.044	117.442	61.728	72.047	144.254	115.305	59.120	67.975	25.861	24.361	41.718	<b>1.010.513</b>	10,8
Electricity	21.243	35.420	28.891	44.623	61.690	148.763	126.496	60.067	78.892	59.250	81.204	57.931	<b>804.470</b>	8,6
Distribution & Transportation	39.483	35.917	40.186	48.537	44.850	54.755	51.318	52.881	33.843	30.110	46.414	44.193	<b>522.489</b>	5,6
Business Services	23.001	22.710	28.230	38.789	52.498	61.014	51.460	51.018	55.668	48.435	40.747	44.730	<b>518.301</b>	5,6
Sales, Marketing & Support	11.327	16.665	22.025	30.187	36.598	50.339	36.870	38.427	44.054	40.039	36.212	35.010	<b>397.754</b>	4,3
ICT & Internet Infrastructure	17.775	17.032	17.569	16.847	15.649	28.484	44.129	42.953	51.610	30.873	54.117	55.852	<b>392.890</b>	4,2
Design, Development & Testing	8.014	7.683	11.063	14.276	15.138	18.239	15.921	16.745	19.575	14.968	22.473	18.051	<b>182.146</b>	2,0
Headquarters	9.211	10.021	9.662	10.439	13.529	11.681	14.950	14.272	13.361	14.837	11.400	12.324	<b>145.688</b>	1,6
Research & Development	9.852	9.191	12.121	17.070	7.958	7.473	9.493	5.276	7.100	4.419	4.198	3.914	<b>98.064</b>	1,1
Recycling	1.397	724	919	1.233	3.737	4.475	1.947	1.846	1.964	2.315	6.105	3.156	<b>29.817</b>	0,3
Maintenance & Servicing	1.291	1.494	979	2.240	1.807	2.357	3.048	2.286	1.962	2.485	2.038	1.723	<b>23.711</b>	0,3
Education & Training	820	1.146	1.022	1.200	2.673	2.464	2.680	2.493	2.477	2.670	1.812	1.745	<b>23.201</b>	0,2
Customer Contact Centre	2.231	1.755	818	1.389	1.219	937	1.614	1.243	965	787	1.026	887	<b>14.871</b>	0,2
Technical Support Centre	257	1.094	1.276	1.638	1.210	1.583	1.111	1.567	1.621	748	747	1.432	<b>14.284</b>	0,2
Shared Services Centre	812	963	1.986	2.271	1.211	838	543	1.084	1.435	723	708	845	<b>13.419</b>	0,1
<b>Total</b>	<b>703.699</b>	<b>618.014</b>	<b>640.324</b>	<b>789.188</b>	<b>807.574</b>	<b>1.305.141</b>	<b>926.573</b>	<b>770.194</b>	<b>834.449</b>	<b>581.927</b>	<b>647.039</b>	<b>697.440</b>	<b>9.321.561</b>	<b>100</b>

Source: Authors' elaboration on fDi Markets database.

Note: Values on capital investment are in millions of dollars at current prices.

## Appendix B

**Table B.1 Number of inward FDIs by region of destination, 2003-2014**

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total	% by region
<b>Advanced economies</b>	<b>3983</b>	<b>4428</b>	<b>5022</b>	<b>5954</b>	<b>6463</b>	<b>7616</b>	<b>6396</b>	<b>7004</b>	<b>7610</b>	<b>6966</b>	<b>6765</b>	<b>6514</b>	<b>74721</b>	<b>52,2</b>
North America	760	743	753	877	1023	1191	1384	1664	1901	1761	1728	1841	15626	10,9
EU28+Norw+Swiz	2525	2951	3591	4294	4534	5257	3916	4091	4400	3990	3906	3345	46800	32,7
<i>EU30 net of intra-Europe</i>	<i>1198</i>	<i>1334</i>	<i>1610</i>	<i>1855</i>	<i>1783</i>	<i>2172</i>	<i>1683</i>	<i>1875</i>	<i>2039</i>	<i>1887</i>	<i>1857</i>	<i>1639</i>	<i>20932</i>	<i>14,6</i>
Japan	104	132	110	140	164	179	143	164	128	123	138	196	1721	1,2
Four Asian Tigers	412	448	438	491	543	725	695	719	807	725	656	744	7403	5,2
Australia & New Zealand	182	154	130	152	199	264	258	366	374	367	337	388	3171	2,2
<b>Emerging economies</b>	<b>4440</b>	<b>4559</b>	<b>4499</b>	<b>5216</b>	<b>5135</b>	<b>7792</b>	<b>6215</b>	<b>6254</b>	<b>7067</b>	<b>6062</b>	<b>5561</b>	<b>5607</b>	<b>68407</b>	<b>47,8</b>
Non-EU Europe	170	177	206	226	236	320	185	259	260	218	228	160	2645	1,8
Russia	350	309	441	316	358	507	330	382	335	273	219	134	3954	2,8
China	1267	1442	1206	1341	1206	1472	1053	1219	1335	1007	904	931	14383	10,0
India	430	646	542	899	690	957	706	730	906	734	438	640	8318	5,8
Rest of Asia	783	651	672	736	888	1527	1221	1061	1035	999	955	1252	11780	8,2
Middle East & North Africa	510	452	634	832	762	1382	1124	1026	1117	996	872	832	10539	7,4
Sub-Saharan Africa	205	161	250	269	210	506	467	438	629	571	587	518	4811	3,4
Latin America	725	721	548	597	785	1121	1129	1139	1450	1264	1358	1140	11977	8,4
<b>Total</b>	<b>8423</b>	<b>8987</b>	<b>9521</b>	<b>11170</b>	<b>11598</b>	<b>15408</b>	<b>12611</b>	<b>13258</b>	<b>14677</b>	<b>13028</b>	<b>12326</b>	<b>12121</b>	<b>143128</b>	<b>100</b>

Source: Authors' elaboration on fDi Markets database.

**Table B.2 Capital investment of inward FDIs by region of destination, 2003-2014**

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total	% by region
<b>Advanced economies</b>	<b>226.598</b>	<b>222.435</b>	<b>223.149</b>	<b>312.160</b>	<b>314.095</b>	<b>415.229</b>	<b>311.823</b>	<b>286.410</b>	<b>300.929</b>	<b>233.234</b>	<b>212.741</b>	<b>224.255</b>	<b>3.283.057</b>	<b>35,2</b>
North America	51.418	41.675	62.750	52.612	51.557	69.924	85.057	73.919	97.708	66.134	61.340	62.211	776.304	8,3
EU28+Norw+Swiz	115.026	124.199	128.294	189.193	195.099	281.905	175.210	136.495	146.982	123.620	110.469	102.294	1.828.786	19,6
<i>EU30 net of intra-Europe</i>	<i>58.849</i>	<i>54.420</i>	<i>54.950</i>	<i>81.354</i>	<i>66.761</i>	<i>94.015</i>	<i>62.170</i>	<i>54.148</i>	<i>65.519</i>	<i>60.621</i>	<i>52.281</i>	<i>54.850</i>	<i>759.940</i>	<i>8,2</i>
Japan	6.656	3.574	2.544	4.995	4.758	6.173	4.832	3.725	4.323	3.501	9.189	7.975	62.244	0,7
Four Asian Tigers	33.280	26.525	20.149	26.240	40.154	32.370	26.036	31.990	34.988	22.150	19.264	36.262	349.409	3,7
Australia & New Zealand	20.218	26.462	9.412	39.118	22.528	24.857	20.688	40.282	16.928	17.829	12.479	15.513	266.314	2,9
<b>Emerging economies</b>	<b>477.101</b>	<b>395.579</b>	<b>417.175</b>	<b>477.028</b>	<b>493.479</b>	<b>889.912</b>	<b>614.750</b>	<b>483.784</b>	<b>533.520</b>	<b>348.693</b>	<b>434.298</b>	<b>473.185</b>	<b>6.038.503</b>	<b>64,8</b>
Non-EU Europe	6.804	5.140	10.173	11.463	18.002	22.941	10.490	11.313	10.283	10.710	10.701	7.013	135.031	1,4
Russia	20.576	26.914	30.720	22.693	34.413	42.947	24.495	31.441	21.112	15.064	10.774	12.213	293.363	3,1
China	123.364	116.629	75.426	113.802	96.491	114.813	109.016	89.767	99.652	73.902	68.795	74.472	1.156.128	12,4
India	16.173	26.070	23.633	58.213	40.417	63.574	51.022	38.102	44.499	29.232	16.922	23.377	431.232	4,6
Rest of Asia	89.326	62.261	51.582	58.040	113.877	192.003	121.584	83.361	99.243	57.384	71.031	100.825	1.100.518	11,8
Middle East & North Africa	67.291	68.776	101.230	124.613	102.443	227.399	145.691	69.300	73.675	54.526	65.996	103.487	1.204.426	12,9
Sub-Saharan Africa	49.992	33.305	44.986	33.783	30.182	96.494	45.234	55.644	61.334	33.272	42.531	61.572	588.328	6,3
Latin America	103.576	56.484	79.425	54.422	57.655	129.742	107.218	104.856	123.721	74.603	147.548	90.226	1.129.477	12,1
<b>Total</b>	<b>703.699</b>	<b>618.014</b>	<b>640.324</b>	<b>789.188</b>	<b>807.574</b>	<b>1.305.141</b>	<b>926.573</b>	<b>770.194</b>	<b>834.449</b>	<b>581.927</b>	<b>647.039</b>	<b>697.440</b>	<b>9.321.561</b>	<b>100</b>

Source: Authors' elaboration on fDi Markets database.

Note: Values on capital investment are in millions of dollars at current prices.

**Table B.3 Rate of change of inward FDIs by region of origin before (2003-2008) and after the crisis (2009-2014)**

	(a) number			(b) capital investment			
	2003-2008	2009-2014	% change	2003-2008	2009-2014	% change	
Sub-Saharan Africa	1601	3210	<b>100,5</b>	North America	329.936	446.369	<b>35,3</b>
Australia & New Zealand	1081	2090	<b>93,3</b>	Latin America	481.304	648.173	<b>34,7</b>
North America	5347	10279	<b>92,2</b>	Japan	28.700	33.544	<b>16,9</b>
Latin America	4497	7480	<b>66,3</b>	Sub-Saharan Africa	288.741	299.587	<b>3,8</b>
Four Asian Tigers	3057	4346	<b>42,2</b>	Four Asian Tigers	178.719	170.690	<b>-4,5</b>
Middle East & North Africa	4572	5967	<b>30,5</b>	Rest of Asia	567.089	533.429	<b>-5,9</b>
Rest of Asia	5257	6523	<b>24,1</b>	India	228.078	203.154	<b>-10,9</b>
<i>EU30 net of intra-Europe</i>	<i>9952</i>	<i>10980</i>	<i>10,3</i>	Australia & New Zealand	142.595	123.719	<b>-13,2</b>
Japan	829	892	<b>7,6</b>	<i>EU30 net of intra-Europe</i>	<i>410.351</i>	<i>349.589</i>	<b>-14,8</b>
EU28+Norw+Swiz	23152	23648	<b>2,1</b>	Non-EU Europe	74.522	60.509	<b>-18,8</b>
India	4164	4154	<b>-0,2</b>	China	640.525	515.603	<b>-19,5</b>
Non-EU Europe	1335	1310	<b>-1,9</b>	EU28+Norw+Swiz	1.033.717	795.069	<b>-23,1</b>
China	7934	6449	<b>-18,7</b>	Middle East & North Africa	691.751	512.675	<b>-25,9</b>
Russia	2281	1673	<b>-26,7</b>	Russia	178.264	115.100	<b>-35,4</b>
<b>Total</b>	<b>65107</b>	<b>78021</b>	<b>19,8</b>	<b>Total</b>	<b>4.863.940</b>	<b>4.457.620</b>	<b>-8,4</b>

Source: Authors' elaboration on fDi Markets database.

Note: Values on capital investment are in millions of dollars at current prices.

**Table B.4 Number of outward FDIs by region of origin, 2003-2014**

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total	% by region
<b>Advanced economies</b>	<b>7463</b>	<b>8026</b>	<b>8511</b>	<b>9732</b>	<b>10189</b>	<b>13167</b>	<b>10704</b>	<b>11241</b>	<b>12446</b>	<b>11053</b>	<b>10383</b>	<b>10224</b>	<b>123139</b>	<b>86,04</b>
North America	2568	2690	3005	3185	3010	3842	3164	3349	3876	3403	3102	3061	38255	26,7
EU28+Norw+Swiz	3368	3771	4160	5034	5766	7214	5988	6128	6668	5889	5716	5353	65055	45,5
Japan	856	985	749	803	713	1112	781	921	1015	1005	852	874	10666	7,5
Four Asian Tigers	523	453	440	562	556	768	574	629	610	532	477	685	6809	4,8
Australia & New Zealand	148	127	157	148	144	231	197	214	277	224	236	251	2354	1,6
<b>Emerging economies</b>	<b>960</b>	<b>961</b>	<b>1010</b>	<b>1437</b>	<b>1409</b>	<b>2241</b>	<b>1907</b>	<b>2017</b>	<b>2231</b>	<b>1974</b>	<b>1943</b>	<b>1897</b>	<b>19987</b>	<b>14,0</b>
Non-EU Europe	39	51	38	86	66	73	55	82	68	50	71	48	727	0,5
Russia	112	101	121	137	120	174	143	149	156	133	119	113	1578	1,1
India	170	185	186	281	201	365	272	362	414	307	281	226	3250	2,3
China	97	94	126	123	218	276	329	355	434	353	325	402	3132	2,2
Rest of Asia	185	133	134	139	172	289	259	207	212	205	175	224	2334	1,6
Middle East & North Africa	218	216	278	483	372	702	503	493	506	569	512	549	5401	3,8
Sub-Saharan Africa	43	37	44	65	55	150	143	128	185	157	205	146	1358	0,9
Latin America	96	144	83	123	205	212	203	241	256	200	255	189	2207	1,5
<b>Total</b>	<b>8423</b>	<b>8987</b>	<b>9521</b>	<b>11169</b>	<b>11598</b>	<b>15408</b>	<b>12611</b>	<b>13258</b>	<b>14677</b>	<b>13027</b>	<b>12326</b>	<b>12121</b>	<b>143126</b>	<b>100</b>

Source: Authors' elaboration on fDi Markets database.

**Table B.5 Capital investment of outward FDIs by region of destination, 2003-2014**

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total	% by region
<b>Advanced economies</b>	<b>611.018</b>	<b>535.763</b>	<b>523.377</b>	<b>604.068</b>	<b>626.121</b>	<b>1.002.210</b>	<b>733.280</b>	<b>616.885</b>	<b>632.697</b>	<b>453.721</b>	<b>504.455</b>	<b>508.056</b>	<b>7.351.652</b>	<b>78,9</b>
North America	206.898	163.586	193.155	158.226	137.037	282.205	197.355	153.498	173.411	121.140	133.730	151.551	<b>2.071.792</b>	22,2
EU28+Norw+Swiz	273.477	223.241	229.277	291.344	365.946	533.586	388.305	328.013	309.232	213.564	226.363	229.886	<b>3.612.234</b>	38,8
Japan	50.157	85.154	46.345	81.704	48.322	76.798	61.902	51.101	73.680	46.905	52.280	50.201	<b>724.549</b>	7,8
Four Asian Tigers	55.124	53.113	39.345	55.913	61.101	79.391	68.388	72.287	62.719	62.838	80.658	62.763	<b>753.638</b>	8,1
Australia & New Zealand	25.362	10.670	15.255	16.883	13.715	30.230	17.331	11.986	13.655	9.274	11.424	13.654	<b>189.439</b>	2,0
<b>Emerging economies</b>	<b>92.681</b>	<b>82.251</b>	<b>116.947</b>	<b>184.819</b>	<b>181.453</b>	<b>302.931</b>	<b>193.292</b>	<b>153.309</b>	<b>201.752</b>	<b>128.191</b>	<b>142.584</b>	<b>189.384</b>	<b>1.969.594</b>	<b>21,1</b>
Non-EU Europe	1.015	1.501	826	7.718	2.978	5.533	1.425	4.234	1.630	1.825	6.192	954	<b>35.830</b>	0,4
Russia	21.379	13.662	21.027	11.708	12.515	14.552	14.718	14.541	14.128	4.032	16.274	4.441	<b>162.977</b>	1,7
China	15.519	6.465	8.284	15.893	31.129	47.343	25.532	20.069	40.899	19.199	21.700	64.435	<b>316.468</b>	3,4
India	9.350	10.251	8.166	30.204	16.871	35.525	17.113	18.945	31.537	25.706	13.595	13.095	<b>230.358</b>	2,5
Rest of Asia	16.508	7.485	13.323	15.858	37.006	30.389	28.476	27.229	21.010	26.157	10.658	18.068	<b>252.167</b>	2,7
Middle East & North Africa	13.444	13.357	46.443	91.517	67.089	145.024	83.692	35.444	41.429	37.332	40.859	70.618	<b>686.248</b>	7,4
Sub-Saharan Africa	4.025	17.828	2.898	3.293	2.799	6.886	9.584	11.935	31.679	4.102	14.503	9.656	<b>119.189</b>	1,3
Latin America	11.441	11.703	15.981	8.630	11.065	17.678	12.752	20.913	19.439	9.837	18.802	8.117	<b>166.357</b>	1,8
<b>Total</b>	<b>703.699</b>	<b>618.014</b>	<b>640.324</b>	<b>788.888</b>	<b>807.574</b>	<b>1.305.141</b>	<b>926.573</b>	<b>770.194</b>	<b>834.449</b>	<b>581.911</b>	<b>647.039</b>	<b>697.440</b>	<b>9.321.246</b>	<b>100</b>

Source: Authors' elaboration on fDi Markets database.

Note: Values on capital investment are in millions of dollars at current prices.

**Table B.6 Rate of change of outward FDIs by region of origin before (2003-2008) and after the crisis (2009-2014)**

	<b>(a) number</b>			<b>(b) capital investment</b>			
	<b>2003-2008</b>	<b>2009-2014</b>	<b>% change</b>	<b>2003-2008</b>	<b>2009-2014</b>	<b>% change</b>	
Sub-Saharan Africa	394	964	<b>144,7</b>	Sub-Saharan Africa	37.730	81.459	<b>115,9</b>
China	934	2198	<b>135,3</b>	China	124.633	191.835	<b>53,9</b>
Latin America	863	1344	<b>55,7</b>	Four Asian Tigers	343.985	409.653	<b>19,1</b>
Australia & New Zealand	955	1399	<b>46,5</b>	Latin America	76.497	89.859	<b>17,5</b>
Middle East & North Africa	2269	3132	<b>38,0</b>	Rest of Asia	120.569	131.598	<b>9,1</b>
India	1388	1862	<b>34,1</b>	India	110.367	119.991	<b>8,7</b>
EU28+Norw+Swiz	29313	35742	<b>21,9</b>	EU28+Norw+Swiz	1.916.871	1.695.363	<b>-11,6</b>
Rest of Asia	1052	1282	<b>21,9</b>	Japan	388.481	336.069	<b>-13,5</b>
North America	18300	19955	<b>9,0</b>	Non-EU Europe	19.569	16.261	<b>-16,9</b>
Russia	765	813	<b>6,3</b>	Middle East & North Africa	376.873	309.375	<b>-17,9</b>
Four Asian Tigers	3302	3507	<b>6,2</b>	North America	1.141.107	930.685	<b>-18,4</b>
Non-EU Europe	353	374	<b>5,9</b>	Russia	94.843	68.134	<b>-28,2</b>
Japan	5218	5448	<b>4,4</b>	Australia & New Zealand	112.115	77.324	<b>-31,0</b>
<b>Total</b>	<b>65106</b>	<b>78020</b>	<b>19,8</b>	<b>Total</b>	<b>4.863.640</b>	<b>4.457.605</b>	<b>-8,3</b>

Source: Authors' elaboration on fDi Markets database.

Note: Values on capital investment are in millions of dollars at current prices.



## Appendix C

### Total FDI projects: Table C.1-C.3

**Table C.1 Number of FDIs by source and destination regions, 2003-2014. Intra-regions FDIs on the main diagonal**

Destination regions	Source regions													Total
	Australia & New Zealand	China	EU28+Norw+Swiz	Four Asian Tigers	India	Japan	Latin America	Middle East & North Africa	Non-EU Europe	North America	Rest of Asia	Russia	Sub-Saharan Africa	
Australia & New Zealand	157	83	1240	125	96	162	13	71	1	1142	57	6	18	3171
China	184	0	4754	2114	203	2138	82	204	34	4290	281	71	28	14383
EU28+Norw+Swiz	539	1030	25868	955	725	1924	308	1136	272	13171	235	477	160	46800
Four Asian Tigers	206	337	2661	266	193	710	55	151	16	2612	140	40	16	7403
India	98	125	3103	487	0	720	21	433	10	3078	156	54	33	8318
Japan	40	63	582	131	28	0	14	17	1	798	28	17	2	1721
Latin America	116	227	4705	291	176	664	1212	110	27	4302	32	66	49	11977
Middle East & North Africa	118	157	4457	330	591	320	47	1833	41	2254	190	131	68	10537
Non-EU Europe	7	24	1788	33	11	28	4	143	69	282	26	228	2	2645
North America	453	388	8546	565	433	1509	352	369	44	2723	113	78	53	15626
Rest of Asia	314	416	3188	1277	426	2163	39	484	58	2090	942	363	20	11780
Russia	10	110	2391	111	46	207	14	130	146	710	72	0	7	3954
Sub-Saharan Africa	112	172	1772	124	322	121	46	320	8	803	62	47	902	4811
<b>Total</b>	<b>2354</b>	<b>3132</b>	<b>65055</b>	<b>6809</b>	<b>3250</b>	<b>10666</b>	<b>2207</b>	<b>5401</b>	<b>727</b>	<b>38255</b>	<b>2334</b>	<b>1578</b>	<b>1358</b>	<b>143126</b>

Source: Authors' elaboration on fDi Markets database.

**Table C.2 Share of FDIs (based on number of FDI projects) by destination region (% by source region), 2003-2014. Intra-regions FDIs on the main diagonal**

Destination regions	Source regions													Total
	Australia & New Zealand	China	EU28+Norw+Swiz	Four Asian Tigers	India	Japan	Latin America	Middle East & North Africa	Non-EU Europe	North America	Rest of Asia	Russia	Sub-Saharan Africa	
Australia & New Zealand	5	3	39	4	3	5	0	2	0	36	2	0	1	100
China	1	0	33	15	1	15	1	1	0	30	2	0	0	100
EU28+Norw+Swiz	1	2	55	2	2	4	1	2	1	28	1	1	0	100
Four Asian Tigers	3	5	36	4	3	10	1	2	0	35	2	1	0	100
India	1	2	37	6	0	9	0	5	0	37	2	1	0	100
Japan	2	4	34	8	2	0	1	1	0	46	2	1	0	100
Latin America	1	2	39	2	1	6	10	1	0	36	0	1	0	100
Middle East & North Africa	1	1	42	3	6	3	0	17	0	21	2	1	1	100
Non-EU Europe	0	1	68	1	0	1	0	5	3	11	1	9	0	100
North America	3	2	55	4	3	10	2	2	0	17	1	0	0	100
Rest of Asia	3	4	27	11	4	18	0	4	0	18	8	3	0	100
Russia	0	3	60	3	1	5	0	3	4	18	2	0	0	100
Sub-Saharan Africa	2	4	37	3	7	3	1	7	0	17	1	1	19	100
<b>Total</b>	<b>2</b>	<b>2</b>	<b>45</b>	<b>5</b>	<b>2</b>	<b>7</b>	<b>1,5</b>	<b>4</b>	<b>1</b>	<b>27</b>	<b>2</b>	<b>1,1</b>	<b>0,9</b>	<b>100</b>

Source: Authors' elaboration on fDi Markets database.

**Table C.3 Share of FDIs (based on number of FDI projects) by source region (% by destination region), 2003-2014. Intra-regions FDIs on the main diagonal**

Destination regions	Source regions													Total
	Australia & New Zealand	China	EU28+Norw+Swiz	Four Asian Tigers	India	Japan	Latin America	Middle East & North Africa	Non-EU Europe	North America	Rest of Asia	Russia	Sub-Saharan Africa	
Australia & New Zealand	7	3	2	2	3	2	1	1	0	3	2	0	1	2
China	8	0	7	31	6	20	4	4	5	11	12	4	2	10
EU28+Norw+Swiz	23	33	40	14	22	18	14	21	37	34	10	30	12	33
Four Asian Tigers	9	11	4	4	6	7	2	3	2	7	6	3	1	5
India	4	4	5	7	0	7	1	8	1	8	7	3	2	6
Japan	2	2	1	2	1	0	1	0	0	2	1	1	0	1,2
Latin America	5	7	7	4	5	6	55	2	4	11	1	4	4	8
Middle East & North Africa	5	5	7	5	18	3	2	34	6	6	8	8	5	7
Non-EU Europe	0	1	3	0	0	0	0	3	9	1	1	14	0	2
North America	19	12	13	8	13	14	16	7	6	7	5	5	4	11
Rest of Asia	13	13	5	19	13	20	2	9	8	5	40	23	1	8
Russia	0	4	4	2	1	2	1	2	20	2	3	0	1	3
Sub-Saharan Africa	5	5	3	2	10	1	2	6	1	2	3	3	66	3
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Source: Authors' elaboration on fDi Markets database.

FDI projects in digital industries: Table C.4-C.6

**Table C.4 Number of FDIs in digital industries by source and destination regions, 2003-2014. Intra-region FDIs on the main diagonal**

Destination regions	Source regions													Total
	Australia & New Zealand	China	EU28+Norw+Swiz	Four Asian Tigers	India	Japan	Latin America	Middle East & North Africa	Non-EU Europe	North America	Rest of Asia	Russia	Sub-Saharan Africa	
Australia & New Zealand	54	27	293	33	40	47	2	11	1	590	7	2	8	1115
China	18	0	639	478	51	377	8	22	1	1234	37	8	6	2879
EU28+Norw+Swiz	145	340	4972	330	231	424	61	138	34	5177	21	82	34	11989
Four Asian Tigers	70	90	713	94	62	215	4	42	3	1176	28	7	5	2509
India	26	43	575	129	0	112	5	48	2	1498	14	9	16	2477
Japan	11	26	194	36	14	0	1	9	0	403	8	5	1	708
Latin America	13	57	864	83	52	98	368	34	3	1011	6	21	16	2626
Middle East & North Africa	22	35	672	56	90	38	2	177	3	640	15	19	11	1780
Non-EU Europe	1	5	173	7	2	8	1	15	7	68	0	50	0	337
North America	148	118	2145	159	159	214	63	128	15	652	18	26	20	3865
Rest of Asia	39	47	428	198	57	317	2	44	4	533	58	77	3	1807
Russia	1	15	247	20	8	19	1	8	10	168	0	0	0	497
Sub-Saharan Africa	7	42	266	20	72	26	7	69	1	185	6	6	122	829
<b>Total</b>	<b>555</b>	<b>845</b>	<b>12181</b>	<b>1643</b>	<b>838</b>	<b>1895</b>	<b>525</b>	<b>745</b>	<b>84</b>	<b>13335</b>	<b>218</b>	<b>312</b>	<b>242</b>	<b>33418</b>

Source: Authors' elaboration on fDi Markets database.

**Table C.5 Share of FDIs (based on number of FDI projects) in digital industries by destination region (% by source region), 2003-2014. Intra-region FDIs on the main diagonal**

Destination regions	Source regions													Total
	Australia & New Zealand	China	EU28+Norw+Swiz	Four Asian Tigers	India	Japan	Latin America	Middle East & North Africa	Non-EU Europe	North America	Rest of Asia	Russia	Sub-Saharan Africa	
Australia & New Zealand	5	2	26	3	4	4	0,2	1	0,1	53	1	0,2	1	100
China	1	0	22	17	2	13	0,3	1	0	43	1	0,3	0,2	100
EU28+Norw+Swiz	1	3	41	3	2	4	1	1	0,3	43	0,2	1	0,3	100
Four Asian Tigers	3	4	28	4	2	9	0,2	2	0,1	47	1	0,3	0,2	100
India	1	2	23	5	0	5	0,2	2	0,1	60	1	0,4	1	100
Japan	2	4	27	5	2	0	0,1	1	0	57	1	1	0,1	100
Latin America	0,5	2	33	3	2	4	14	1	0,1	38	0,2	1	1	100
Middle East & North Africa	1	2	38	3	5	2	0,1	10	0,2	36	1	1	1	100
Non-EU Europe	0,3	1	51	2	1	2	0,3	4	2	20	0	15	0	100
North America	4	3	55	4	4	6	2	3	0,4	17	0,5	1	1	100
Rest of Asia	2	3	24	11	3	18	0,1	2	0,2	29	3	4	0,2	100
Russia	0,2	3	50	4	2	4	0,2	2	2	34	0	0	0	100
Sub-Saharan Africa	1	5	32	2	9	3	1	8	0,1	22	1	1	15	100
<b>Total</b>	<b>2</b>	<b>3</b>	<b>36</b>	<b>5</b>	<b>3</b>	<b>6</b>	<b>1,6</b>	<b>2</b>	<b>0,3</b>	<b>40</b>	<b>0,7</b>	<b>0,9</b>	<b>0,7</b>	<b>100</b>

Source: Authors' elaboration on fDi Markets database.

**Table C.6 Share of FDIs (based on number of FDI projects) in digital industries by source region (% by destination region), 2003-2014. Intra-region FDIs on the main diagonal**

Destination regions	Source regions													Total
	Australia & New Zealand	China	EU28+Norw+Swiz	Four Asian Tigers	India	Japan	Latin America	Middle East & North Africa	Non-EU Europe	North America	Rest of Asia	Russia	Sub-Saharan Africa	
Australia & New Zealand	10	3	2	2	5	2	0,4	1	1	4	3	1	3	3
China	3	0	5	29	6	20	2	3	1	9	17	3	2	9
EU28+Norw+Swiz	26	40	41	20	28	22	12	19	40	39	10	26	14	36
Four Asian Tigers	13	11	6	6	7	11	1	6	4	9	13	2	2	8
India	5	5	5	8	0	6	1	6	2	11	6	3	7	7
Japan	2	3	2	2	2	0	0,2	1	0	3	4	2	0,4	2,1
Latin America	2	7	7	5	6	5	70	5	4	8	3	7	7	8
Middle East & North Africa	4	4	6	3	11	2	0,4	24	4	5	7	6	5	5
Non-EU Europe	0,2	1	1	0,4	0,2	0,4	0,2	2	8	1	0	16	0	1
North America	27	14	18	10	19	11	12	17	18	5	8	8	8	12
Rest of Asia	7	6	4	12	7	17	0,4	6	5	4	27	25	1	5
Russia	0,2	2	2	1	1	1	0,2	1	12	1	0	0	0	1
Sub-Saharan Africa	1	5	2	1	9	1	1	9	1	1	3	2	50	2
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Source: Authors' elaboration on fDi Markets database.

FDI projects related to technological activities: Table C.7-C.9

**Table C.7 Number of FDI projects related to technological activities (R&D, DDT and ICT & Internet infrastructure) by source and destination regions, 2003-2014. Intra-region FDI projects on the main diagonal**

Destination regions	Source regions													Total
	Australia & New Zealand	China	EU28+Norw+Swiz	Four Asian Tigers	India	Japan	Latin America	Middle East & North Africa	Non-EU Europe	North America	Rest of Asia	Russia	Sub-Saharan Africa	
Australia & New Zealand	7	3	75	12	11	21	0	1	0	150	2	0	0	282
China	5	0	402	116	26	152	1	7	0	633	4	1	2	1349
EU28+Norw+Swiz	18	101	1566	71	74	175	11	47	6	1651	7	17	15	3759
Four Asian Tigers	13	33	255	24	18	89	2	13	0	471	9	3	2	932
India	10	16	403	50	0	65	0	35	1	959	3	2	2	1546
Japan	2	10	66	9	2	0	0	0	0	107	1	1	0	198
Latin America	1	15	330	6	26	16	99	5	2	366	3	2	2	873
Middle East & North Africa	1	6	173	14	21	7	1	41	0	186	1	1	2	454
Non-EU Europe	0	0	56	2	0	1	0	8	3	22	0	29	0	121
North America	13	55	631	61	68	138	6	16	0	240	6	4	1	1239
Rest of Asia	9	13	162	42	24	103	0	14	0	158	18	18	1	562
Russia	0	6	92	5	2	6	0	3	3	65	1	0	0	183
Sub-Saharan Africa	1	7	105	5	31	6	1	22	0	47	4	0	61	290
<b>Total</b>	<b>80</b>	<b>265</b>	<b>4316</b>	<b>417</b>	<b>303</b>	<b>779</b>	<b>121</b>	<b>212</b>	<b>15</b>	<b>5055</b>	<b>59</b>	<b>78</b>	<b>88</b>	<b>11788</b>

Source: Authors' elaboration on fDi Markets database.

**Table C.8 Share of FDI projects (based on number of FDI projects) related to technological activities (R&D, DDT and ICT & Internet infrastructure) by destination region (% by source region), 2003-2014. Intra-region FDI projects on the main diagonal**

Destination regions	Source regions													Total
	Australia & New Zealand	China	EU28+Norw+Swiz	Four Asian Tigers	India	Japan	Latin America	Middle East & North Africa	Non-EU Europe	North America	Rest of Asia	Russia	Sub-Saharan Africa	
Australia & New Zealand	2	1	27	4	4	7	0	0,4	0	53	1	0	0	100
China	0,4	0	30	9	2	11	0,1	1	0	47	0,3	0,1	0,1	100
EU28+Norw+Swiz	0,5	3	42	2	2	5	0,3	1	0,2	44	0,2	0,5	0,4	100
Four Asian Tigers	1	4	27	3	2	10	0,2	1	0	51	1	0,3	0,2	100
India	1	1	26	3	0	4	0	2	0,1	62	0,2	0,1	0,1	100
Japan	1	5	33	5	1	0	0	0	0	54	1	1	0	100
Latin America	0,1	2	38	1	3	2	11	1	0,2	42	0,3	0,2	0,2	100
Middle East & North Africa	0,2	1	38	3	5	2	0,2	9	0	41	0,2	0,2	0,4	100
Non-EU Europe	0	0	46	2	0	1	0	7	2	18	0	24	0	100
North America	1	4	51	5	5	11	0,5	1	0	19	0,5	0,3	0,1	100
Rest of Asia	2	2	29	7	4	18	0	2	0	28	3	3	0,2	100
Russia	0	3	50	3	1	3	0	2	2	36	1	0	0	100
Sub-Saharan Africa	0,3	2	36	2	11	2	0,3	8	0	16	1	0	21	100
<b>Total</b>	<b>1</b>	<b>2</b>	<b>37</b>	<b>4</b>	<b>3</b>	<b>7</b>	<b>1,0</b>	<b>2</b>	<b>0,1</b>	<b>43</b>	<b>1</b>	<b>0,7</b>	<b>0,7</b>	<b>100</b>

Source: Authors' elaboration on fDi Markets database.

**Table C.9 Share of FDI projects (based on number of FDI projects) related to technological activities (R&D, DDT and ICT & Internet infrastructure) by source region (% by destination region), 2003-2014. Intra-region FDI projects on the main diagonal**

Destination regions	Source regions													Total
	Australia & New Zealand	China	EU28+Norw+Swiz	Four Asian Tigers	India	Japan	Latin America	Middle East & North Africa	Non-EU Europe	North America	Rest of Asia	Russia	Sub-Saharan Africa	
Australia & New Zealand	9	1	2	3	4	3	0	0,5	0	3	3	0	0	2
China	6	0	9	28	9	20	1	3	0	13	7	1	0,1	11
EU28+Norw+Swiz	23	38	36	17	24	22	9	22	40	33	12	22	17	32
Four Asian Tigers	16	12	6	6	6	11	2	6	0	9	15	4	2	8
India	13	6	9	12	0	8	0	17	7	19	5	3	2	13
Japan	3	4	2	2	1	0	0	0	0	2	2	1	0	1,7
Latin America	1	6	8	1	9	2	82	2	13	7	5	3	2	7
Middle East & North Africa	1	2	4	3	7	1	1	19	0	4	2	1	2	4
Non-EU Europe	0	0	1	0,5	0	0,1	0	4	20	0,4	0	37	0	1
North America	16	21	15	15	22	18	5	8	0	5	10	5	1	11
Rest of Asia	11	5	4	10	8	13	0	7	0	3	31	23	1	5
Russia	0	2	2	1	1	1	0	1	20	1	2	0	0	2
Sub-Saharan Africa	1	3	2	1	10	1	1	10	0	1	7	0	69	2
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Source: Authors' elaboration on fDi Markets database.

FDI projects related to manufacturing activity: Table C.10-C.12

**Table C.10 Number of FDI in manufacturing activity by source and destination regions, 2003-2014. Intra-region FDI on the main diagonal**

Destination regions	Source regions													Total
	Australia & New Zealand	China	EU28+Norw+Swiz	Four Asian Tigers	India	Japan	Latin America	Middle East & North Africa	Non-EU Europe	North America	Rest of Asia	Russia	Sub-Saharan Africa	
Australia & New Zealand	22	13	111	10	5	35	3	4	0	89	8	3	3	306
China	45	0	1924	970	53	1230	31	42	10	1274	106	14	10	5709
EU28+Norw+Swiz	49	141	6141	261	126	677	83	169	68	2070	48	74	25	9932
Four Asian Tigers	8	22	264	30	6	234	3	7	0	283	11	2	0	870
India	12	54	1005	145	0	319	9	63	3	472	53	11	8	2154
Japan	1	2	62	10	3	0	3	1	0	48	0	0	0	130
Latin America	32	101	1485	162	61	416	322	22	10	1313	7	10	4	3945
Middle East & North Africa	15	57	804	56	127	91	13	246	7	254	37	26	9	1742
Non-EU Europe	1	14	648	14	4	10	0	47	26	79	8	60	0	911
North America	91	81	2223	197	69	797	116	64	5	620	21	16	8	4308
Rest of Asia	79	206	904	525	139	1331	9	82	12	518	319	57	6	4187
Russia	5	57	919	51	23	74	7	44	43	216	18	0	2	1459
Sub-Saharan Africa	15	87	392	55	93	39	10	68	0	136	21	7	131	1054
<b>Total</b>	<b>375</b>	<b>835</b>	<b>16882</b>	<b>2486</b>	<b>709</b>	<b>5253</b>	<b>609</b>	<b>859</b>	<b>184</b>	<b>7372</b>	<b>657</b>	<b>280</b>	<b>206</b>	<b>36707</b>

Source: Authors' elaboration on fDi Markets database.

**Table C.11 Share of FDI (based on number of FDI projects) in manufacturing activity by destination region (% by source region), 2003-2014. Intra-region FDI on the main diagonal**

Destination regions	Source regions													Total
	Australia & New Zealand	China	EU28+Norw+Swiz	Four Asian Tigers	India	Japan	Latin America	Middle East & North Africa	Non-EU Europe	North America	Rest of Asia	Russia	Sub-Saharan Africa	
Australia & New Zealand	7	4	36	3	2	11	1	1	0	29	3	1	1	100
China	1	0	34	17	1	22	1	1	0,2	22	2	0,2	0,2	100
EU28+Norw+Swiz	0,5	1	62	3	1	7	1	2	1	21	0,5	1	0,3	100
Four Asian Tigers	1	3	30	3	1	27	0,3	1	0	33	1	0,2	0	100
India	1	3	47	7	0	15	0,4	3	0,1	22	2	1	0,4	100
Japan	1	2	48	8	2	0	2	1	0	37	0	0	0	100
Latin America	1	3	38	4	2	11	8	1	0,3	33	0,2	0,3	0,1	100
Middle East & North Africa	1	3	46	3	7	5	1	14	0,4	15	2	1	1	100
Non-EU Europe	0,1	2	71	2	0,4	1	0	5	3	9	1	7	0	100
North America	2	2	52	5	2	19	3	1	0,1	14	0,5	0,4	0,2	100
Rest of Asia	2	5	22	13	3	32	0,2	2	0,3	12	8	1	0,1	100
Russia	0,3	4	63	3	2	5	0,5	3	3	15	1	0	0,1	100
Sub-Saharan Africa	1	8	37	5	9	4	1	6	0	13	2	1	12	100
<b>Total</b>	<b>1</b>	<b>2</b>	<b>46</b>	<b>7</b>	<b>2</b>	<b>14</b>	<b>2</b>	<b>2</b>	<b>0,5</b>	<b>20</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>100</b>

Source: Authors' elaboration on fDi Markets database.

**Table C.12 Share of FDI (based on number of FDI projects) in manufacturing activity by source region (% by destination region), 2003-2014. Intra-region FDI on the main diagonal**

Destination regions	Source regions													Total
	Australia & New Zealand	China	EU28+Norw+Swiz	Four Asian Tigers	India	Japan	Latin America	Middle East & North Africa	Non-EU Europe	North America	Rest of Asia	Russia	Sub-Saharan Africa	
Australia & New Zealand	6	2	1	0,4	1	1	0,5	0,5	0	1	1	1	1	1
China	12	0	11	39	7	23	5	5	5	17	16	5	5	16
EU28+Norw+Swiz	13	17	36	10	18	13	14	20	37	28	7	26	12	27
Four Asian Tigers	2	3	2	1	1	4	0,5	1	0	4	2	1	0	2
India	3	6	6	6	0	6	1	7	2	6	8	4	4	6
Japan	0,3	0,2	0,4	0,4	0,4	0	0,5	0,1	0	1	0	0	0	0,4
Latin America	9	12	9	7	9	8	53	3	5	18	1	4	2	11
Middle East & North Africa	4	7	5	2	18	2	29	4	3	6	9	4	5	5
Non-EU Europe	0,3	2	4	1	1	0,2	0	5	14	1	1	21	0	2
North America	24	10	13	8	10	15	19	7	3	8	3	6	4	12
Rest of Asia	21	25	5	21	20	25	1	10	7	7	49	20	3	11
Russia	1	7	5	2	3	1	1	5	23	3	3	0	1	4
Sub-Saharan Africa	4	10	2	2	13	1	2	8	0	2	3	3	64	3
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Source: Authors' elaboration on fDi Markets database.

FDI projects related to SMS activity: Table C.13-C.15

**Table C.13 Number of FDIs in Sales, Marketing and Support activity by source and destination regions, 2003-2014. Intra-region FDIs on the main diagonal**

Destination regions	Source regions													Total
	Australia & New Zealand	China	EU28+Norw+Swiz	Four Asian Tigers	India	Japan	Latin America	Middle East & North Africa	Non-EU Europe	North America	Rest of Asia	Russia	Sub-Saharan Africa	
Australia & New Zealand	61	23	383	29	29	36	4	35	1	449	20	2	4	1076
China	38	0	1118	262	43	441	21	73	12	1050	48	33	5	3144
EU28+Norw+Swiz	192	464	6514	303	190	559	76	336	81	4052	74	160	42	13043
Four Asian Tigers	87	123	874	102	72	210	18	55	5	834	54	19	9	2462
India	31	32	650	105	0	212	7	96	3	676	36	20	8	1876
Japan	14	29	280	58	12	0	6	12	0	391	14	12	1	829
Latin America	18	47	1017	48	24	147	302	46	7	892	4	20	14	2586
Middle East & North Africa	37	32	1197	82	153	124	10	395	13	681	38	52	19	2833
Non-EU Europe	4	3	332	9	4	15	2	18	21	82	5	62	1	558
North America	168	112	2282	107	111	236	71	131	16	650	45	28	13	3970
Rest of Asia	65	51	775	225	60	390	8	122	25	513	150	117	1	2502
Russia	3	18	511	14	10	79	6	21	50	197	7	0	2	918
Sub-Saharan Africa	15	26	374	22	56	52	10	84	4	223	12	16	147	1041
<b>Total</b>	<b>733</b>	<b>960</b>	<b>16307</b>	<b>1366</b>	<b>764</b>	<b>2501</b>	<b>541</b>	<b>1424</b>	<b>238</b>	<b>10690</b>	<b>507</b>	<b>541</b>	<b>266</b>	<b>36838</b>

Source: Authors' elaboration on fDi Markets database.

**Table C.14 Share of FDIs in Sales, Marketing and Support activity (based on number of FDI projects) by destination region (% by source region), 2003-2014. Intra-region FDIs on the main diagonal**

Destination regions	Source regions													Total
	Australia & New Zealand	China	EU28+Norw+Swiz	Four Asian Tigers	India	Japan	Latin America	Middle East & North Africa	Non-EU Europe	North America	Rest of Asia	Russia	Sub-Saharan Africa	
Australia & New Zealand	6	2	36	3	3	3	0,4	3	0,1	42	2	0,2	0,4	100
China	1	0	36	8	1	14	1	2	0,4	33	2	1	0,2	100
EU28+Norw+Swiz	1	4	50	2	1	4	1	3	1	31	1	1	0,3	100
Four Asian Tigers	4	5	35	4	3	9	1	2	0,2	34	2	1	0,4	100
India	2	2	35	6	0	11	0,4	5	0,2	36	2	1	0,4	100
Japan	2	3	34	7	1	0	1	1	0	47	2	1	0,1	100
Latin America	1	2	39	2	1	6	12	2	0,3	34	0,2	1	1	100
Middle East & North Africa	1	1	42	3	5	4	0,4	14	0,5	24	1	2	1	100
Non-EU Europe	1	1	59	2	1	3	0,4	3	4	15	1	11	0,2	100
North America	4	3	57	3	3	6	2	3	0,4	16	1	1	0,3	100
Rest of Asia	3	2	31	9	2	16	0,3	5	1	21	6	5	0	100
Russia	0,3	2	56	2	1	9	1	2	5	21	1	0	0,2	100
Sub-Saharan Africa	1	2	36	2	5	5	1	8	0,4	21	1	2	14	100
<b>Total</b>	<b>2</b>	<b>3</b>	<b>44</b>	<b>4</b>	<b>2</b>	<b>7</b>	<b>1</b>	<b>4</b>	<b>1</b>	<b>29</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>100</b>

Source: Authors' elaboration on fDi Markets database.

**Table C.15 Share of FDIs (based on number of FDI projects) in Sales, Marketing and Support activity by source region (% by destination region), 2003-2014. Intra-region FDIs on the main diagonal**

Destination regions	Source regions													Total
	Australia & New Zealand	China	EU28+Norw+Swiz	Four Asian Tigers	India	Japan	Latin America	Middle East & North Africa	Non-EU Europe	North America	Rest of Asia	Russia	Sub-Saharan Africa	
Australia & New Zealand	8	2	2	2	4	1	1	2	0,4	4	4	0,4	2	3
China	5	0	7	19	6	18	4	5	5	10	9	6	2	9
EU28+Norw+Swiz	26	48	40	22	25	22	14	24	34	38	15	30	16	35
Four Asian Tigers	12	13	5	7	9	8	3	4	2	8	11	4	3	7
India	4	3	4	8	0	8	1	7	1	6	7	4	3	5
Japan	2	3	2	4	2	0	1	1	0	4	3	2	0,4	2
Latin America	2	5	6	4	3	6	56	3	3	8	1	4	5	7
Middle East & North Africa	5	3	7	6	20	5	2	28	5	6	7	10	7	8
Non-EU Europe	1	0,3	2	1	1	1	0,4	1	9	1	1	11	0,4	2
North America	23	12	14	8	15	9	13	9	7	6	9	5	5	11
Rest of Asia	9	5	5	16	8	16	1	9	11	5	30	22	0,4	7
Russia	0,4	2	3	1	1	3	1	1	21	2	1	0	1	2
Sub-Saharan Africa	2	3	2	2	7	2	2	6	2	2	2	3	55	3
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Source: Authors' elaboration on fDi Markets database.

Total FDI projects: Table C.16-C.18

**Table C.16 Capital investment of FDI by source and destination regions, 2003-2014. Intra-regions FDI on the main diagonal**

Destination regions	Source regions													Total
	Australia & New Zealand	China	EU28+Norw+Swiz	Four Asian Tigers	India	Japan	Latin America	Middle East & North Africa	Non-EU Europe	North America	Rest of Asia	Russia	Sub-Saharan Africa	
Australia & New Zealand	5.229	10.929	76.224	7.724	9.560	68.617	573	3.674	25	63.436	18.946	276	1.103	<b>266.314</b>
China	12.568	-	339.365	290.167	11.442	135.531	4.105	37.926	2.078	266.854	42.304	5.890	7.899	<b>1.156.128</b>
EU28+Norw+Swiz	30.344	28.200	1.068.846	44.025	24.105	67.319	10.226	55.897	11.339	423.213	21.325	38.824	5.124	<b>1.828.786</b>
Four Asian Tigers	6.753	16.532	109.429	19.862	5.935	45.922	1.327	6.651	424	120.239	13.782	2.291	263	<b>349.409</b>
India	5.896	14.896	158.167	40.628	-	41.304	1.171	35.159	200	120.112	9.496	2.909	1.294	<b>431.232</b>
Japan	1.059	2.412	18.137	6.531	380	-	1.429	423	86	30.968	397	381	41	<b>62.244</b>
Latin America	26.662	42.408	434.330	75.671	8.769	48.597	105.667	9.046	2.602	360.661	3.983	7.837	3.244	<b>1.129.476</b>
Middle East & North Africa	12.260	35.308	355.727	38.238	62.469	43.330	5.854	380.283	2.622	185.734	36.715	34.488	11.082	<b>1.204.111</b>
Non-EU Europe	164	2.250	87.555	1.269	1.057	990	49	9.635	1.212	13.723	787	16.192	149	<b>135.031</b>
North America	25.972	24.353	363.876	47.399	13.510	83.649	17.071	21.014	875	148.081	2.706	3.847	23.954	<b>776.304</b>
Rest of Asia	33.189	85.646	216.388	155.902	41.427	165.785	8.709	84.485	2.406	167.226	91.149	42.995	5.212	<b>1.100.518</b>
Russia	635	19.153	180.353	9.758	2.408	14.548	1.029	15.232	7.342	39.286	3.219	-	400	<b>293.363</b>
Sub-Saharan Africa	28.709	34.380	203.838	16.464	49.297	8.958	9.147	26.825	4.620	132.261	7.359	7.046	59.425	<b>588.328</b>
<b>Total</b>	<b>189.439</b>	<b>316.468</b>	<b>3.612.233</b>	<b>753.638</b>	<b>230.358</b>	<b>724.549</b>	<b>166.357</b>	<b>686.248</b>	<b>35.830</b>	<b>2.071.792</b>	<b>252.167</b>	<b>162.977</b>	<b>119.189</b>	<b>9.321.245</b>

Source: Authors' elaboration on fDi Markets database.

Note: Values on capital investment are in millions of dollars at current prices.

**Table C.17 Share of FDI (based on capital investment of FDI projects) by destination region (% by source region), 2003-2014. Intra-regions FDI on the main diagonal**

Destination regions	Source regions													Total
	Australia & New Zealand	China	EU28+Norw+Swiz	Four Asian Tigers	India	Japan	Latin America	Middle East & North Africa	Non-EU Europe	North America	Rest of Asia	Russia	Sub-Saharan Africa	
Australia & New Zealand	2	4	29	3	4	26	0	1	0	24	7	0	0	<b>100</b>
China	1	0	29	25	1	12	0	3	0	23	4	1	1	<b>100</b>
EU28+Norw+Swiz	2	2	58	2	1	4	1	3	1	23	1	2	0	<b>100</b>
Four Asian Tigers	2	5	31	6	2	13	0	2	0	34	4	1	0	<b>100</b>
India	1	3	37	9	0	10	0	8	0	28	2	1	0	<b>100</b>
Japan	2	4	29	10	1	0	2	1	0	50	1	1	0	<b>100</b>
Latin America	2	4	38	7	1	4	9	1	0	32	0	1	0	<b>100</b>
Middle East & North Africa	1	3	30	3	5	4	0	32	0	15	3	3	1	<b>100</b>
Non-EU Europe	0	2	65	1	1	1	0	7	1	10	1	12	0	<b>100</b>
North America	3	3	47	6	2	11	2	3	0	19	0	0	3	<b>100</b>
Rest of Asia	3	8	20	14	4	15	1	8	0	15	8	4	0	<b>100</b>
Russia	0	7	61	3	1	5	0	5	3	13	1	0	0	<b>100</b>
Sub-Saharan Africa	5	6	35	3	8	2	2	5	1	22	1	1	10	<b>100</b>
<b>Total</b>	<b>2</b>	<b>3</b>	<b>39</b>	<b>8</b>	<b>2</b>	<b>8</b>	<b>2</b>	<b>7</b>	<b>0,4</b>	<b>22</b>	<b>3</b>	<b>2</b>	<b>1,3</b>	<b>100</b>

Source: Authors' elaboration on fDi Markets database.

Note: Values on capital investment are in millions of dollars at current prices.

**Table C.18 Share of FDI (based on capital investment of FDI projects) by source region (% by destination region), 2003-2014. Intra-regions FDI on the main diagonal**

Destination regions	Source regions													Total
	Australia & New Zealand	China	EU28+Norw+Swiz	Four Asian Tigers	India	Japan	Latin America	Middle East & North Africa	Non-EU Europe	North America	Rest of Asia	Russia	Sub-Saharan Africa	
Australia & New Zealand	3	3	2	1	4	9	0	1	0	3	8	0	1	<b>3</b>
China	7	0	9	39	5	19	2	6	6	13	17	4	7	<b>12</b>
EU28+Norw+Swiz	16	9	30	6	10	9	6	8	32	20	8	24	4	<b>20</b>
Four Asian Tigers	4	5	3	3	3	6	1	1	1	6	5	1	0	<b>4</b>
India	3	5	4	5	0	6	1	5	1	6	4	2	1	<b>5</b>
Japan	1	1	1	1	0	0	1	0	0	1	0	0	0	<b>0,7</b>
Latin America	14	13	12	10	4	7	64	1	7	17	2	5	3	<b>12</b>
Middle East & North Africa	6	11	10	5	27	6	4	55	7	9	15	21	9	<b>13</b>
Non-EU Europe	0	1	2	0	0	0	0	1	3	1	0	10	0	<b>1,4</b>
North America	14	8	10	6	6	12	10	3	2	7	1	2	20	<b>8</b>
Rest of Asia	18	27	6	21	18	23	5	12	7	8	36	26	4	<b>12</b>
Russia	0	6	5	1	1	2	1	2	20	2	1	0	0	<b>3</b>
Sub-Saharan Africa	15	11	6	2	21	1	5	4	13	6	3	4	50	<b>6</b>
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Source: Authors' elaboration on fDi Markets database.

Note: Values on capital investment are in millions of dollars at current prices.

FDI projects in digital industries: Table C.19-C.21

**Table C.19 Capital investment of FDIs in digital industries by source and destination regions, 2003-2014. Intra-region FDIs on the main diagonal**

Destination regions	Source regions													Total
	Australia & New Zealand	China	EU28+Norw+Swiz	Four Asian Tigers	India	Japan	Latin America	Middle East & North Africa	Non-EU Europe	North America	Rest of Asia	Russia	Sub-Saharan Africa	
Australia & New Zealand	972	730	7,464	1,762	469	1,852	15	170	25	16,685	193	51	87	30,476
China	382	-	21,360	74,682	2,531	18,974	220	141	3	50,617	2,001	196	381	171,488
EU28+Norw+Swiz	1,111	5,297	102,074	9,936	3,122	9,142	726	2,214	222	110,816	231	1,052	714	246,657
Four Asian Tigers	911	3,397	39,562	10,206	1,008	20,339	33	962	19	49,979	830	329	38	127,612
India	562	2,167	21,384	8,812	-	2,148	72	785	13	41,504	283	65	486	78,281
Japan	125	417	2,277	730	73	-	6	41	-	15,797	35	66	6	19,573
Latin America	67	3,983	66,010	3,150	775	2,920	23,649	1,464	28	48,667	978	304	477	152,471
Middle East & North Africa	144	1,143	14,486	1,697	1,560	568	9	8,206	38	19,125	293	162	361	47,793
Non-EU Europe	2	104	4,106	92	91	71	16	462	80	1,685	-	2,494	-	9,204
North America	1,648	3,335	46,256	20,399	3,677	10,601	555	4,084	136	24,600	201	228	209	115,929
Rest of Asia	349	3,690	14,626	19,989	1,495	18,308	71	3,024	22	25,989	2,366	1,879	91	152,471
Russia	16	426	6,448	619	201	307	3	136	210	2,591	-	-	-	10,957
Sub-Saharan Africa	37	2,402	13,373	1,502	4,632	879	104	7,183	6	5,397	618	33	13,384	49,548
<b>Total</b>	<b>6,325</b>	<b>27,091</b>	<b>359,426</b>	<b>153,576</b>	<b>19,633</b>	<b>86,110</b>	<b>25,481</b>	<b>28,872</b>	<b>802</b>	<b>413,451</b>	<b>8,028</b>	<b>6,858</b>	<b>16,235</b>	<b>1,151,888</b>

Source: Authors' elaboration on fDi Markets database.

Note: Values on capital investment are in millions of dollars at current prices.

**Table C.20 Share of FDIs (based on capital investment of FDI projects) in digital industries by destination region (% by source region), 2003-2014. Intra-region FDIs on the main diagonal**

Destination regions	Source regions													Total
	Australia & New Zealand	China	EU28+Norw+Swiz	Four Asian Tigers	India	Japan	Latin America	Middle East & North Africa	Non-EU Europe	North America	Rest of Asia	Russia	Sub-Saharan Africa	
Australia & New Zealand	3	2	24	6	2	6	0	1	0	55	1	0	0	100
China	0	0	12	44	1	11	0	0	0	30	1	0	0	100
EU28+Norw+Swiz	0	2	41	4	1	4	0	1	0	45	0	0	0	100
Four Asian Tigers	1	3	31	8	1	16	0	1	0	39	1	0	0	100
India	1	3	27	11	0	3	0	1	0	53	0	0	1	100
Japan	1	2	12	4	0	0	0	0	0	81	0	0	0	100
Latin America	0	3	43	2	1	2	16	1	0	32	1	0	0	100
Middle East & North Africa	0	2	30	4	3	1	0	17	0	40	1	0	1	100
Non-EU Europe	0	1	45	1	1	1	0	5	1	18	0	27	0	100
North America	1	3	40	18	3	9	0	4	0	21	0	0	0	100
Rest of Asia	0	4	16	22	2	20	0	3	0	28	3	2	0	100
Russia	0	4	59	6	2	3	0	1	2	24	0	0	0	100
Sub-Saharan Africa	0	5	27	3	9	2	0	14	0	11	1	0	27	100
<b>Total</b>	<b>0,5</b>	<b>2</b>	<b>31</b>	<b>13</b>	<b>2</b>	<b>7</b>	<b>2</b>	<b>3</b>	<b>0,1</b>	<b>36</b>	<b>0,7</b>	<b>0,6</b>	<b>1,4</b>	<b>100</b>

Source: Authors' elaboration on fDi Markets database.

Note: Values on capital investment are in millions of dollars at current prices.

**Table C.21 Share of FDIs (based on capital investment of FDI projects) in digital industries by source region (% by destination region), 2003-2014. Intra-region FDIs on the main diagonal**

Destination regions	Source regions													Total
	Australia & New Zealand	China	EU28+Norw+Swiz	Four Asian Tigers	India	Japan	Latin America	Middle East & North Africa	Non-EU Europe	North America	Rest of Asia	Russia	Sub-Saharan Africa	
Australia & New Zealand	15	3	2	1	2	2	0	1	3	4	2	1	1	3
China	6	0	6	49	13	22	1	0	0	12	25	3	2	15
EU28+Norw+Swiz	18	20	28	6	16	11	3	8	28	27	3	15	4	21
Four Asian Tigers	14	13	11	7	5	24	0	3	2	12	10	5	0	11
India	9	8	6	6	0	2	0	3	2	10	4	1	3	7
Japan	2	2	1	0	0	0	0	0	0	4	0	1	0	2
Latin America	1	15	18	2	4	3	93	5	3	12	12	4	3	13
Middle East & North Africa	2	4	4	1	8	1	0	28	5	5	4	2	2	4
Non-EU Europe	0	0	1	0	0	0	0	2	10	0	0	36	0	0,8
North America	26	12	13	13	19	12	2	14	17	6	3	3	1	10
Rest of Asia	6	14	4	13	8	21	0	10	3	6	29	27	1	8
Russia	0	2	2	0	1	0	0	0	26	1	0	0	0	1
Sub-Saharan Africa	1	9	4	1	24	1	0	25	1	1	8	0	82	4
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Source: Authors' elaboration on fDi Markets database.

Note: Values on capital investment are in millions of dollars at current prices.

FDI projects related to technological activities: Table C.22-C.24

**Table C.22 Capital investment of FDIs related to technological activities (R&D, DDT and ICT & Internet infrastructure) by source and destination regions, 2003-2014. Intra-region FDIs on the main diagonal**

Destination regions	Source regions													Total
	Australia & New Zealand	China	EU28+Norw+Swiz	Four Asian Tigers	India	Japan	Latin America	Middle East & North Africa	Non-EU Europe	North America	Rest of Asia	Russia	Sub-Saharan Africa	
Australia & New Zealand	304	169	3,816	1,255	145	1,420	-	16	-	7,985	100	-	-	15,208
China	46	-	17,010	7,071	1,924	5,702	22	232	-	27,230	179	107	56	59,578
EU28+Norw+Swiz	544	3,565	74,457	2,145	1,556	5,124	383	1,600	46	73,293	209	367	651	163,938
Four Asian Tigers	485	2,177	10,392	1,784	796	2,866	44	725	-	28,892	552	313	23	49,049
India	375	1,018	16,820	1,797	-	2,096	-	777	41	32,365	211	13	6	55,518
Japan	69	233	1,819	367	44	-	-	-	-	3,987	16	40	-	6,576
Latin America	15	2,553	63,330	210	536	1,879	22,231	1,350	39	42,919	680	248	294	136,285
Middle East & North Africa	16	202	9,809	1,108	798	395	11	6,025	-	7,398	150	1	268	26,180
Non-EU Europe	-	-	2,563	344	-	6	-	397	14	630	-	2,123	-	6,077
North America	391	2,672	33,349	2,520	2,965	6,877	195	661	-	23,625	203	92	7	73,557
Rest of Asia	110	1,910	6,801	4,060	1,369	3,636	-	2,595	-	6,478	1,891	1,534	79	30,462
Russia	-	159	3,071	120	97	150	-	112	17	1,344	15	-	-	5,085
Sub-Saharan Africa	11	2,011	12,583	1,199	4,024	897	15	6,751	-	4,150	600	-	13,045	45,287
<b>Total</b>	<b>2,365</b>	<b>16,668</b>	<b>255,821</b>	<b>23,980</b>	<b>14,254</b>	<b>31,047</b>	<b>22,901</b>	<b>21,240</b>	<b>157</b>	<b>260,295</b>	<b>4,806</b>	<b>4,837</b>	<b>14,429</b>	<b>672,801</b>

Source: Authors' elaboration on fDi Markets database.

Note: Values on capital investment are in millions of dollars at current prices.

**Table C.23 Share of FDIs (based on capital investment of FDI projects) related to technological activities (R&D, DDT and ICT & Internet infrastructure) by destination region (% by source region), 2003-2014. Intra-region FDIs on the main diagonal**

Destination regions	Source regions													Total
	Australia & New Zealand	China	EU28+Norw+Swiz	Four Asian Tigers	India	Japan	Latin America	Middle East & North Africa	Non-EU Europe	North America	Rest of Asia	Russia	Sub-Saharan Africa	
Australia & New Zealand	2	1	25	8	1	9	0	0	0	53	1	0	0	100
China	0	0	29	12	3	10	0	0	0	46	0	0	0	100
EU28+Norw+Swiz	0	2	45	1	1	3	0	1	0	45	0	0	0	100
Four Asian Tigers	1	4	21	4	2	6	0	1	0	59	1	1	0	100
India	1	2	30	3	0	4	0	1	0,1	58	0	0	0	100
Japan	1	4	28	6	1	0	0	0	0	61	0	1	0	100
Latin America	0	2	46	0	0	1	16	1	0	31	0	0	0	100
Middle East & North Africa	0	1	37	4	3	2	0	23	0	28	1	0	1	100
Non-EU Europe	0	0	42	6	0	0	0	7	0,2	10	0	35	0	100
North America	1	4	45	3	4	9	0	1	0	32	0	0	0	100
Rest of Asia	0	6	22	13	4	12	0	9	0	21	6	5	0	100
Russia	0	3	60	2	2	3	0	2	0,3	26	0	0	0	100
Sub-Saharan Africa	0	4	28	3	9	2	0	15	0	9	1	0	29	100
<b>Total</b>	<b>0,4</b>	<b>2</b>	<b>38</b>	<b>4</b>	<b>2</b>	<b>5</b>	<b>3</b>	<b>3</b>	<b>0,0</b>	<b>39</b>	<b>0,7</b>	<b>0,7</b>	<b>2</b>	<b>100</b>

Source: Authors' elaboration on fDi Markets database.

Note: Values on capital investment are in millions of dollars at current prices.

**Table C.24 Share of FDIs (based on capital investment of FDI projects) related to technological activities (R&D, DDT and ICT & Internet infrastructure) by source region (% by destination region), 2003-2014. Intra-region FDIs on the main diagonal**

Destination regions	Source regions													Total
	Australia & New Zealand	China	EU28+Norw+Swiz	Four Asian Tigers	India	Japan	Latin America	Middle East & North Africa	Non-EU Europe	North America	Rest of Asia	Russia	Sub-Saharan Africa	
Australia & New Zealand	13	1	1	5	1	5	0	0	0	3	2	0	0	2
China	2	0	7	29	13	18	0	1	0	10	4	2	0	9
EU28+Norw+Swiz	23	21	29	9	11	17	2	8	29	28	4	8	5	24
Four Asian Tigers	20	13	4	7	6	9	0	3	0	11	11	6	0	7
India	16	6	7	7	0	7	0	4	26	12	4	0	0	8
Japan	3	1	1	2	0	0	0	0	0	2	0	1	0	1
Latin America	1	15	25	1	4	6	97	6	25	16	14	5	2	20
Middle East & North Africa	1	1	4	5	6	1	0	28	0	3	3	0	2	4
Non-EU Europe	0	0	1	1	0	0	0	2	9	0	0	44	0	0,9
North America	17	16	13	11	21	22	1	3	0	9	4	2	0	11
Rest of Asia	5	11	3	17	10	12	0	12	0	2	39	32	1	5
Russia	0	1	1	1	1	0	0	1	11	1	0	0	0	0,8
Sub-Saharan Africa	0	12	5	5	28	3	0	32	0	2	12	0	90	7
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Source: Authors' elaboration on fDi Markets database.

Note: Values on capital investment are in millions of dollars at current prices.



FDI projects related to manufacturing activity: Table C.25-C.27

**Table C.25 Capital investment of FDIs in manufacturing activity by source and destination regions, 2003-2014. Intra-region FDIs on the main diagonal**

Destination regions	Source regions													Total
	Australia & New Zealand	China	EU28+Norw+Swiz	Four Asian Tigers	India	Japan	Latin America	Middle East & North Africa	Non-EU Europe	North America	Rest of Asia	Russia	Sub-Saharan Africa	
Australia & New Zealand	986	1.397	16.242	1.053	446	38.620	346	1.082	-	13.589	405	191	187	<b>74.544</b>
China	3.624	-	208.092	144.109	4.626	96.449	2.082	20.074	271	115.444	17.652	3.253	6.955	<b>622.631</b>
EU28+Norw+Swiz	2.381	8.004	288.881	22.022	10.884	35.478	6.674	9.085	4.241	134.626	3.622	7.182	736	<b>533.816</b>
Four Asian Tigers	894	2.158	52.316	9.871	844	30.583	267	2.331	-	41.546	782	779	-	<b>142.372</b>
India	1.079	12.604	80.883	23.043	-	31.547	600	10.853	81	35.376	3.652	849	228	<b>200.793</b>
Japan	36	116	5.823	1.028	155	-	1.157	202	-	12.865	-	-	-	<b>21.381</b>
Latin America	5.671	21.759	181.606	20.265	5.143	37.880	45.881	1.907	802	128.585	664	1.652	79	<b>451.895</b>
Middle East & North Africa	2.031	22.665	149.263	8.456	36.935	25.330	2.007	68.163	342	100.422	19.416	11.065	2.062	<b>448.158</b>
Non-EU Europe	20	1.279	28.264	599	283	623	-	1.819	336	4.211	342	7.201	-	<b>44.976</b>
North America	6.277	8.786	170.636	32.677	6.645	60.521	10.932	7.687	207	41.020	1.258	2.830	19.671	<b>369.148</b>
Rest of Asia	12.338	40.760	88.641	77.716	23.339	108.509	2.746	42.941	530	68.232	30.506	22.528	1.174	<b>519.959</b>
Russia	142	14.681	90.325	4.862	1.491	9.486	914	5.173	5.147	21.793	1.355	-	72	<b>155.441</b>
Sub-Saharan Africa	3.968	14.301	59.538	8.729	26.009	3.053	915	4.671	-	24.071	2.789	1.862	23.384	<b>173.290</b>
<b>Total</b>	<b>39.447</b>	<b>148.509</b>	<b>1.420.510</b>	<b>354.431</b>	<b>116.800</b>	<b>478.080</b>	<b>74.522</b>	<b>175.986</b>	<b>11.956</b>	<b>741.780</b>	<b>82.443</b>	<b>59.393</b>	<b>54.549</b>	<b>3.758.404</b>

Source: Authors' elaboration on fDi Markets database.

Note: Values on capital investment are in millions of dollars at current prices.

**Table C.26 Share of FDIs (based on capital investment of FDI projects) in manufacturing activity by destination region (% by source region), 2003-2014. Intra-region FDIs on the main diagonal**

Destination regions	Source regions													Total
	Australia & New Zealand	China	EU28+Norw+Swiz	Four Asian Tigers	India	Japan	Latin America	Middle East & North Africa	Non-EU Europe	North America	Rest of Asia	Russia	Sub-Saharan Africa	
Australia & New Zealand	1	2	22	1	1	52	0	1	0	18	1	0	0	<b>100</b>
China	1	0	33	23	1	15	0	3	0	19	3	1	1	<b>100</b>
EU28+Norw+Swiz	0	1	54	4	2	7	1	2	1	25	1	1	0	<b>100</b>
Four Asian Tigers	1	2	37	7	1	21	0	2	0	29	1	1	0	<b>100</b>
India	1	6	40	11	0	16	0	5	0	18	2	0	0	<b>100</b>
Japan	0	1	27	5	1	0	5	1	0	60	0	0	0	<b>100</b>
Latin America	1	5	40	4	1	8	10	0	0	28	0	0	0	<b>100</b>
Middle East & North Africa	0	5	33	2	8	6	0	15	0	22	4	2	0	<b>100</b>
Non-EU Europe	0	3	63	1	1	1	0	4	1	9	1	16	0	<b>100</b>
North America	2	2	46	9	2	16	3	2	0	11	0	1	5	<b>100</b>
Rest of Asia	2	8	17	15	4	21	1	8	0	13	6	4	0	<b>100</b>
Russia	0	9	58	3	1	6	1	3	3	14	1	0	0	<b>100</b>
Sub-Saharan Africa	2	8	34	5	15	2	1	3	0	14	2	1	13	<b>100</b>
<b>Total</b>	<b>1</b>	<b>4</b>	<b>38</b>	<b>9</b>	<b>3</b>	<b>13</b>	<b>2</b>	<b>5</b>	<b>0,3</b>	<b>20</b>	<b>2,2</b>	<b>1,6</b>	<b>1,5</b>	<b>100</b>

Source: Authors' elaboration on fDi Markets database.

Note: Values on capital investment are in millions of dollars at current prices.

**Table C.27 Share of FDIs (based on capital investment of FDI projects) in manufacturing activity by source region (% by destination region), 2003-2014. Intra-region FDIs on the main diagonal**

Destination regions	Source regions													Total
	Australia & New Zealand	China	EU28+Norw+Swiz	Four Asian Tigers	India	Japan	Latin America	Middle East & North Africa	Non-EU Europe	North America	Rest of Asia	Russia	Sub-Saharan Africa	
Australia & New Zealand	3	1	1	0	0	8	0	1	0	2	0	0	0	<b>2</b>
China	9	0	15	41	4	20	3	11	2	16	21	5	13	<b>17</b>
EU28+Norw+Swiz	6	5	20	6	9	7	9	5	35	18	4	12	1	<b>14</b>
Four Asian Tigers	2	1	4	3	1	6	0	1	0	6	1	1	0	<b>4</b>
India	3	8	6	7	0	7	1	6	1	5	4	1	0	<b>5</b>
Japan	0	0	0	0	0	0	2	0	0	2	0	0	0	<b>0,6</b>
Latin America	14	15	13	6	4	8	62	1	7	17	1	3	0	<b>12</b>
Middle East & North Africa	5	15	11	2	32	5	3	39	3	14	24	19	4	<b>12</b>
Non-EU Europe	0	1	2	0	0	0	0	1	3	1	0	12	0	<b>1,2</b>
North America	16	6	12	9	6	13	15	4	2	6	2	5	36	<b>10</b>
Rest of Asia	31	27	6	22	20	23	4	24	4	9	37	38	2	<b>14</b>
Russia	0	10	6	1	1	2	1	3	43	3	2	0	0	<b>4</b>
Sub-Saharan Africa	10	10	4	2	22	1	1	3	0	3	3	3	43	<b>5</b>
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Source: Authors' elaboration on fDi Markets database.

Note: Values on capital investment are in millions of dollars at current prices.

FDI projects related to SMS activity: Table C.28-C.30

**Table C.28 Capital investment of FDI in Sales, Marketing and Support activity by source and destination regions, 2003-2014. Intra-region FDI on the main diagonal**

Destination regions	Source regions													Total
	Australia & New Zealand	China	EU28+Norw+Swiz	Four Asian Tigers	India	Japan	Latin America	Middle East & North Africa	Non-EU Europe	North America	Rest of Asia	Russia	Sub-Saharan Africa	
Australia & New Zealand	899	262	7.028	757	569	338	155	1.217	25	9.190	479	51	31	21.000
China	590	-	22.125	5.808	682	5.986	182	2.017	277	15.239	476	687	29	54.098
EU28+Norw+Swiz	1.138	1.208	54.323	1.338	794	2.280	443	1.958	602	20.760	472	1.768	325	87.408
Four Asian Tigers	900	1.744	11.713	1.433	824	1.880	362	903	89	9.498	878	293	61	30.577
India	499	175	11.595	2.097	-	2.936	184	1.824	6	12.324	1.282	258	138	33.318
Japan	151	203	3.244	681	81	-	98	57	-	3.496	56	261	6	8.335
Latin America	60	914	7.844	575	79	763	2.050	280	33	5.657	172	371	53	18.850
Middle East & North Africa	231	221	13.917	948	1.902	1.117	117	5.248	150	6.108	776	663	172	31.568
Non-EU Europe	52	182	5.270	53	118	248	39	373	216	1.454	80	929	24	9.038
North America	1.888	753	20.284	522	826	1.514	605	932	92	7.665	411	275	116	35.883
Rest of Asia	942	1.157	14.892	5.957	1.035	4.852	145	3.736	494	8.929	3.111	1.844	6	47.100
Russia	60	172	6.412	150	115	933	36	212	463	2.174	84	-	13	10.823
Sub-Saharan Africa	78	205	3.727	225	541	524	53	840	40	1.687	268	143	1.426	9.756
<b>Total</b>	<b>7.487</b>	<b>7.196</b>	<b>182.375</b>	<b>20.544</b>	<b>7.566</b>	<b>23.371</b>	<b>4.468</b>	<b>19.595</b>	<b>2.485</b>	<b>104.183</b>	<b>8.544</b>	<b>7.543</b>	<b>2.399</b>	<b>397.754</b>

Source: Authors' elaboration on fDi Markets database.

Note: Values on capital investment are in millions of dollars at current prices.

**Table C.29 Share of FDI in Sales, Marketing and Support activity (based on capital investment of FDI projects) by destination region (% by source region), 2003-2014. Intra-region FDI on the main diagonal**

Destination regions	Source regions													Total
	Australia & New Zealand	China	EU28+Norw+Swiz	Four Asian Tigers	India	Japan	Latin America	Middle East & North Africa	Non-EU Europe	North America	Rest of Asia	Russia	Sub-Saharan Africa	
Australia & New Zealand	4	1	33	4	3	2	1	6	0	44	2	0	0	100
China	1	0	41	11	1	11	0	4	1	28	1	1	0	100
EU28+Norw+Swiz	1	1	62	2	1	3	1	2	1	24	1	2	0	100
Four Asian Tigers	3	6	38	5	3	6	1	3	0	31	3	1	0	100
India	1	1	35	6	0	9	1	5	0	37	4	1	0	100
Japan	2	2	39	8	1	0	1	1	0	42	1	3	0	100
Latin America	0	5	42	3	0	4	11	1	0	30	1	2	0	100
Middle East & North Africa	1	1	44	3	6	4	0	17	0	19	2	2	1	100
Non-EU Europe	1	2	58	1	1	3	0	4	2	16	1	10	0	100
North America	5	2	57	1	2	4	2	3	0	21	1	1	0	100
Rest of Asia	2	2	32	13	2	10	0	8	1	19	7	4	0	100
Russia	1	2	59	1	1	9	0	2	4	20	1	0	0	100
Sub-Saharan Africa	1	2	38	2	6	5	1	9	0	17	3	1	15	100
<b>Total</b>	<b>2</b>	<b>2</b>	<b>46</b>	<b>5</b>	<b>2</b>	<b>6</b>	<b>1,1</b>	<b>5</b>	<b>0,6</b>	<b>26</b>	<b>2</b>	<b>2</b>	<b>0,6</b>	<b>100</b>

Source: Authors' elaboration on fDi Markets database.

Note: Values on capital investment are in millions of dollars at current prices.

**Table C.30 Share of FDI (based on capital investment of FDI projects) in Sales, Marketing and Support activity by source region (% by destination region), 2003-2014. Intra-region FDI on the main diagonal**

Destination regions	Source regions													Total
	Australia & New Zealand	China	EU28+Norw+Swiz	Four Asian Tigers	India	Japan	Latin America	Middle East & North Africa	Non-EU Europe	North America	Rest of Asia	Russia	Sub-Saharan Africa	
Australia & New Zealand	12	4	4	4	8	1	3	6	1	9	6	1	1	5
China	8	0	12	28	9	26	4	10	11	15	6	9	1	14
EU28+Norw+Swiz	15	17	30	7	10	10	10	10	24	20	6	23	14	22
Four Asian Tigers	12	24	6	7	11	8	8	5	4	9	10	4	3	8
India	7	2	6	10	0	13	4	9	0	12	15	3	6	8
Japan	2	3	2	3	1	0	2	0	0	3	1	3	0	2
Latin America	1	13	4	3	1	3	46	1	1	5	2	5	2	5
Middle East & North Africa	3	3	8	5	25	5	3	27	6	6	9	9	7	8
Non-EU Europe	1	3	3	0	2	1	1	2	9	1	1	12	1	2
North America	25	10	11	3	11	6	14	5	4	7	5	4	5	9
Rest of Asia	13	16	8	29	14	21	3	19	20	9	36	24	0	12
Russia	1	2	4	1	2	4	1	1	19	2	1	0	1	3
Sub-Saharan Africa	1	3	2	1	7	2	1	4	2	2	3	2	59	2
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Source: Authors' elaboration on fDi Markets database.

Note: Values on capital investment are in millions of dollars at current prices.

## Appendix D

**Table D.1 Number of inward FDI projects by industry and region of destination, 2003-2014 (whole period)**

Destination regions	Destination industry						Tot. FDI in digital industries	Tot. FDI in other industries	Total
	Business Machines & Equip.	Communications	Electronic Components	Semiconductors	Software & IT services				
<b>Advanced economies</b>									
North America	Frequency	145	765	495	123	2337	3865	11761	15626
	% per country	0,9	4,9	3,2	0,8	15,0	24,8	75,3	100
	% per industry	8,5	10,2	10,9	7,3	13,0	11,6	10,7	10,9
EU28+Norw+Swiz	Frequency	569	2339	1567	368	7146	11989	34811	46800
	% per country	1,2	5,0	3,4	0,8	15,3	25,6	74,4	100
	% per industry	33,2	31,3	34,5	21,8	39,7	35,9	31,7	32,7
<i>of which from outside Europe</i>	Frequency	407	1206	772	248	4384	7017	13915	20932
	% per country	1,9	5,8	3,7	1,2	20,9	33,5	66,5	100
	% per industry	23,7	16,1	17,0	14,7	24,4	21,0	12,7	14,6
Japan	Frequency	31	119	79	75	404	708	1013	1721
	% per country	1,8	6,9	4,6	4,4	23,5	41,1	58,9	100
	% per industry	1,8	1,6	1,7	4,5	2,3	2,1	0,9	1,2
Four Asian Tigers	Frequency	114	495	342	302	1256	2509	4894	7403
	% per country	1,5	6,7	4,6	4,1	17,0	33,9	66,1	100
	% per industry	6,6	6,6	7,5	17,9	7,0	7,5	4,5	5,2
Australia & New Zealand	Frequency	41	259	48	8	759	1115	2056	3171
	% per country	1,3	8,2	1,5	0,3	23,9	35,2	64,8	100
	% per industry	2,4	3,5	1,1	0,5	4,2	3,3	1,9	2,2
<b>Emerging economies</b>									
Non-EU Europe	Frequency	17	110	51	6	153	337	2308	2645
	% per country	0,6	4,2	1,9	0,2	5,8	12,7	87,3	100
	% per industry	1,0	1,5	1,1	0,4	0,9	1,0	2,1	1,9
Russia	Frequency	31	195	61	19	191	497	3457	3954
	% per country	0,8	4,9	1,5	0,5	4,8	12,6	87,4	100
	% per industry	1,8	2,6	1,3	1,1	1,1	1,5	3,2	2,8
China	Frequency	178	480	780	418	1023	2879	11504	14383
	% per country	1,2	3,3	5,4	2,9	7,1	20,0	80,0	100
	% per industry	10,4	6,4	17,2	24,8	5,7	8,6	10,5	10,1
India	Frequency	108	453	246	157	1513	2477	5841	8318
	% per country	1,3	5,5	3,0	1,9	18,2	29,8	70,2	100
	% per industry	6,3	6,1	5,4	9,3	8,4	7,4	5,3	5,8
Rest of Asia	Frequency	178	511	312	119	687	1807	9973	11780
	% per country	1,5	4,3	2,7	1,0	5,8	15,3	84,7	100
	% per industry	10,4	6,8	6,9	7,1	3,8	5,4	9,1	8,2
Middle East & North Africa	Frequency	125	524	199	43	890	1781	8758	10539
	% per country	1,2	5,0	1,9	0,4	8,4	16,9	83,1	100
	% per industry	7,3	7,0	4,4	2,6	5,0	5,3	8,0	7,4
Sub-Saharan Africa	Frequency	46	432	62	1	288	829	3982	4811
	% per country	1,0	9,0	1,3	0,0	6,0	17,2	82,8	100
	% per industry	2,7	5,8	1,4	0,1	1,6	2,5	3,6	3,4
Latin America	Frequency	133	803	298	47	1345	2626	9351	11977
	% per country	1,1	6,7	2,5	0,4	11,2	21,9	78,1	100
	% per industry	7,8	10,7	6,6	2,8	7,5	7,9	8,5	8,4
<b>Total</b>	Frequency	1716	7485	4540	1686	17992	33419	109709	143128
	% per country	1,2	5,2	3,2	1,2	12,6	23,4	76,7	100
	% per industry	100	100	100	100	100	100	100	100

Source: Authors' elaboration on fDi Markets database.

**Table D.2 Number of inward FDI projects by industry and region of destination, 2003-2008 (pre-crisis period)**

Destination regions		Destination industry						Tot. FDI in digital industries	Tot. FDI in other industries	Total
		Business Machines & Equip.	Communications	Electronic Components	Semiconductors	Software & IT services				
<b>Advanced economies</b>										
North America	Frequency	54	259	135	75	700	1223	4124	5347	
	% per country	1,0	4,8	2,5	1,4	13,1	22,9	77,1	100	
	% per industry	5,8	8,1	6,8	6,5	9,0	8,1	8,2	8,2	
EU28+Norw+Swiz	Frequency	302	1033	752	241	3188	5516	17636	23152	
	% per country	1,3	4,5	3,3	1,0	13,8	23,8	76,2	100	
	% per industry	32,6	32,2	37,9	20,9	41,2	36,7	35,2	35,6	
<i>of which from outside Europe</i>	Frequency	226	554	354	161	1945	3240	6712	9952	
	% per country	2,3	5,6	3,6	1,6	19,5	32,6	67,4	100	
	% per industry	24,4	17,3	17,8	14,0	25,1	21,6	13,4	15,3	
Japan	Frequency	19	59	26	49	184	337	492	829	
	% per country	2,3	7,1	3,1	5,9	22,2	40,7	59,4	100	
	% per industry	2,1	1,8	1,3	4,3	2,4	2,2	1,0	1,3	
Four Asian Tigers	Frequency	62	215	179	216	487	1159	1898	3057	
	% per country	2,0	7,0	5,9	7,1	15,9	37,9	62,1	100	
	% per industry	6,7	6,7	9,0	18,7	6,3	7,7	3,8	4,7	
Australia & New Zealand	Frequency	13	84	8	3	253	361	720	1081	
	% per country	1,2	7,8	0,7	0,3	23,4	33,4	66,6	100	
	% per industry	1,4	2,6	0,4	0,3	3,3	2,4	1,4	1,7	
<b>Emerging economies</b>										
Non-EU Europe	Frequency	12	61	24	2	66	165	1170	1335	
	% per country	0,9	4,6	1,8	0,2	4,9	12,4	87,6	100	
	% per industry	1,3	1,9	1,2	0,2	0,9	1,1	2,3	2,1	
Russia	Frequency	22	84	28	8	100	242	2039	2281	
	% per country	1,0	3,7	1,2	0,4	4,4	10,6	89,4	100	
	% per industry	2,4	2,6	1,4	0,7	1,3	1,6	4,1	3,5	
China	Frequency	110	291	418	299	601	1719	6215	7934	
	% per country	1,4	3,7	5,3	3,8	7,6	21,7	78,3	100	
	% per industry	11,9	9,1	21,0	25,9	7,8	11,4	12,4	12,2	
India	Frequency	65	257	117	125	926	1490	2674	4164	
	% per country	1,6	6,2	2,8	3,0	22,2	35,8	64,2	100	
	% per industry	7,0	8,0	5,9	10,8	12,0	9,9	5,3	6,4	
Rest of Asia	Frequency	108	234	134	78	297	851	4406	5257	
	% per country	2,1	4,5	2,6	1,5	5,7	16,2	83,8	100	
	% per industry	11,7	7,3	6,7	6,8	3,8	5,7	8,8	8,1	
Middle East & North Africa	Frequency	78	227	67	30	375	777	3795	4572	
	% per country	1,7	5,0	1,5	0,7	8,2	17,0	83,0	100	
	% per industry	8,4	7,1	3,4	2,6	4,8	5,2	7,6	7,0	
Sub-Saharan Africa	Frequency	17	106	11	1	89	224	1377	1601	
	% per country	1,1	6,6	0,7	0,1	5,6	14,0	86,0	100	
	% per industry	1,8	3,3	0,6	0,1	1,2	1,5	2,8	2,5	
Latin America	Frequency	65	301	88	27	476	957	3540	4497	
	% per country	1,5	6,7	2,0	0,6	10,6	21,3	78,7	100	
	% per industry	7,0	9,4	4,4	2,3	6,2	6,4	7,1	6,9	
<b>Total</b>	Frequency	927	3211	1987	1154	7742	15021	50086	65107	
	% per country	1,4	4,9	3,1	1,8	11,9	23,1	76,9	100	
	% per industry	100	100	100	100	100	100	100	100	

Source: Authors' elaboration on fDi Markets database.

**Table D.3 Number of inward FDI projects by industry and region of destination, 2009-2014 (post-crisis period)**

Destination regions		Destination industry						Tot. FDI in digital industries	Tot. FDI in other industries	Total
		Business Machines & Equip.	Communications	Electronic Components	Semiconductors	Software & IT services				
<b>Advanced economies</b>										
North America	Frequency	91	506	360	48	1637	2642	7637	10279	
	% per country	0,9	4,9	3,5	0,5	15,9	25,7	74,3	100	
	% per industry	11,5	11,8	14,1	9,0	16,0	14,4	12,8	13,2	
EU28+Norw+Swiz	Frequency	267	1306	815	127	3958	6473	17175	23648	
	% per country	1,1	5,5	3,5	0,5	16,7	27,4	72,6	100	
	% per industry	33,8	30,6	31,9	23,9	38,6	35,2	28,8	30,3	
<i>of which from outside Europe</i>	Frequency	181	652	418	87	2439	3777	7203	10980	
	% per country	1,6	5,9	3,8	0,8	22,2	34,4	65,6	100	
	% per industry	22,9	15,3	16,4	16,4	23,8	20,5	12,1	14,1	
Japan	Frequency	12	60	53	26	220	371	521	892	
	% per country	1,4	6,7	5,9	2,9	24,7	41,6	58,4	100	
	% per industry	1,5	1,4	2,1	4,9	2,2	2,0	0,9	1,1	
Four Asian Tigers	Frequency	52	280	163	86	769	1350	2996	4346	
	% per country	1,2	6,4	3,8	2,0	17,7	31,1	68,9	100	
	% per industry	6,6	6,6	6,4	16,2	7,5	7,3	5,0	5,6	
Australia & New Zealand	Frequency	28	175	40	5	506	754	1336	2090	
	% per country	1,3	8,4	1,9	0,2	24,2	36,1	63,9	100	
	% per industry	3,6	4,1	1,6	0,9	4,9	4,1	2,2	2,7	
<b>Emerging economies</b>										
Non-EU Europe	Frequency	5	49	27	4	87	172	1138	1310	
	% per country	0,4	3,7	2,1	0,3	6,6	13,1	86,9	100	
	% per industry	0,6	1,2	1,1	0,8	0,9	0,9	1,9	1,7	
Russia	Frequency	9	111	33	11	91	255	1418	1673	
	% per country	0,5	6,6	2,0	0,7	5,4	15,2	84,8	100	
	% per industry	1,1	2,6	1,3	2,1	0,9	1,4	2,4	2,1	
China	Frequency	68	189	362	119	422	1160	5289	6449	
	% per country	1,1	2,9	5,6	1,9	6,5	18,0	82,0	100	
	% per industry	8,6	4,4	14,2	22,4	4,1	6,3	8,9	8,3	
India	Frequency	43	196	129	32	587	987	3167	4154	
	% per country	1,0	4,7	3,1	0,8	14,1	23,8	76,2	100	
	% per industry	5,5	4,6	5,1	6,0	5,7	5,4	5,3	5,3	
Rest of Asia	Frequency	70	277	178	41	390	956	5567	6523	
	% per country	1,1	4,3	2,7	0,6	6,0	14,7	85,3	100	
	% per industry	8,9	6,5	7,0	7,7	3,8	5,2	9,3	8,4	
Middle East & North Africa	Frequency	47	297	132	13	515	1004	4963	5967	
	% per country	0,8	5,0	2,2	0,2	8,6	16,8	83,2	100	
	% per industry	6,0	7,0	5,2	2,4	5,0	5,5	8,3	7,7	
Sub-Saharan Africa	Frequency	29	326	51	0	199	605	2605	3210	
	% per country	0,9	10,2	1,6	0,0	6,2	18,9	81,2	100	
	% per industry	3,7	7,6	2,0	0,0	1,9	3,3	4,4	4,1	
Latin America	Frequency	68	502	210	20	869	1669	5811	7480	
	% per country	0,9	6,7	2,8	0,3	11,6	22,3	77,7	100	
	% per industry	8,6	11,8	8,2	3,8	8,5	9,1	9,8	9,6	
<b>Total</b>	Frequency	789	4274	2553	532	10250	18398	59623	78021	
	% per country	1,0	5,5	3,3	0,7	13,1	23,6	76,4	100	
	% per industry	100	100	100	100	100	100	100	100	

Source: Authors' elaboration on fDi Markets database.

**Table D.4 Specialization indices and relative size of destination regions (based on number of FDIs) by industry, 2003-2014**

Destination regions	Destination industry												Tot. FDIs in digital industries	
	Business Mach. & Equip.		Communications		Electronic Components		Semiconductors		Software & IT services					
	Specialization index	Relative size of the area	Specialization index	Relative size of the area	Specialization index	Relative size of the area	Specialization index	Relative size of the area	Specialization index	Relative size of the area	Specialization index	Relative size of the area	Specialization index	Relative size of the area
North America	0,77	8,5	0,94	10,2	1,00	10,9	0,67	7,3	1,19	13,0	1,06	11,6		
EU28+Norw+Swiz	1,01	33,2	0,96	31,3	1,06	34,5	0,67	21,8	1,21	39,7	1,10	35,9		
<i>EU30 of which from outside Europe</i>	1,62	23,7	1,10	16,1	1,16	17,0	1,01	14,7	1,67	24,4	1,44	21,0		
Japan	1,51	1,8	1,33	1,6	1,45	1,7	3,71	4,5	1,88	2,3	1,77	2,1		
Four Asian Tigers	1,28	6,6	1,28	6,6	1,46	7,5	3,46	17,9	1,35	7,0	1,45	7,5		
Australia & New Zealand	1,08	2,4	1,56	3,5	0,48	1,1	0,21	0,5	1,90	4,2	1,50	3,3		
Non-EU Europe	0,54	1,0	0,79	1,5	0,61	1,1	0,19	0,4	0,46	0,9	0,55	1,0		
Russia	0,66	1,8	0,95	2,6	0,49	1,3	0,41	1,1	0,38	1,1	0,54	1,5		
China	1,03	10,4	0,64	6,4	1,71	17,2	2,47	24,8	0,57	5,7	0,86	8,6		
India	1,08	6,3	1,04	6,1	0,93	5,4	1,60	9,3	1,45	8,4	1,28	7,4		
Rest of Asia	1,26	10,4	0,83	6,8	0,83	6,9	0,86	7,1	0,46	3,8	0,66	5,4		
Middle East & North Africa	0,99	7,3	0,95	7,0	0,60	4,4	0,35	2,6	0,67	5,0	0,72	5,3		
Sub-Saharan Africa	0,80	2,7	1,72	5,8	0,41	1,4	0,02	0,1	0,48	1,6	0,74	2,5		
Latin America	0,93	7,8	1,28	10,7	0,78	6,6	0,33	2,8	0,89	7,5	0,94	7,9		
<b>Total</b>		<b>100</b>		<b>100</b>		<b>100</b>		<b>100</b>		<b>100</b>		<b>100</b>		
<i>Reminder: median value</i>		6,64		6,41		5,42		4,45		4,95		5,41		

Source: Authors' elaboration on fDi Markets database.

**Table D.5 Specialization indices of regions of destination (based on capital investment of FDIs) by industry, 2003-2014**

Destination regions	Destination industry					Tot. FDIs in digital industries	Tot. FDIs in other industries
	Business Machines & Equip.	Communications	Electronic Components	Semiconductors	Software & IT services		
North America	0,66	0,83	0,73	1,64	2,09	1,21	0,97
EU28+Norw+Swiz	0,83	1,03	0,81	0,72	1,81	1,09	0,99
<i>of which from outside Europe</i>	1,84	1,02	1,04	1,21	3,14	1,54	0,92
Japan	1,03	0,90	1,52	7,81	2,47	2,54	0,78
Four Asian Tigers	3,97	1,88	5,85	3,85	1,43	2,95	0,72
Australia & New Zealand	0,50	1,00	0,27	0,02	2,22	0,93	1,01
Non-EU Europe	0,55	0,84	0,25	0,05	0,69	0,55	1,06
Russia	0,24	0,29	0,40	0,08	0,44	0,30	1,10
China	1,99	0,40	2,16	2,51	0,56	1,20	0,97
India	0,79	1,05	1,23	1,69	2,43	1,47	0,93
Rest of Asia	2,00	0,63	0,98	0,58	0,27	0,68	1,05
Middle East & North Africa	0,22	0,36	0,19	0,38	0,36	0,32	1,10
Sub-Saharan Africa	0,16	1,58	0,03	0,00	0,27	0,68	1,04
Latin America	0,31	2,34	0,50	0,12	0,29	1,09	0,99

Source: Authors' elaboration on fDi Markets database.

Note: Values on capital investment are in millions of dollars at current prices.

**Table D.6 Specialization indices of regions of destination (based on number of FDIs) by industry, 2003-2008 (pre-crisis period)**

Destination regions	Destination industry					Tot. FDIs in digital industries	Tot. FDIs in other industries	Total
	Business Machines & Equip.	Communications	Electronic Components	Semiconductors	Software & IT services			
<b>Advanced economies</b>								
North America	0,71	0,98	0,83	0,79	1,10	0,99	1,00	1
EU28+Norw+Swiz	0,92	0,90	1,06	0,59	1,16	1,03	0,99	1
<i>of which from outside Europe</i>	<i>1,59</i>	<i>1,13</i>	<i>1,17</i>	<i>0,91</i>	<i>1,64</i>	<i>1,41</i>	<i>0,88</i>	<i>1</i>
Japan	1,61	1,45	1,03	3,35	1,87	1,77	0,77	1
Four Asian Tigers	1,42	1,43	1,92	3,98	1,34	1,64	0,81	1
Australia & New Zealand	0,84	1,58	0,24	0,16	1,97	1,45	0,87	1
<b>Emerging economies</b>								
Non-EU Europe	0,63	0,93	0,59	0,08	0,41	0,54	1,14	1
Russia	0,68	0,75	0,40	0,20	0,37	0,46	1,16	1
China	0,97	0,74	1,73	2,13	0,64	0,94	1,02	1
India	1,10	1,25	0,92	1,69	1,87	1,55	0,83	1
Rest of Asia	1,44	0,90	0,84	0,84	0,48	0,70	1,09	1
Middle East & North Africa	1,20	1,01	0,48	0,37	0,69	0,74	1,08	1
Sub-Saharan Africa	0,74	1,34	0,22	0,04	0,47	0,61	1,12	1
Latin America	1,01	1,36	0,64	0,34	0,89	0,92	1,02	1

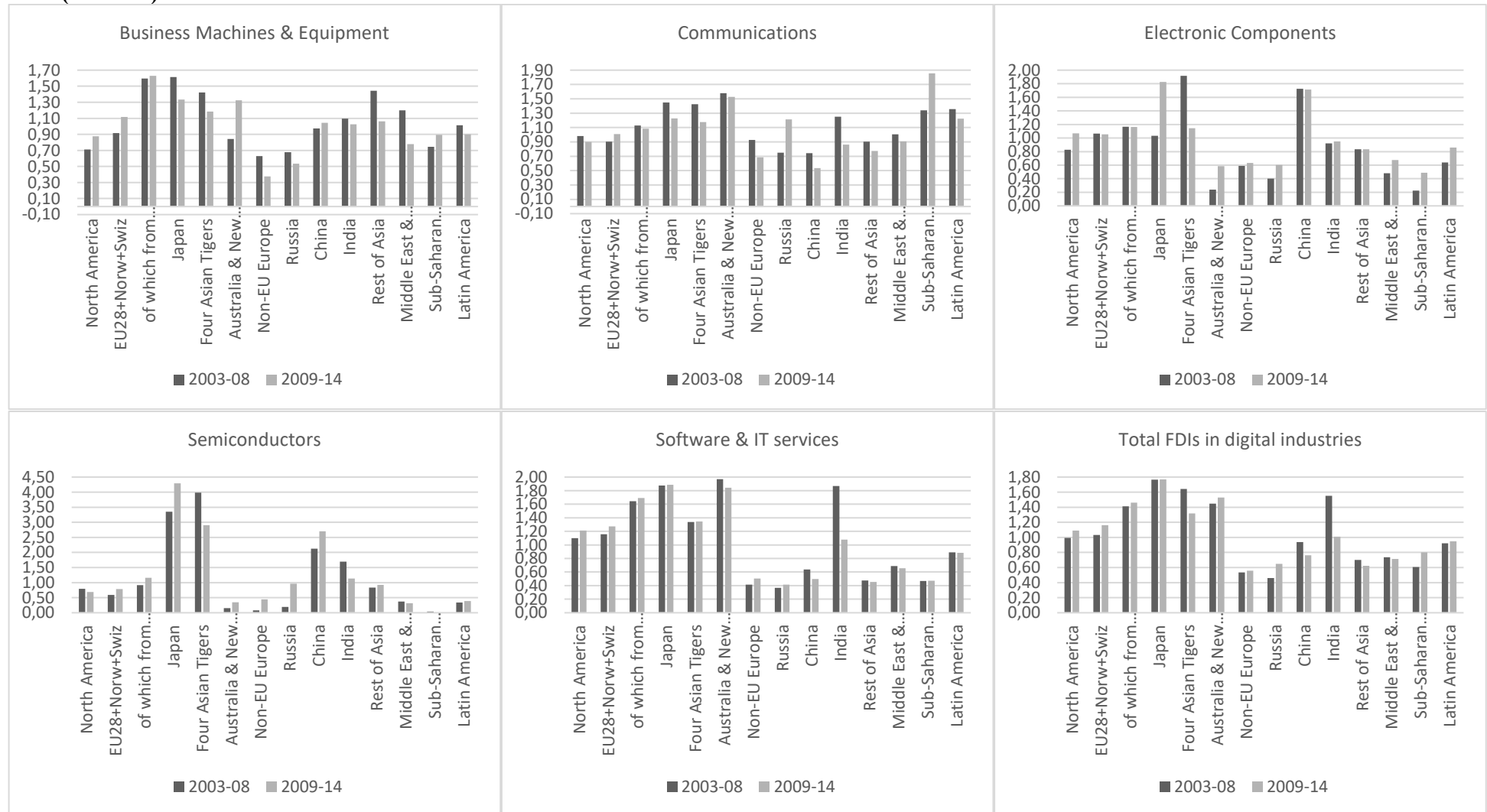
Source: Authors' elaboration on fDi Markets database.

**Table D.7 Specialization indices of regions of destination (based on number of FDIs) by industry, 2009-2014 (post-crisis period)**

Destination regions	Destination industry					Tot. FDIs in digital industries	Tot. FDIs in other industries	Total
	Business Machines & Equip.	Communications	Electronic Components	Semiconductors	Software & IT services			
<b>Advanced economies</b>								
North America	0,88	0,90	1,07	0,68	1,21	1,09	0,97	1
EU28+Norw+Swiz	1,12	1,01	1,05	0,79	1,27	1,16	0,95	1
<i>of which from outside Europe</i>	<i>1,63</i>	<i>1,08</i>	<i>1,16</i>	<i>1,16</i>	<i>1,69</i>	<i>1,46</i>	<i>0,86</i>	<i>1</i>
Japan	1,33	1,23	1,82	4,29	1,89	1,77	0,76	1
Four Asian Tigers	1,18	1,18	1,15	2,90	1,35	1,32	0,90	1
Australia & New Zealand	1,32	1,53	0,59	0,35	1,84	1,53	0,84	1
<b>Emerging economies</b>								
Non-EU Europe	0,38	0,68	0,63	0,45	0,51	0,56	1,14	1
Russia	0,53	1,21	0,60	0,97	0,42	0,65	1,11	1
China	1,04	0,53	1,71	2,70	0,50	0,76	1,07	1
India	1,02	0,86	0,95	1,13	1,08	1,01	1,00	1
Rest of Asia	1,06	0,78	0,83	0,92	0,45	0,62	1,12	1
Middle East & North Africa	0,78	0,91	0,68	0,32	0,66	0,71	1,09	1
Sub-Saharan Africa	0,90	1,86	0,49	0,00	0,47	0,80	1,06	1
Latin America	0,90	1,23	0,86	0,39	0,88	0,95	1,02	1

Source: Authors' elaboration on fDi Markets database.

**Figure D.1 Comparison between the specialization indices of destination regions (based on number of FDIs) by industry before (2003-08) and after (2009-14) the crisis**



Source: Authors' elaboration on fDi Markets database.



## Appendix E

**Table E.1 Number of FDI projects by type of activity and region of destination, 2003-2014 (whole period)**

Destination regions		Type of activity					Tot. FDIs in tech. act.	Tot. FDIs in Manufacturing & Sales	Tot. FDIs in other act.	Total
		R&D	Design & Development	ICT infrastructure	Manufacturing	Sales, Marketing and Support				
<b>Advanced economies</b>										
North America	Frequency	295	744	200	4308	3970	1239	8278	6109	15626
	% per country	1,9	4,8	1,3	27,6	25,4	7,9	53,0	39,1	100
	% per activity	11,3	11,4	7,5	11,7	10,8	10,5	11,3	10,6	10,9
EU28+Norw+Swiz	Frequency	849	1979	931	9932	13043	3759	22975	20066	46800
	% per country	1,8	4,2	2,0	21,2	27,9	8,0	49,1	42,9	100
	% per activity	32,5	30,4	34,8	27,1	35,4	31,9	31,2	34,7	32,7
<i>of which from outside Europe</i>	Frequency	513	1189	491	3791	6529	2193	10320	8419	20932
	% per country	2,5	5,7	2,3	18,1	31,2	10,5	49,3	40,2	100
	% per activity	19,7	18,3	18,4	10,3	17,7	18,6	14,0	14,6	14,6
Japan	Frequency	44	94	60	130	829	198	959	564	1721
	% per country	2,6	5,5	3,5	7,6	48,2	11,5	55,7	32,8	100
	% per activity	1,7	1,4	2,2	0,4	2,3	1,7	1,3	1,0	1,2
Four Asian Tigers	Frequency	247	458	227	870	2462	932	3332	3139	7403
	% per country	3,3	6,2	3,1	11,8	33,3	12,6	45,0	42,4	100
	% per activity	9,5	7,0	8,5	2,4	6,7	7,9	4,5	5,4	5,2
Australia & New Zealand	Frequency	41	118	123	306	1076	282	1382	1507	3171
	% per country	1,3	3,7	3,9	9,7	33,9	8,9	43,6	47,5	100
	% per activity	1,6	1,8	4,6	0,8	2,9	2,4	1,9	2,6	2,2
<b>Emerging economies</b>										
Non-EU Europe	Frequency	11	48	62	911	558	121	1469	1055	2645
	% per country	0,4	1,8	2,3	34,4	21,1	4,6	55,5	39,9	100
	% per activity	0,4	0,7	2,3	2,5	1,5	1,0	2,0	1,8	1,9
Russia	Frequency	42	82	59	1459	918	183	2377	1394	3954
	% per country	1,1	2,1	1,5	36,9	23,2	4,6	60,1	35,3	100
	% per activity	1,6	1,3	2,2	4,0	2,5	1,6	3,2	2,4	2,8
China	Frequency	420	840	89	5709	3144	1349	8853	4181	14383
	% per country	2,9	5,8	0,6	39,7	21,9	9,4	61,6	29,1	100
	% per activity	16,1	12,9	3,3	15,6	8,5	11,4	12,0	7,2	10,1
India	Frequency	327	1124	95	2154	1876	1546	4030	2742	8318
	% per country	3,9	13,5	1,1	25,9	22,6	18,6	48,5	33,0	100
	% per activity	12,5	17,3	3,6	5,9	5,1	13,1	5,5	4,7	5,8
Rest of Asia	Frequency	100	297	165	4187	2502	562	6689	4529	11780
	% per country	0,9	2,5	1,4	35,5	21,2	4,8	56,8	38,5	100
	% per activity	3,8	4,6	6,2	11,4	6,8	4,8	9,1	7,8	8,2
Middle East & North Africa	Frequency	102	255	98	1742	2833	455	4575	5509	10539
	% per country	1,0	2,4	0,9	16,5	26,9	4,3	43,4	52,3	100
	% per activity	3,9	3,9	3,7	4,8	7,7	3,9	6,2	9,5	7,4
Sub-Saharan Africa	Frequency	21	73	196	1054	1041	290	2095	2426	4811
	% per country	0,4	1,5	4,1	21,9	21,6	6,0	43,6	50,4	100
	% per activity	0,8	1,1	7,3	2,9	2,8	2,5	2,8	4,2	3,4
Latin America	Frequency	111	394	368	3945	2586	873	6531	4573	11977
	% per country	0,9	3,3	3,1	32,9	21,6	7,3	54,5	38,2	100
	% per activity	4,3	6,1	13,8	10,8	7,0	7,4	8,9	7,9	8,4
<b>Total</b>	Frequency	2610	6506	2673	36707	36838	11789	73545	57794	143128
	% per country	1,8	4,6	1,9	25,7	25,7	8,2	51,4	40,4	100
	% per activity	100	100	100	100	100	100	100	100	100

Source: Authors' elaboration on fDi Markets database.

**Table E.2 Number of FDI projects by type of activity and region of destination, 2003-2008 (pre-crisis period)**

Destination regions		Type of activity					Tot. FDI in tech. act.	Tot. FDI in Manufacturing & Sales	Tot. FDI in other act.	Total
		R&D	Design & Development	ICT infrastructure	Manufacturing	Sales, Marketing and Support				
<b>Advanced economies</b>										
North America	Frequency	171	199	66	1715	1215	436	2930	1981	5347
	% per country	3,2	3,7	1,2	32,1	22,7	8,2	54,8	37,1	100
	% per activity	10,1	7,4	7,5	8,9	8,1	8,3	8,6	7,7	8,2
EU28+Norw+Swiz	Frequency	546	745	320	6023	5879	1611	11902	9639	23152
	% per country	2,4	3,2	1,4	26,0	25,4	7,0	51,4	41,6	100
	% per activity	32,1	27,6	36,1	31,4	39,2	30,5	34,8	37,6	35,6
<i>of which from outside Europe</i>	Frequency	325	450	160	2123	2932	935	5055	3962	9952
	% per country	3,27	4,52	1,61	21,33	29,46	9,40	50,79	39,81	100
	% per activity	19,13	16,69	18,06	11,06	19,53	17,70	14,77	15,47	15,29
Japan	Frequency	32	42	17	73	403	91	476	262	829
	% per country	3,9	5,1	2,1	8,8	48,6	11,0	57,4	31,6	100
	% per activity	1,9	1,6	1,9	0,4	2,7	1,7	1,4	1,0	1,3
Four Asian Tigers	Frequency	155	193	71	494	900	419	1394	1244	3057
	% per country	5,1	6,3	2,3	16,2	29,4	13,7	45,6	40,7	100
	% per activity	9,1	7,2	8,0	2,6	6,0	7,9	4,1	4,9	4,7
Australia & New Zealand	Frequency	26	43	25	145	336	94	481	506	1081
	% per country	2,4	4,0	2,3	13,4	31,1	8,7	44,5	46,8	100
	% per activity	1,5	1,6	2,8	0,8	2,2	1,8	1,4	2,0	1,7
<b>Emerging economies</b>										
Non-EU Europe	Frequency	4	12	33	427	287	49	714	572	1335
	% per country	0,3	0,9	2,5	32,0	21,5	3,7	53,5	42,9	100
	% per activity	0,2	0,5	3,7	2,2	1,9	0,9	2,1	2,2	2,1
Russia	Frequency	23	40	26	884	487	89	1371	821	2281
	% per country	1,0	1,8	1,1	38,8	21,4	3,9	60,1	36,0	100
	% per activity	1,4	1,5	2,9	4,6	3,2	1,7	4,0	3,2	3,5
China	Frequency	310	380	40	3383	1651	730	5034	2170	7934
	% per country	3,9	4,8	0,5	42,6	20,8	9,2	63,5	27,4	100
	% per activity	18,3	14,1	4,5	17,6	11,0	13,8	14,7	8,5	12,2
India	Frequency	244	672	47	1057	808	963	1865	1336	4164
	% per country	5,9	16,1	1,1	25,4	19,4	23,1	44,8	32,1	100
	% per activity	14,4	24,9	5,3	5,5	5,4	18,2	5,5	5,2	6,4
Rest of Asia	Frequency	69	128	73	2058	889	270	2947	2040	5257
	% per country	1,3	2,4	1,4	39,2	16,9	5,1	56,1	38,8	100
	% per activity	4,1	4,8	8,2	10,7	5,9	5,1	8,6	8,0	8,1
Middle East & North Africa	Frequency	67	91	40	882	1053	198	1935	2439	4572
	% per country	1,5	2,0	0,9	19,3	23,0	4,3	42,3	53,4	100
	% per activity	3,9	3,4	4,5	4,6	7,0	3,7	5,7	9,5	7,0
Sub-Saharan Africa	Frequency	10	26	36	416	271	72	687	842	1601
	% per country	0,6	1,6	2,3	26,0	16,9	4,5	42,9	52,6	100
	% per activity	0,6	1,0	4,1	2,2	1,8	1,4	2,0	3,3	2,5
Latin America	Frequency	42	125	92	1645	837	259	2482	1756	4497
	% per country	0,9	2,8	2,1	36,6	18,6	5,8	55,2	39,1	100
	% per activity	2,5	4,6	10,4	8,6	5,6	4,9	7,3	6,9	6,9
<b>Total</b>	Frequency	1699	2696	886	19202	15016	5281	34218	25608	65107
	% per country	2,6	4,1	1,4	29,5	23,1	8,1	52,6	39,3	100
	% per activity	100	100	100	100	100	100	100	100	100

Source: Authors' elaboration on fDi Markets database.

**Table E.3 Number of FDI projects by type of activity and region of destination, 2009-2014 (post-crisis period)**

Destination regions		Type of activity					Tot. FDI in tech. act.	Tot. FDI in Manufacturing & Sales	Tot. FDI in other act.	Total
		R&D	Design & Development	ICT infrastructure	Manufacturing	Sales, Marketing and Support				
<b>Advanced economies</b>										
North America	Frequency	124	545	134	2593	2755	803	5348	4128	10279
	% per country	1,2	5,3	1,3	25,2	26,8	7,8	52,0	40,2	100
	% per activity	13,6	14,3	7,5	14,8	12,6	12,3	13,6	12,8	13,2
EU28+Norw+Swiz	Frequency	303	1234	611	3909	7164	2148	11073	10427	23648
	% per country	1,3	5,2	2,6	16,5	30,3	9,1	46,8	44,1	100
	% per activity	33,3	32,4	34,2	22,3	32,8	33,0	28,2	32,4	30,3
<i>of which from outside Europe</i>	Frequency	188	739	331	1668	3597	1258	5265	4457	10980
	% per country	1,71	6,73	3,01	15,19	32,76	11,46	47,95	40,59	100
	% per activity	20,64	19,40	18,52	9,53	16,48	19,33	13,39	13,85	14,07
Japan	Frequency	12	52	43	57	426	107	483	302	892
	% per country	1,4	5,8	4,8	6,4	47,8	12,0	54,2	33,9	100
	% per activity	1,3	1,4	2,4	0,3	2,0	1,6	1,2	0,9	1,1
Four Asian Tigers	Frequency	92	265	156	376	1562	513	1938	1895	4346
	% per country	2,1	6,1	3,6	8,7	35,9	11,8	44,6	43,6	100
	% per activity	10,1	7,0	8,7	2,2	7,2	7,9	4,9	5,9	5,6
Australia & New Zealand	Frequency	15	75	98	161	740	188	901	1001	2090
	% per country	0,7	3,6	4,7	7,7	35,4	9,0	43,1	47,9	100
	% per activity	1,7	2,0	5,5	0,9	3,4	2,9	2,3	3,1	2,7
<b>Emerging economies</b>										
Non-EU Europe	Frequency	7	36	29	484	271	72	755	483	1310
	% per country	0,5	2,8	2,2	37,0	20,7	5,5	57,6	36,9	100
	% per activity	0,8	0,9	1,6	2,8	1,2	1,1	1,9	1,5	1,7
Russia	Frequency	19	42	33	575	431	94	1006	573	1673
	% per country	1,1	2,5	2,0	34,4	25,8	5,6	60,1	34,3	100
	% per activity	2,1	1,1	1,9	3,3	2,0	1,4	2,6	1,8	2,1
China	Frequency	110	460	49	2326	1493	619	3819	2011	6449
	% per country	1,7	7,1	0,8	36,1	23,2	9,6	59,2	31,2	100
	% per activity	12,1	12,1	2,7	13,3	6,8	9,5	9,7	6,3	8,3
India	Frequency	83	452	48	1097	1068	583	2165	1406	4154
	% per country	2,0	10,9	1,2	26,4	25,7	14,0	52,1	33,9	100
	% per activity	9,1	11,9	2,7	6,3	4,9	9,0	5,5	4,4	5,3
Rest of Asia	Frequency	31	169	92	2129	1613	292	3742	2489	6523
	% per country	0,5	2,6	1,4	32,6	24,7	4,5	57,4	38,2	100
	% per activity	3,4	4,4	5,2	12,2	7,4	4,5	9,5	7,7	8,4
Middle East & North Africa	Frequency	35	164	58	860	1780	257	2640	3070	5967
	% per country	0,6	2,8	1,0	14,4	29,8	4,3	44,2	51,5	100
	% per activity	3,8	4,3	3,3	4,9	8,2	3,9	6,7	9,5	7,7
Sub-Saharan Africa	Frequency	11	47	160	638	770	218	1408	1584	3210
	% per country	0,3	1,5	5,0	19,9	24,0	6,8	43,9	49,4	100
	% per activity	1,2	1,2	9,0	3,6	3,5	3,3	3,6	4,9	4,1
Latin America	Frequency	69	269	276	2300	1749	614	4049	2817	7480
	% per country	0,9	3,6	3,7	30,8	23,4	8,2	54,1	37,7	100
	% per activity	7,6	7,1	15,4	13,1	8,0	9,4	10,3	8,8	9,6
<b>Total</b>	Frequency	911	3810	1787	17505	21822	6508	39327	32186	78021
	% per country	1,2	4,9	2,3	22,4	28,0	8,3	50,4	41,3	100
	% per activity	100	100	100	100	100	100	100	100	100

Source: Authors' elaboration on fDi Markets database.

**Table E.4 Specialization indices and relative size of destination regions (based on number of FDIs) by type of activity, 2003-2014**

Destination regions	Type of activity													
	R&D		Design, Development & Testing (DDT)		ICT & Internet infrastructure		Manufacturing		Sales, Marketing & Support (SMS)		Tot. FDIs in technological activities		Tot. FDIs in Manufacturing & SMS	
	Specialization index	Relative size of the area	Specialization index	Relative size of the area	Specialization index	Relative size of the area	Specialization index	Relative size of the area	Specialization index	Relative size of the area	Specialization index	Relative size of the area	Specialization index	Relative size of the area
North America	1,03	11,3	1,05	11,4	0,68	7,5	1,08	11,7	0,99	10,8	0,96	10,5	1,03	11,3
EU28+Norw+Swiz	0,99	32,5	0,93	30,4	1,07	34,8	0,83	27,1	1,08	35,4	0,98	31,9	0,96	31,2
<i>EU30 of which from outside Europe</i>	<i>1,34</i>	<i>19,7</i>	<i>1,25</i>	<i>18,3</i>	<i>1,26</i>	<i>18,4</i>	<i>0,71</i>	<i>10,3</i>	<i>1,21</i>	<i>17,7</i>	<i>1,27</i>	<i>18,6</i>	<i>0,96</i>	<i>14,0</i>
Japan	1,41	1,7	1,20	1,4	1,87	2,2	0,29	0,4	1,88	2,3	1,40	1,7	1,09	1,3
Four Asian Tigers	1,83	9,5	1,36	7,0	1,64	8,5	0,46	2,4	1,29	6,7	1,53	7,9	0,88	4,5
Australia & New Zealand	0,71	1,6	0,82	1,8	2,07	4,6	0,37	0,8	1,32	2,9	1,08	2,4	0,85	1,9
Non-EU Europe	0,23	0,4	0,40	0,7	1,25	2,3	1,34	2,5	0,82	1,5	0,55	1,0	1,08	2,0
Russia	0,58	1,6	0,46	1,3	0,80	2,2	1,44	4,0	0,90	2,5	0,56	1,6	1,17	3,2
China	1,60	16,1	1,28	12,9	0,33	3,3	1,55	15,6	0,85	8,5	1,14	11,4	1,20	12,0
India	2,16	12,5	2,97	17,3	0,61	3,6	1,01	5,9	0,88	5,1	2,26	13,1	0,94	5,5
Rest of Asia	0,47	3,8	0,56	4,6	0,75	6,2	1,39	11,4	0,83	6,8	0,58	4,8	1,11	9,1
Middle East & North Africa	0,53	3,9	0,53	3,9	0,50	3,7	0,65	4,8	1,04	7,7	0,52	3,9	0,85	6,2
Sub-Saharan Africa	0,24	0,8	0,33	1,1	2,18	7,3	0,85	2,9	0,84	2,8	0,73	2,5	0,85	2,8
Latin America	0,51	4,3	0,72	6,1	1,65	13,8	1,28	10,8	0,84	7,0	0,88	7,4	1,06	8,9
<b>Total</b>		<b>100</b>		<b>100</b>		<b>100</b>		<b>100</b>		<b>100</b>		<b>100</b>		<b>100</b>
<i>Reminder: median value</i>		<i>3,91</i>		<i>4,57</i>		<i>4,60</i>		<i>4,75</i>		<i>6,68</i>		<i>4,77</i>		<i>5,48</i>

Source: Authors' elaboration on fDi Markets database.

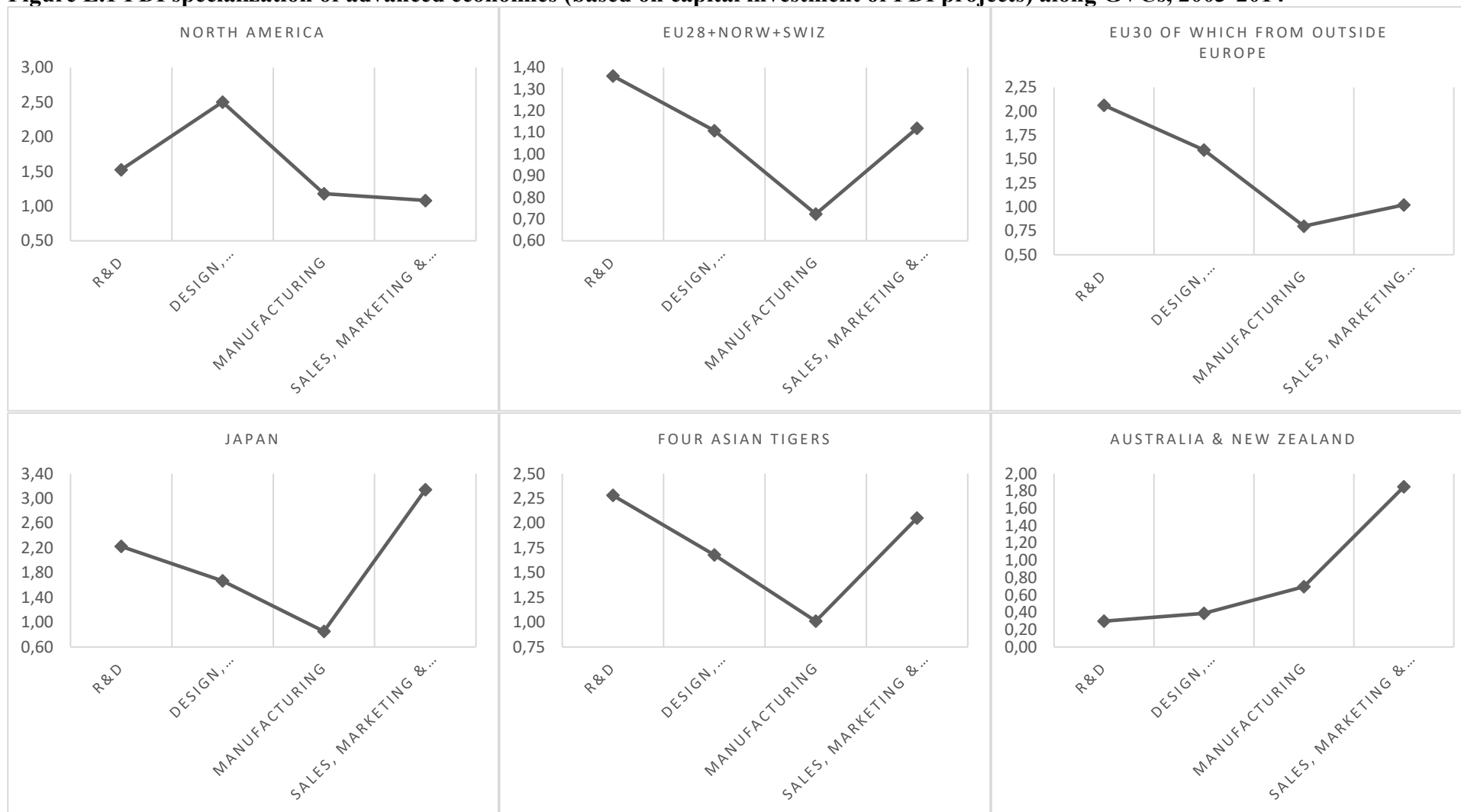
**Table E.5 Specialization indices of regions of destination (based on capital investment of FDIs) by type of activity, 2003-2014**

Destination regions	Type of activity						
	R&D	Design, Development & Testing (DDT)	ICT & Internet infrastructure	Manufacturing	Sales, Marketing & Support (SMS)	Tot. FDIs in tech. act.	Tot. FDIs in other act.
North America	1,53	2,50	0,71	1,18	1,08	1,31	0,80
EU28+Norw+Swiz	1,36	1,11	1,27	0,72	1,12	1,24	1,18
<i>EU30 of which from outside Europe</i>	<i>2,06</i>	<i>1,60</i>	<i>1,54</i>	<i>0,80</i>	<i>1,02</i>	<i>1,63</i>	<i>1,07</i>
Japan	2,22	1,67	1,18	0,85	3,14	1,46	0,87
Four Asian Tigers	2,28	1,68	1,98	1,01	2,05	1,94	0,76
Australia & New Zealand	0,30	0,39	1,10	0,69	1,85	0,79	1,21
Non-EU Europe	0,39	0,14	0,91	0,83	1,57	0,62	1,15
Russia	0,31	0,19	0,24	1,31	0,86	0,24	0,86
China	1,89	1,28	0,16	1,34	1,10	0,71	0,75
India	2,86	3,30	0,81	1,15	1,81	1,78	0,68
Rest of Asia	0,26	0,34	0,43	1,17	1,00	0,38	0,95
Middle East & North Africa	0,20	0,35	0,31	0,92	0,61	0,30	1,20
Sub-Saharan Africa	0,09	0,13	1,74	0,73	0,39	1,07	1,27
Latin America	0,43	0,63	2,46	0,99	0,39	1,67	0,96

Source: Authors' elaboration on fDi Markets database.

Note: Values on capital investment are in millions of dollars at current prices.

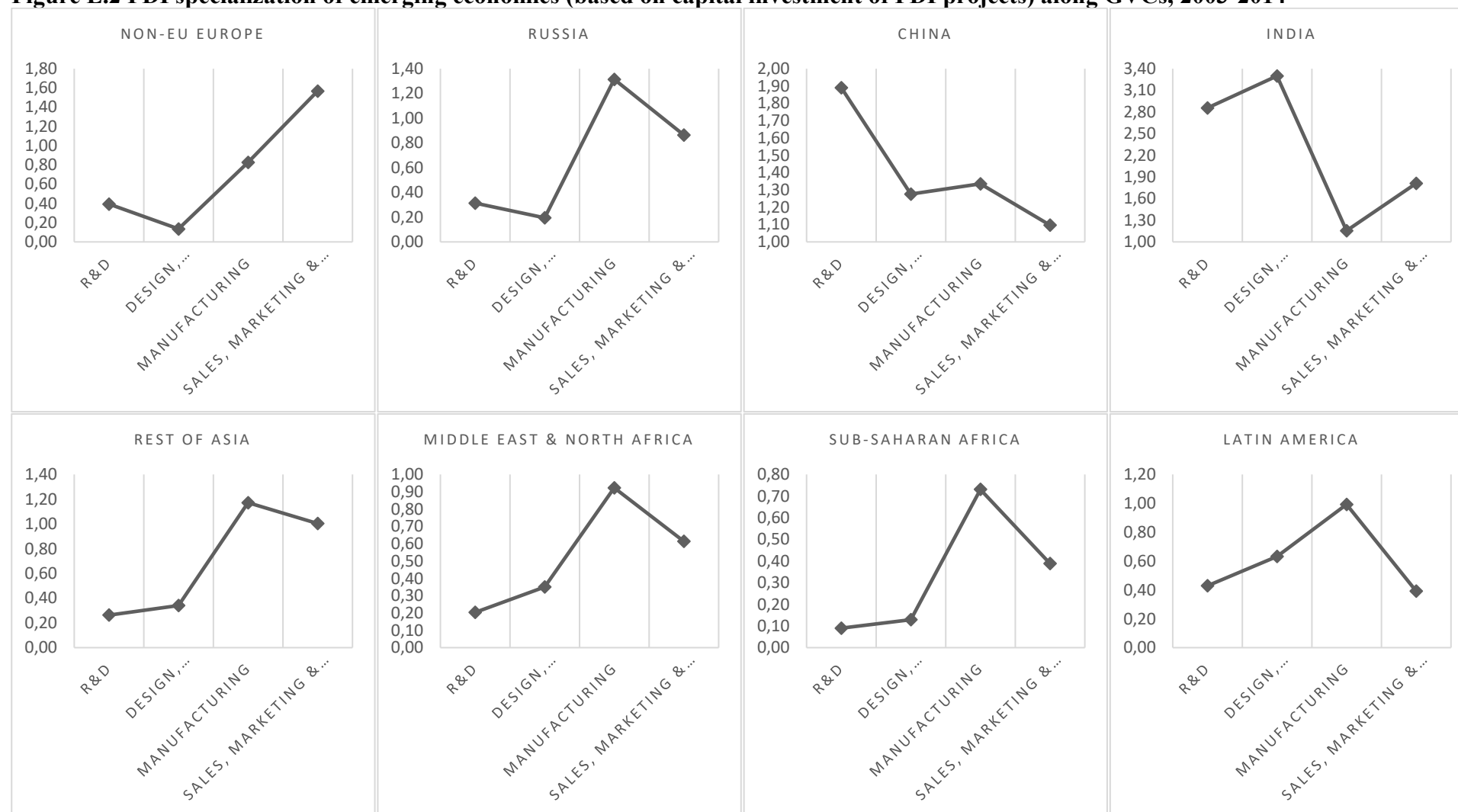
**Figure E.1 FDI specialization of advanced economies (based on capital investment of FDI projects) along GVCs, 2003-2014**



Source: Authors' elaboration on fDi Markets database.

Note: Values on capital investment are in millions of dollars at current prices.

**Figure E.2 FDI specialization of emerging economies (based on capital investment of FDI projects) along GVCs, 2003-2014**



Source: Authors' elaboration on fDi Markets database.

Note: Values on capital investment are in millions of dollars at current prices.

**Table E.6 Specialization indices of regions of destination (based on number of FDIs) by type of activity, 2003-2008 (pre-crisis period)**

Destination regions	Type of activity					Tot. FDIs in tech. act.	Tot. FDIs in Manufacturing & Sales	Tot. FDIs in other act.	Total
	R&D	Design & Development	ICT infrastructure	Manufacturing	Sales, Marketing and Support				
<b>Advanced economies</b>									
North America	1,23	0,90	0,91	1,09	0,99	1,01	1,04	0,94	1
EU28+Norw+Swiz	0,90	0,78	1,02	0,88	1,10	0,86	0,98	1,06	1
<i>of which from outside Europe</i>	<i>1,25</i>	<i>1,09</i>	<i>1,18</i>	<i>0,72</i>	<i>1,28</i>	<i>1,16</i>	<i>0,97</i>	<i>1,01</i>	<i>1</i>
Japan	1,48	1,23	1,51	0,30	2,11	1,36	1,10	0,80	1
Four Asian Tigers	1,94	1,52	1,70	0,55	1,27	1,69	0,87	1,03	1
Australia & New Zealand	0,92	0,96	1,70	0,46	1,35	1,07	0,85	1,19	1
<b>Emerging economies</b>									
Non-EU Europe	0,12	0,22	1,81	1,08	0,93	0,45	1,02	1,09	1
Russia	0,39	0,42	0,84	1,31	0,93	0,48	1,14	0,92	1
China	1,50	1,16	0,37	1,45	0,90	1,13	1,21	0,69	1
India	2,24	3,90	0,83	0,86	0,84	2,85	0,85	0,82	1
Rest of Asia	0,50	0,59	1,02	1,33	0,73	0,63	1,07	0,99	1
Middle East & North Africa	0,56	0,48	0,64	0,65	1,00	0,53	0,81	1,36	1
Sub-Saharan Africa	0,24	0,39	1,65	0,88	0,73	0,55	0,82	1,34	1
Latin America	0,36	0,67	1,50	1,24	0,81	0,71	1,05	0,99	1

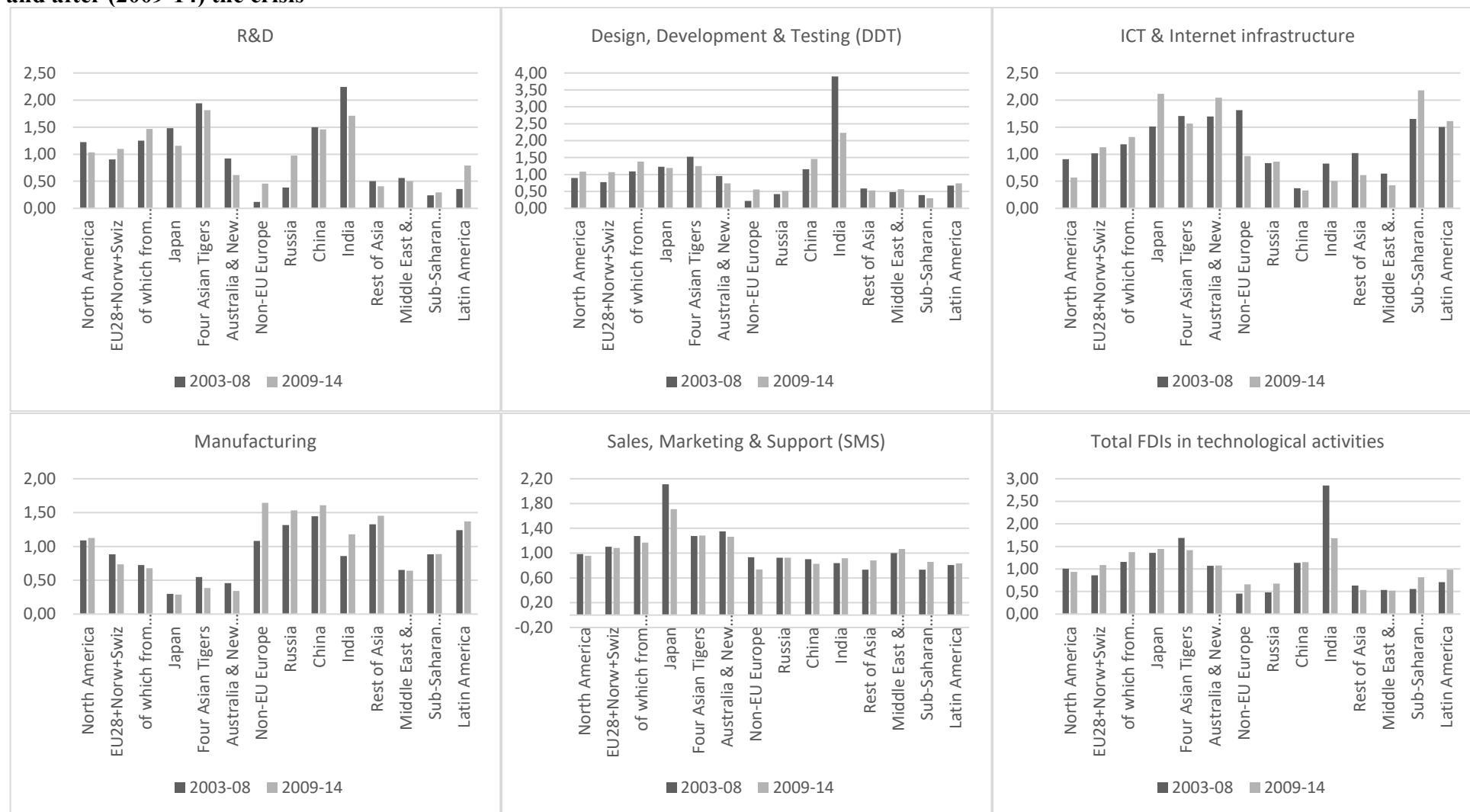
Source: Authors' elaboration on fDi Markets database.

**Table E.7 Specialization indices of regions of destination (based on number of FDIs) by type of activity, 2009-2014 (post-crisis period)**

Destination regions	Type of activity					Tot. FDIs in tech. act.	Tot. FDIs in Manufacturing & Sales	Tot. FDIs in other act.	Total
	R&D	Design & Development	ICT infrastructure	Manufacturing	Sales, Marketing and Support				
<b>Advanced economies</b>									
North America	1,03	1,09	0,57	1,12	0,96	0,94	1,03	0,97	1
EU28+Norw+Swiz	1,10	1,07	1,13	0,74	1,08	1,09	0,93	1,07	1
<i>of which from outside Europe</i>	<i>1,47</i>	<i>1,38</i>	<i>1,32</i>	<i>0,68</i>	<i>1,17</i>	<i>1,37</i>	<i>0,95</i>	<i>0,98</i>	<i>1</i>
Japan	1,16	1,19	2,11	0,29	1,71	1,44	1,08	0,82	1
Four Asian Tigers	1,81	1,25	1,57	0,39	1,29	1,42	0,88	1,06	1
Australia & New Zealand	0,62	0,74	2,04	0,34	1,26	1,08	0,85	1,16	1
<b>Emerging economies</b>									
Non-EU Europe	0,46	0,56	0,96	1,64	0,74	0,66	1,14	0,89	1
Russia	0,98	0,51	0,86	1,53	0,93	0,67	1,20	0,83	1
China	1,46	1,46	0,33	1,61	0,83	1,15	1,17	0,76	1
India	1,71	2,23	0,51	1,18	0,92	1,68	1,03	0,82	1
Rest of Asia	0,41	0,53	0,62	1,45	0,88	0,54	1,14	0,92	1
Middle East & North Africa	0,50	0,56	0,42	0,64	1,07	0,52	0,88	1,25	1
Sub-Saharan Africa	0,29	0,30	2,18	0,89	0,86	0,82	0,87	1,20	1
Latin America	0,79	0,74	1,61	1,37	0,84	0,98	1,07	0,91	1

Source: Authors' elaboration on fDi Markets database.

**Figure E.3 Comparison between the specialization indices of destination regions (based on number of FDIs) by type of activity before (2003-08) and after (2009-14) the crisis**



Source: Authors' elaboration on fDi Markets database.



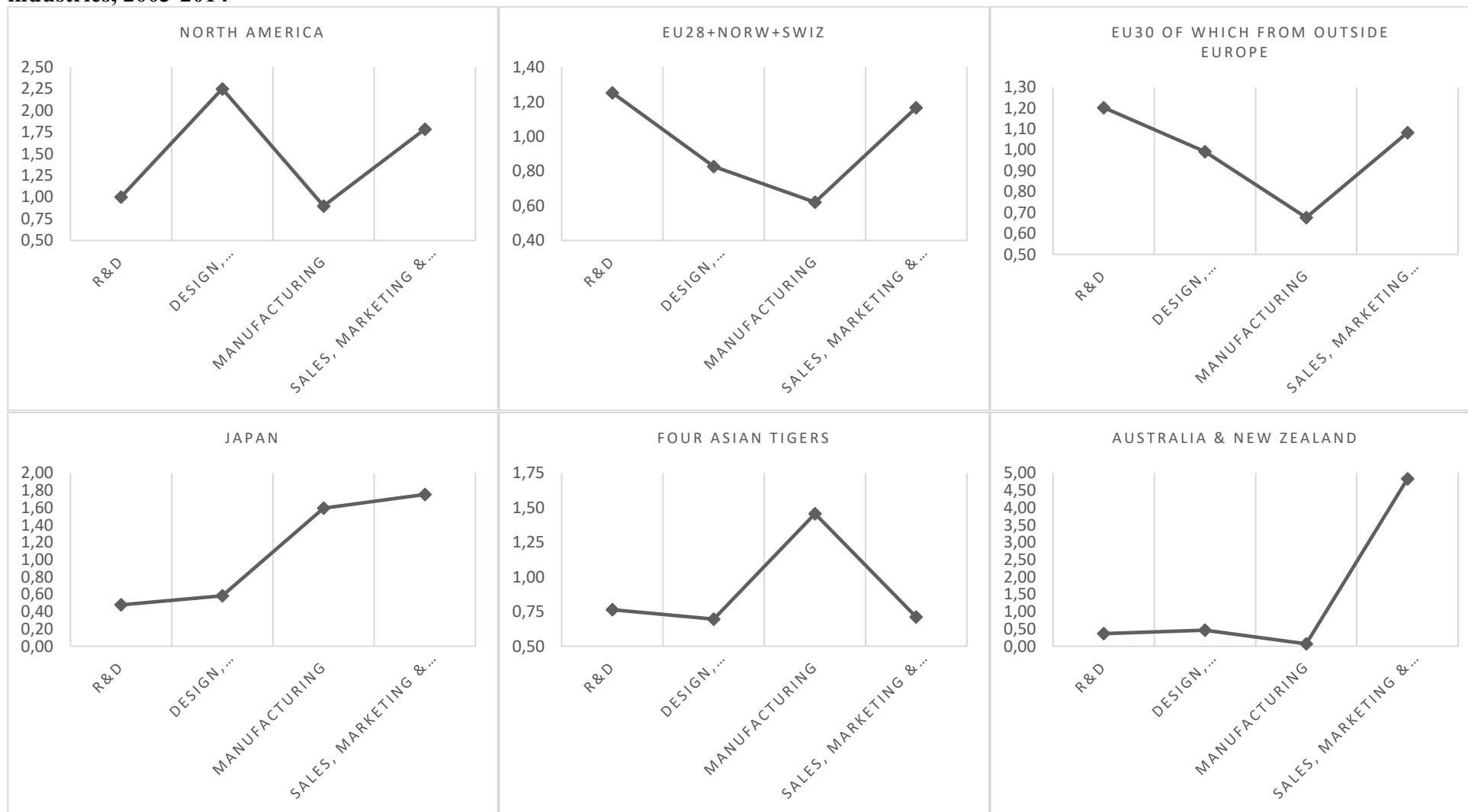
## Appendix F

**Table F.1 Number of inward FDI projects by type of activity and region of destination, computed on the number of FDIs in digital industries, 2003-2014**

Destination regions		Type of activity					Tot. FDIs in tech. act.	Tot. FDIs in Manufacturing & Sales	Tot. FDIs in other act.	Total
		R&D	Design, development & testing (DDT)	ICT & Internet infrastructure	Manufacturing	Sales, Marketing & Support (SMS)				
<b>Advanced economies</b>										
North America	Frequency	59	353	186	248	2138	598	2386	881	3865
	% per country	1,5	9,1	4,8	6,4	55,3	15,5	61,7	22,8	100
	% per activity	7,0	9,2	7,2	7,3	13,1	8,2	12,0	13,9	11,6
EU28+Norw+Swiz	Frequency	235	1161	901	801	6287	2297	7088	2604	11989
	% per country	2,0	9,7	7,5	6,7	52,4	19,2	59,1	21,7	100
	% per activity	27,7	30,2	34,8	23,4	38,4	31,6	35,8	41,1	35,9
<i>of which from outside Europe</i>	Frequency	159	761	475	393	3492	1395	3885	1737	7017
	% per country	2,3	10,9	6,8	5,6	49,8	19,9	55,4	24,8	100
	% per activity	18,8	19,8	18,3	11,5	21,3	19,2	19,6	27,4	21,0
Japan	Frequency	14	44	58	22	497	116	519	73	708
	% per country	2,0	6,2	8,2	3,1	70,2	16,4	73,3	10,3	100
	% per activity	1,7	1,2	2,2	0,6	3,0	1,6	2,6	1,2	2,1
Four Asian Tigers	Frequency	96	288	223	202	1253	607	1455	447	2509
	% per country	3,8	11,5	8,9	8,1	49,9	24,2	58,0	17,8	100
	% per activity	11,3	7,5	8,6	5,9	7,7	8,3	7,3	7,1	7,5
Australia & New Zealand	Frequency	17	79	120	10	659	216	669	230	1115
	% per country	1,5	7,1	10,8	0,9	59,1	19,4	60,0	20,6	100
	% per activity	2,0	2,1	4,6	0,3	4,0	3,0	3,4	3,6	3,3
<b>Emerging economies</b>										
Non-EU Europe	Frequency	4	36	62	52	141	102	193	42	337
	% per country	1,2	10,7	18,4	15,4	41,8	30,3	57,3	12,5	100
	% per activity	0,5	0,9	2,4	1,5	0,9	1,4	1,0	0,7	1,0
Russia	Frequency	14	57	59	41	274	130	315	52	497
	% per country	2,8	11,5	11,9	8,3	55,1	26,2	63,4	10,5	100
	% per activity	1,7	1,5	2,3	1,2	1,7	1,8	1,6	0,8	1,5
China	Frequency	158	408	85	880	1064	651	1944	284	2879
	% per country	5,5	14,2	3,0	30,6	37,0	22,6	67,5	9,9	100
	% per activity	18,7	10,6	3,3	25,7	6,5	8,9	9,8	4,5	8,6
India	Frequency	149	825	91	203	788	1065	991	421	2477
	% per country	6,0	33,3	3,7	8,2	31,8	43,0	40,0	17,0	100
	% per activity	17,6	21,5	3,5	5,9	4,8	14,6	5,0	6,7	7,4
Rest of Asia	Frequency	36	173	164	435	701	373	1136	298	1807
	% per country	2,0	9,6	9,1	24,1	38,8	20,6	62,9	16,5	100
	% per activity	4,3	4,5	6,3	12,7	4,3	5,1	5,7	4,7	5,4
Middle East & North Africa	Frequency	39	140	95	131	973	274	1104	403	1781
	% per country	2,2	7,9	5,3	7,4	54,6	15,4	62,0	22,6	100
	% per activity	4,6	3,7	3,7	3,8	5,9	3,8	5,6	6,4	5,3
Sub-Saharan Africa	Frequency	4	36	192	51	415	232	466	131	829
	% per country	0,5	4,3	23,2	6,2	50,1	28,0	56,2	15,8	100
	% per activity	0,5	0,9	7,4	1,5	2,5	3,2	2,4	2,1	2,5
Latin America	Frequency	22	239	356	344	1198	617	1542	467	2626
	% per country	0,8	9,1	13,6	13,1	45,6	23,5	58,7	17,8	100
	% per activity	2,6	6,2	13,7	10,1	7,3	8,5	7,8	7,4	7,9
<b>Total</b>	Frequency	847	3839	2592	3420	16388	7278	19808	6333	33419
	% per country	2,5	11,5	7,8	10,2	49,0	21,8	59,3	19,0	100
	% per activity	100	100	100	100	100	100	100	100	100

Source: Authors' elaboration on fDi Markets database.

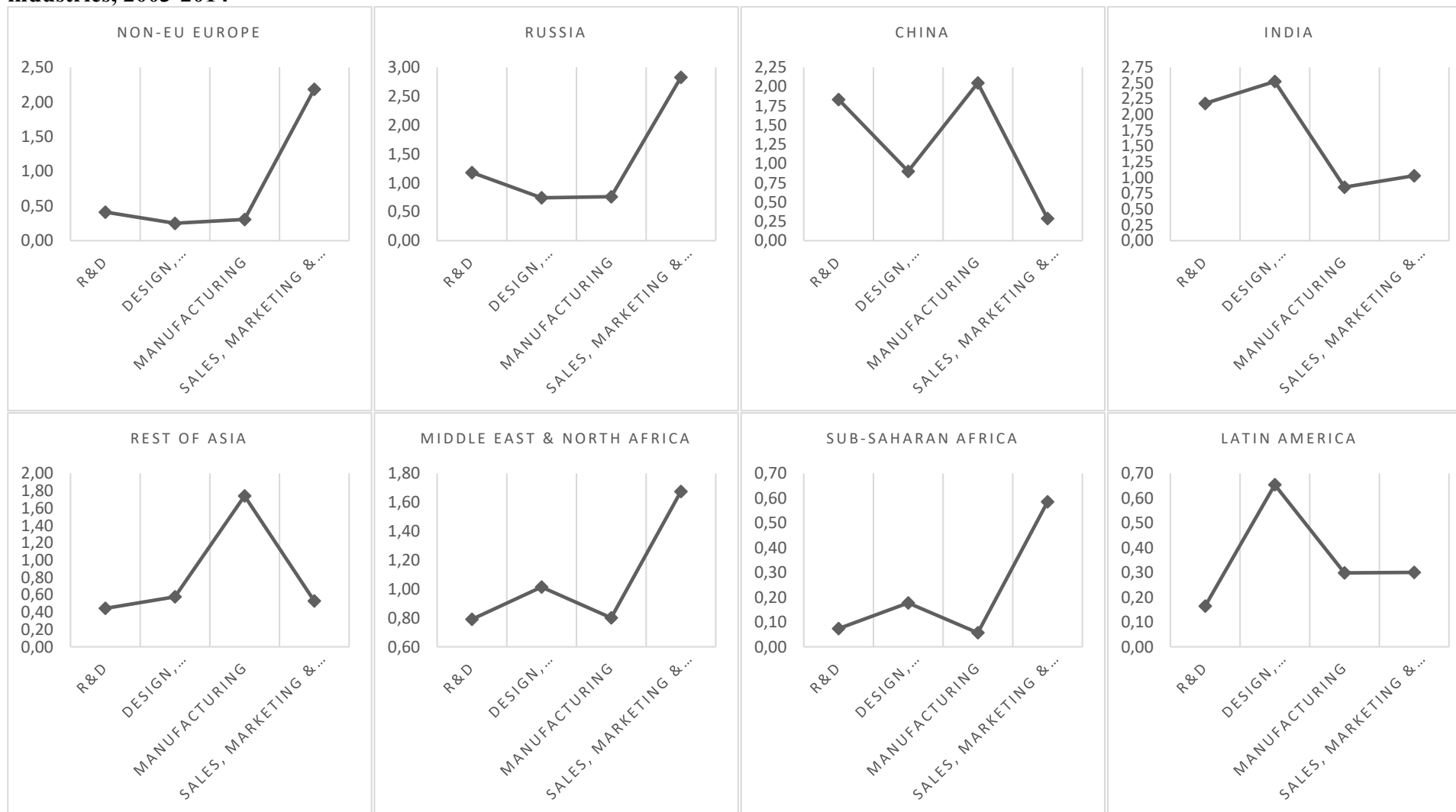
**Figure F.1 FDI specialization of advanced economies by type of activity, computed on the base of the capital investment of FDI projects in digital industries, 2003-2014**



Source: Authors' elaboration on fDi Markets database.

Note: Values on capital investment are in millions of dollars at current prices.

**Figure F.2 FDI specialization of emerging economies by type of activity, computed on the base of the capital investment of FDI projects in digital industries, 2003-2014**



Source: Authors' elaboration on fDi Markets database.

Note: Values on capital investment are in millions of dollars at current prices.

## Appendix G

**Table G.1 Number of FDI projects towards emerging economies by type of activity (% by industry), 2003-2014**

Destination industry	Type of activity					Total
	R&D	Design, Development & Testing (DDT)	ICT & Internet infrastructure	Tot. FDIs in tech. act.	Tot. FDIs in other act.	
Business Machines & Equipment	1,7	1,1	0,1	1,0	1,2	1,2
Electronic Components	3,5	2,8	0,1	2,4	3,0	2,9
Semiconductors	5,1	6,9	0,2	5,1	0,8	1,2
Software & IT services	18,0	40,8	13,7	30,3	7,1	8,9
Communications	9,3	9,8	83,5	25,2	3,4	5,1
Other sectors	62,4	38,5	2,5	36,0	84,5	80,7
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Source: Authors' elaboration on fDi Markets database.

**Table G.2 Number of FDI projects towards emerging economies by industry (% by type of activity), 2003-2014**

Destination industry	Type of activity					Total
	R&D	Design, Development & Testing (DDT)	ICT & Internet infrastructure	Tot. FDIs in tech. act.	Tot. FDIs in other act.	
Business Machines & Equipment	2,3	4,3	0,1	6,7	93,3	100
Electronic Components	2,0	4,4	0,0	6,4	93,6	100
Semiconductors	7,2	26,5	0,2	34,0	66,0	100
Software & IT services	3,3	20,9	2,5	26,8	73,2	100
Communications	3,0	8,7	26,9	38,6	61,4	100
Other sectors	1,3	2,2	0,1	3,5	96,5	100
<b>Total</b>	<b>1,7</b>	<b>4,6</b>	<b>1,7</b>	<b>7,9</b>	<b>92,1</b>	<b>100</b>

Source: Authors' elaboration on fDi Markets database.

**Table G.3 Number of FDI projects from emerging economies by industry (% by region of destination), 2003-2014**

Destination regions	Destination industry					Tot. FDIs in digital industries	Tot. FDIs in other industries	Total
	Business Machines & Equip.	Electronic Components	Semiconductors	Software & IT services	Communications			
<b>Advanced economies</b>								
North America	9,7	13,3	25,9	18,6	7,7	14,4	7,9	9,2
EU28+Norw+Swiz	26,9	40,5	20,7	24,9	19,0	24,7	21,0	21,7
Japan	0,0	3,0	8,6	1,9	0,6	1,7	0,7	0,9
Four Asian Tigers	5,4	7,7	6,9	6,4	5,7	6,3	4,4	4,7
Australia & New Zealand	0,0	2,3	0,0	3,2	1,9	2,6	1,5	1,7
<b>Emerging economies</b>								
Non-EU Europe	1,1	1,4	0,0	1,4	3,6	2,1	2,6	2,5
Russia	0,0	1,9	0,0	0,6	1,8	1,1	3,0	2,6
China	1,1	3,5	27,6	4,0	1,8	3,5	4,8	4,5
India	5,4	3,3	3,4	3,2	4,2	3,6	4,3	4,2
Rest of Asia	6,5	4,7	5,2	6,5	10,8	7,7	15,2	13,7
Middle East & North Africa	10,8	7,7	0,0	8,5	11,4	9,3	16,7	15,3
Sub-Saharan Africa	12,9	5,2	0,0	4,0	17,0	8,5	9,6	9,4
Latin America	20,4	5,4	1,7	16,8	14,5	14,6	8,3	9,5
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Source: Authors' elaboration on fDi Markets database.

**Table G.4 Number of FDI projects from emerging economies by region of destination (% by industry), 2003-2014**

Destination regions	Destination industry					Tot. FDIs in digital industries	Tot. FDIs in other industries	Total
	Business Machines & Equip.	Electronic Components	Semiconductors	Software & IT services	Communications			
<b>Advanced economies</b>								
North America	0,5	3,1	0,8	20,2	5,2	29,9	70,1	100
EU28+Norw+Swiz	0,6	4,0	0,3	11,4	5,4	21,7	78,3	100
Japan	0,0	7,6	2,9	22,4	4,7	37,6	62,4	100
Four Asian Tigers	0,5	3,5	0,4	13,5	7,5	25,4	74,6	100
Australia & New Zealand	0,0	2,9	0,0	18,6	7,0	28,4	71,6	100
<b>Emerging economies</b>								
Non-EU Europe	0,2	1,2	0,0	5,5	8,9	15,8	84,2	100
Russia	0,0	1,5	0,0	2,3	4,2	8,0	92,0	100
China	0,1	1,7	1,8	8,7	2,4	14,7	85,3	100
India	0,6	1,7	0,2	7,7	6,3	16,5	83,5	100
Rest of Asia	0,2	0,7	0,1	4,7	4,9	10,6	89,4	100
Middle East & North Africa	0,3	1,1	0,0	5,5	4,6	11,5	88,5	100
Sub-Saharan Africa	0,6	1,2	0,0	4,3	11,2	17,3	82,7	100
Latin America	1,0	1,2	0,1	17,5	9,5	29,3	70,7	100
<b>Total</b>	<b>0,5</b>	<b>2,1</b>	<b>0,3</b>	<b>9,9</b>	<b>6,2</b>	<b>19,1</b>	<b>80,9</b>	<b>100</b>

Source: Authors' elaboration on fDi Markets database.

**Table G.5 Number of FDI projects from emerging economies by type of activity (% by region of destination), 2003-2014**

Destination regions	Type of activity			Tot. FDIs in tech. act.	Tot. FDIs in other act.	Total
	R&D	Design, Development & Testing (DDT)	ICT & Internet infrastructure			
<b>Advanced economies</b>						
North America	20,3	19,1	4,4	13,7	8,9	9,2
EU28+Norw+Swiz	39,5	31,7	9,2	24,3	21,6	21,7
Japan	1,7	1,9	0,2	1,2	0,8	0,9
Four Asian Tigers	4,5	7,5	7,4	7,0	4,6	4,7
Australia & New Zealand	1,1	2,1	0,9	1,5	1,7	1,7
<b>Emerging economies</b>						
Non-EU Europe	0,6	1,5	7,1	3,5	2,5	2,5
Russia	0,6	1,1	1,8	1,3	2,7	2,6
China	5,1	5,5	0,7	3,6	4,6	4,5
India	7,3	7,5	1,4	5,2	4,1	4,2
Rest of Asia	9,6	3,4	12,2	7,7	14,1	13,7
Middle East & North Africa	6,2	5,3	8,0	6,5	15,8	15,3
Sub-Saharan Africa	1,1	1,7	26,4	11,0	9,3	9,4
Latin America	2,3	11,7	20,2	13,5	9,3	9,5
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Source: Authors' elaboration on fDi Markets database.

**Table G.6 Number of FDI projects from emerging economies by region of destination (% by type of activity), 2003-2014**

Destination regions	Type of activity			Tot. FDIs in tech. act.	Tot. FDIs in other act.	Total
	R&D	Design, Development & Testing (DDT)	ICT & Internet infrastructure			
<b>Advanced economies</b>						
North America	2,0	5,5	1,0	8,5	91,5	100
EU28+Norw+Swiz	1,6	3,9	0,9	6,4	93,6	100
Japan	1,8	5,9	0,6	8,2	91,8	100
Four Asian Tigers	0,8	4,2	3,4	8,4	91,6	100
Australia & New Zealand	0,6	3,2	1,2	4,9	95,1	100
<b>Emerging economies</b>						
Non-EU Europe	0,2	1,6	6,1	7,9	92,1	100
Russia	0,2	1,1	1,5	2,9	97,1	100
China	1,0	3,2	0,3	4,5	95,5	100
India	1,6	4,8	0,7	7,1	92,9	100
Rest of Asia	0,6	0,7	1,9	3,2	96,8	100
Middle East & North Africa	0,4	0,9	1,1	2,4	97,6	100
Sub-Saharan Africa	0,1	0,5	6,1	6,7	93,3	100
Latin America	0,2	3,3	4,6	8,1	91,9	100
<b>Total</b>	0,9	2,7	2,2	5,7	94,3	100

Source: Authors' elaboration on fDi Markets database.

## Appendix H

### List of countries by region

North America	Latin America	EU28+Norway+Switzerland	Non-EU Europe	Four Asia Tigers	Rest of Asia	Middle East & North Africa	Sub-Saharan Africa
Canada	Antigua	Austria	Albania	Hong Kong	Afghanistan	Algeria	Angola
United States	Argentina	Belgium	Andorra	Singapore	Armenia	Bahrain	Benin
	Aruba	Bulgaria	Belarus	South Korea	Azerbaijan	Djibouti	Botswana
	Bahamas	Croatia	Bosnia-Herzegovina	Taiwan	Bangladesh	Egypt	Burkina Faso
	Barbados	Cyprus	Greenland		Bhutan	Iran	Burundi
	Belize	Czech Republic	Iceland		Brunei	Iraq	Cameroon
	Bolivia	Denmark	Liechtenstein		Cambodia	Israel	Cape Verde
	Brazil	Estonia	Macedonia FYR		Fiji	Jordan	Central African Republic
	Cayman Islands	Finland	Moldova		French Polynesia	Kuwait	Chad
	Chile	France	Monaco		Georgia	Lebanon	Comoros
	Colombia	Germany	Montenegro		Indonesia	Libya	Congo (DRC)
	Costa Rica	Greece	Serbia		Kazakhstan	Morocco	Equatorial Guinea
	Cuba	Hungary	Ukraine		Kyrgyzstan	Oman	Eritrea
	Dominica	Ireland			Laos	Palestine	Ethiopia
	Dominican Republic	Italy			Macau	Qatar	Gabon
	Ecuador	Latvia			Malaysia	Saudi Arabia	Gambia
	El Salvador	Lithuania			Maldives	Syria	Ghana
	Grenada	Luxembourg			Micronesia	Tunisia	Guinea
	Guadeloupe	Malta			Mongolia	Turkey	Guinea Bissau
	Guatemala	Netherlands			Myanmar (Burma)	UAE	Ivory Coast
	Guyana	Norway			Nepal	Yemen	Kenya
	Haiti	Poland			New Caledonia		Lesotho
	Honduras	Portugal			North Korea		Liberia
	Jamaica	Romania			Pakistan		Madagascar
	Martinique	Slovakia			Papua New Guinea		Malawi
	Mexico	Slovenia			Philippines		Mali
	Nicaragua	Spain			Samoa		Mauritania
	Panama	Sweden			Solomon Islands		Mauritius
	Paraguay	Switzerland			Sri Lanka		Mozambique
	Peru	UK			Tajikistan		Namibia
	Puerto Rico				Thailand		Niger
	Saint Kitts & Nevis				Timor-Leste		Nigeria
	S. Vincent & the Grenadines				Turkmenistan		Republic of the Congo
	St Lucia				Uzbekistan		Reunion
	Suriname				Vietnam		Rwanda
	Trinidad & Tobago						Sao Tome
	Turks and Caicos Islands						Senegal
	Uruguay						Seychelles
	Venezuela						Sierra Leone
							Somalia
							South Africa
							South Sudan
							Sudan
							Swaziland
							Tanzania
							Togo
							Uganda
							Zambia
							Zimbabwe

Source: Authors' elaboration on fDi Markets database.