

Types of Japanese Firms' FDI in Poland, Czech Republic, and Hungary:

A Firm-Level Analysis

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JEL Classification: F23, F63.

1 Introduction

Among Central and Eastern European Countries (CEEs), this study focuses on Japanese firms having performed FDI in the 1990s to early 2020s into Poland, Czech Republic, and Hungary, which has been the gateway of FDI in CEEs.

The main results are as follows. First, three machinery industries (general-purpose, electrical, and transportation) and wholesale industries of those products have many affiliates in the three countries. Second, many wholesalers of the three machineries were established in the 1990s to 2010s, followed by manufacturers. Also, there are differences about early-established affiliates. In Poland, most of those affiliates were wholesalers, while in Czech Republic and Hungary, majorities of those affiliates were manufacturers.

2 Related Literature

Blonigen (2001) shows that Japanese auto-parts exports to and local production of auto parts in the U.S. are substitutes, while Japanese auto-parts exports to and local production of automobiles are complements on data of 1978-91. Head and Ries (2004) develop a model of vertically integrated MNEs, showing that overseas production and intermediate-good exports can be complements. Krautheim (2013) develops a model of heterogeneous firms of exporting, horizontal FDI (HFDI), or exporting-supporting FDI (ESFDI). In the model, the fixed cost of HFDI is higher than that of ESFDI, while HFDI can save the transport cost for exporting. German firm-level data from 1989 to 2009 show that for FDI to Western European countries, number of ESFDI is larger than that of HFDI. However, the opposite holds for FDI in Eastern Europe.

3 Data Description

The data used in this study are Overseas Japanese Companies database of Toyo Keizai Inc. OJC database consists of “foreign affiliate data” and “Japanese parent company data”.

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4 Analysis of Japanese Affiliates in Poland, Czech Republic, and Hungary

4.1 Number of Japanese Affiliates by Industry

In Table 1a, the following five manufacturing industries have more than ten affiliates in the three countries total.

- three machinery industries.
- chemical and allied products.
- fabricated metal products.

<Table 1a>

Table 1b is about wholesale industries. Four wholesale industries selling machineries have more than ten affiliates in the three countries total. Compositions of manufacturers and wholesalers are totally different among those four industries, which can be classified as the following three patterns.

- Pattern One (more manufacturers): transportation equipment.
- Pattern Two (equal numbers): electrical machinery.
- Pattern Three (more wholesalers): general-purpose and business oriented machineries.

<Table 1b>

Table 1c covers construction and service industries. Two service industries, warehousing and worker dispatching services, have relatively many affiliates in the three countries total.

<Table 1c>

4.2 Establishment Years of Japanese Affiliates

Table 2 shows averages of establishment years by industry, industry group, and all industries. About establishment year, on average, wholesale industries have the longest history.

<Table 2a>

<Table 2b>

<Table 2c>

Figures 1 describe how establishment years of Japanese affiliates distribute over time from 1990 to 2022 in each of the three countries. First, they show that many Japanese affiliates were established in the 2000s. However, not a small number of affiliates were established in the 1990s. Second, in Poland, most of those affiliates were wholesalers, while in Czech Republic and Hungary, majorities of those affiliates were manufacturers.

<Figure 1a>

< Figure 1b>

< Figure 1c>

Figures 2 show the distributions of establishment years of Japanese affiliates in Poland for the three machinery industries. Wholesalers were firstly established in the period of 1990-94.

However, while general-purpose and electrical machineries established wholesale affiliates almost every period from the 1990s to 2010s, for transportation equipment, establishment of them were concentrated in the first half of the 1990s and the 2000s.

<Figure 2a>

< Figure 2b>

< Figure 2c>

Figures 3 show the distributions of establishment years of Japanese affiliates in Czech Republic for the three machinery industries. Wholesalers were firstly established in the 1990s. However, in the 2000s, majority of affiliates established were manufacturers, especially for transportation equipment.

<Figure 3a>

< Figure 3b>

< Figure 3c>

Figures 4 show the distributions of establishment years of Japanese affiliates in Hungary for the three machinery industries. Wholesalers were firstly established in the first half of the 1990s. However, in the second half of the 1990s and 2000s, majority of affiliates established were manufacturers, except for general-purpose machinery.

<Figure 4a>

< Figure 4b>

< Figure 4c>

5 Remarks

There are possible extensions of this study. First, regional distribution of affiliates and its relation with (macro)economic and/or geographic characteristics of the three countries should be explored more. There are some clusters of Japanese affiliates in Poland, Czech Republic, and Hungary. Those clusters may have been developed due to subsidies and/or other policies by central/local governments which should be explored as well. Second, behaviors of Japanese parent companies should be examined more.

References

- Blonigen, Bruce A. (2001) "In Search of Substitution between Foreign Production and Exports" *Journal of International Economics* 53 (1), pp.81–104.
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Table 1a Number of Japanese Affiliates by Industry (Manufacturing)

Industry/Country	Poland	Czech	Hungary	3-Country Total
Food and Beverages	4	1	2	7
Textile Products	0	1	1	2
Chemical and Allied Products	4	9	6	19
Medicines	1	1	0	2
Rubber Products	6	1	2	9
Ceramic, Stone, and Clay Products	2	1	0	3
Iron and Steel	0	1	0	1
Non-Ferrous Metals and Products	1	2	0	3
Fabricated Metal Products	5	7	0	12
General-Purpose Machinery	8	9	1	18
Electrical Machinery, Equipment and Supplies	9	11	14	34
Transportation Equipment	9	25	14	48
Business Oriented Machinery	1	4	2	7
Other	5	2	1	8
Manufacturing Total	55	75	43	173
All-Industry Total	135	127	79	341

Table 1b Number of Japanese Affiliates by Industry (Wholesale)

Industry/Country	Poland	Czech Republic	Hungary	3-Country Total
General Merchandise	1	0	0	1
Food and Beverages	1	0	0	1
Chemicals and Allied Products	2	4	2	8
Medicines	0	1	0	1
Iron and Steel Products, Non-Ferrous Metals	1	2	1	4
General-Purpose Machinery	19	11	7	37
Electrical Machinery, Equipment and Supplies	13	10	5	28
Transportation Equipment	6	3	5	14
Business Oriented Machinery	9	3	4	16
Other	3	4	0	7
Wholesale Total	55	38	24	117
All-Industry Total	135	127	79	341

Table 1c Number of Japanese Affiliates by Industry (Construction, Service, and Other)

Industry/Country	Poland	Czech Republic	Hungary	3-Country Total
Construction	1	1	0	2
Freight Transport	0	2	1	3
Warehousing	6	5	3	14
Information Services	3	1	1	5
Goods Rental and Leasing	1	0	0	1
Financial Auxiliaries	1	1	1	3
Non-Life Insurance Institutions	1	0	0	1
Real Estate	1	0	0	1
Travel Agency	0	1	1	2
Worker Dispatching Services	9	0	2	11
Other Services	2	3	3	8
Establishments Engaged in Administrative or Ancillary Economic Activities	0	1	0	1
Total (Construction, Service, and Other)	25	15	12	52
All-Industry Total	137	129	80	346

Table 2a Average Establishment Years of Japanese Affiliates for Selected Industries (Poland)

Industry	Observations	Mean	Standard Deviation	Oldest	Newest
Manufacturing					
Food and Beverages	4	2014	3.10	2010	2017
Chemical and Allied Products	4	2008	6.34	2000	2015
Rubber Products	6	2005	6.80	1998	2016
Fabricated Metal Products	5	2007	2.70	2003	2010
General-Purpose Machinery	8	2005	5.63	1998	2016
Electrical Machinery, Equipment and Supplies	9	2007	8.32	1997	2019
Transportation Equipment	9	2007	7.44	1999	2019
Business Oriented Machinery	1	2015	-	2015	2015
Manufacturing: All-Industry Average	46	2007	6.63	1997	2019
Wholesale-Trade					
Chemicals and Allied Products	2	2005	15.56	1994	2016
General-Purpose Machinery	19	2004	9.03	1990	2020
Electrical Machinery, Equipment and Supplies	13	2002	8.56	1990	2017
Transportation Equipment	6	1996	6.74	1991	2007
Business Oriented Machinery	9	2002	8.28	1990	2013
Wholesale: All-Industry Average	49	2002	8.75	1990	2020
Service					
Warehousing	6	2006	4.49	2001	2011
Information Services	3	2007	14.11	1992	2020
Worker Dispatching Services	9	2008	4.18	2001	2015
Service: All-Industry Average	18	2007	6.20	1992	2020
All-Industry Average	113	2005	7.96	1990	2020

Table 2b Average Establishment Years of Japanese Affiliates for Selected Industries (Czech Republic)

Industry	Observations	Mean	Standard Deviation	Oldest	Newest
Manufacturing					
Food and Beverages	1	1992	-	1992	1992
Chemical and Allied Products	9	2011	7.41	2000	2019
Rubber Products	1	2010	-	2010	2010
Fabricated Metal Products	7	2010	5.08	2004	2017
General-Purpose Machinery	9	2004	6.08	1994	2015
Electrical Machinery, Equipment and Supplies	11	2002	6.09	1995	2016
Transportation Equipment	25	2004	5.39	1992	2017
Business Oriented Machinery	4	2008	1.26	2007	2010
Manufacturing: All-Industry Average	67	2005	6.59	1992	2019
Wholesale-Trade					
Chemicals and Allied Products	4	2005	12.37	1989	2018
General-Purpose Machinery	11	2003	6.53	1994	2012
Electrical Machinery, Equipment and Supplies	10	2006	10.01	1990	2019
Transportation Equipment	3	1993	1.15	1992	1994
Business Oriented Machinery	3	2004	2.65	2002	2007
Wholesale: All-Industry Average	31	2003	8.57	1989	2019
Service					
Warehousing	5	2007	9.23	1998	2022
Information Services	1	2015	-	2015	2015
Worker Dispatching Services	0	-	-	-	-
Service: All-Industry Average	6	2008	8.91	1998	2022
All-Industry average	105	2005	7.37	1989	2022

Table 2c Average Establishment Years of Japanese Affiliates for Selected Industries (Hungary)

Industry	Observations	Mean	Standard Deviation	Oldest	Newest
Manufacturing					
Food and Beverages	2	2011	9.19	2004	2017
Chemical and Allied Products	6	2012	6.29	2003	2020
Rubber Products	2	2005	4.95	2001	2008
Fabricated Metal Products	0	-	-	-	-
General-Purpose Machinery	1	2011	-	2011	2011
Electrical Machinery, Equipment and Supplies	14	2001	7.09	1995	2017
Transportation Equipment	14	2002	5.97	1991	2015
Business Oriented Machinery	2	1999	0	1999	1999
Manufacturing: All-Industry Average	41	2004	7.38	1991	2020
Wholesale-Trade					
Chemicals and Allied Products	2	2001	12.02	1992	2009
General-Purpose Machinery	7	1998	7.48	1990	2009
Electrical Machinery, Equipment and Supplies	5	2001	10.33	1990	2017
Transportation Equipment	5	2001	8.28	1991	2008
Business Oriented Machinery	4	2004	9.98	1991	2015
Wholesale: All-Industry Average	23	2001	8.48	1990	2017
Service					
Warehousing	3	2002	11.79	1992	2015
Information Services	1	1988	-	1988	1988
Worker Dispatching Services	2	2010	0.71	2009	2010
Service: All-Industry Average	6	2002	10.83	1988	2015
All-Industry average	70	2003	8.07	1988	2020

Fig. 1a Distribution of Establishment Years of Japanese Affiliates, 1990-2022 (Poland)

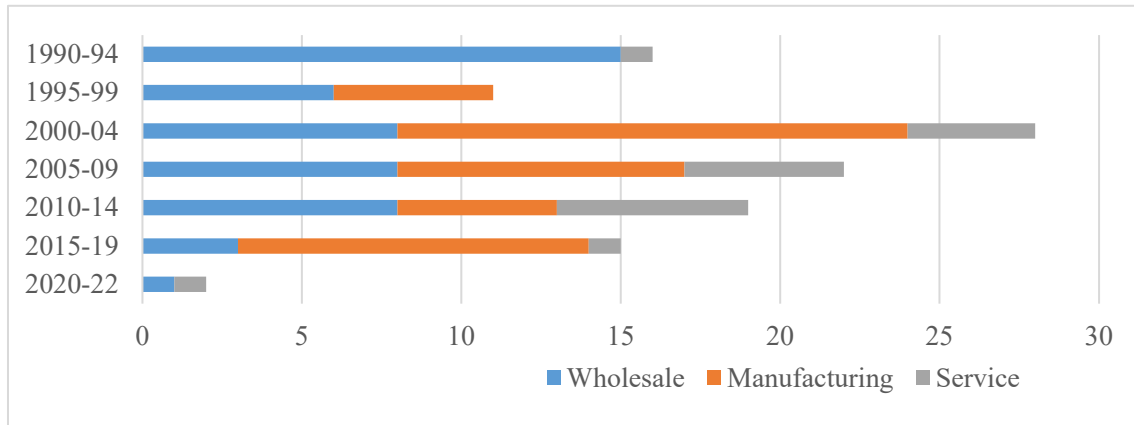


Fig. 1b Distribution of Establishment Years of Japanese Affiliates, 1990-2022 (Czech Republic)

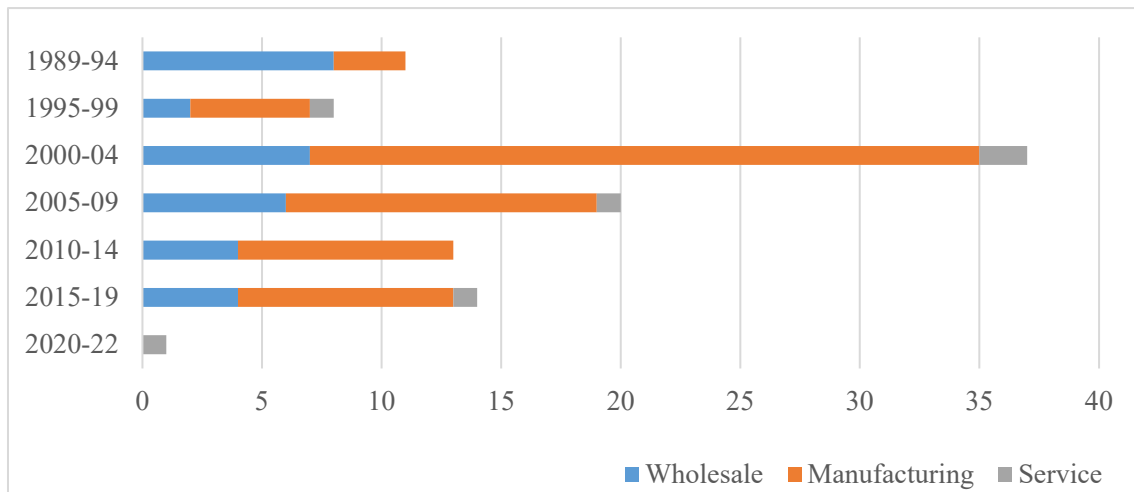


Fig. 1c Distribution of Establishment Years of Japanese Affiliates, 1990-2022 (Hungary)

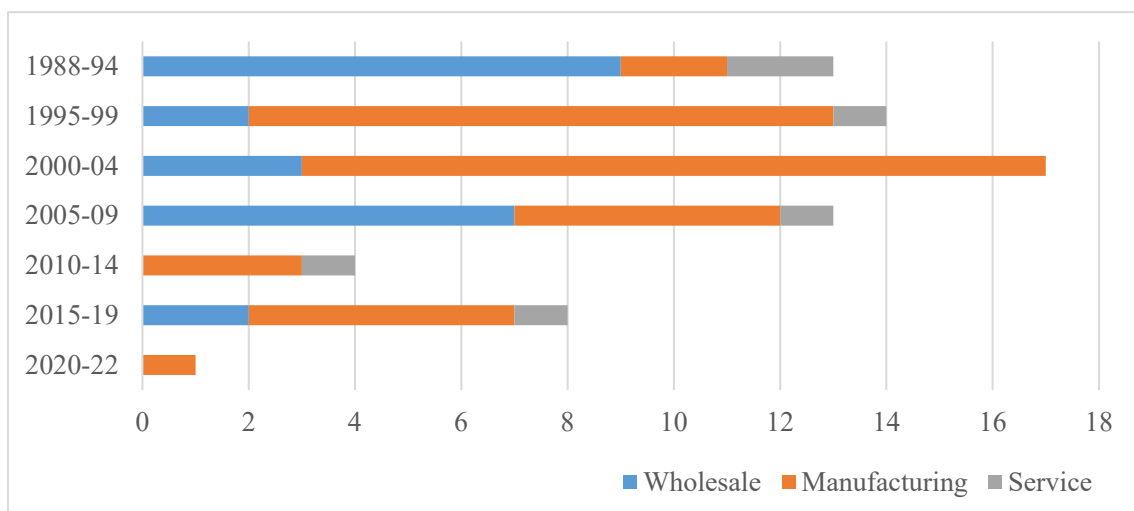


Fig. 2a Distribution of Establishment Years of Japanese Affiliates in Poland, 1990-2022:

Wholesalers and Manufacturers of General-Purpose Machinery

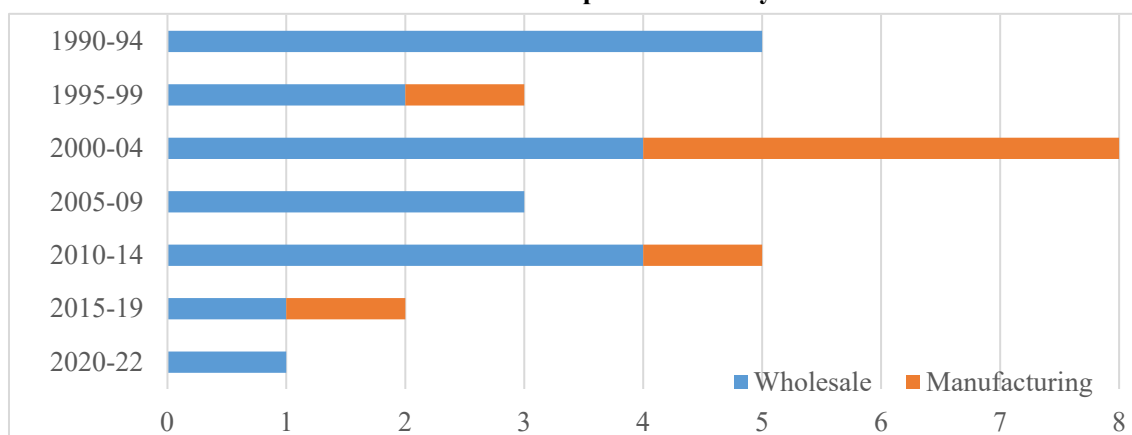


Fig. 2b Distribution of Establishment Years of Japanese Affiliates in Poland, 1990-2022:

Wholesalers and Manufacturers of Electrical Machinery, Equipment and Supplies

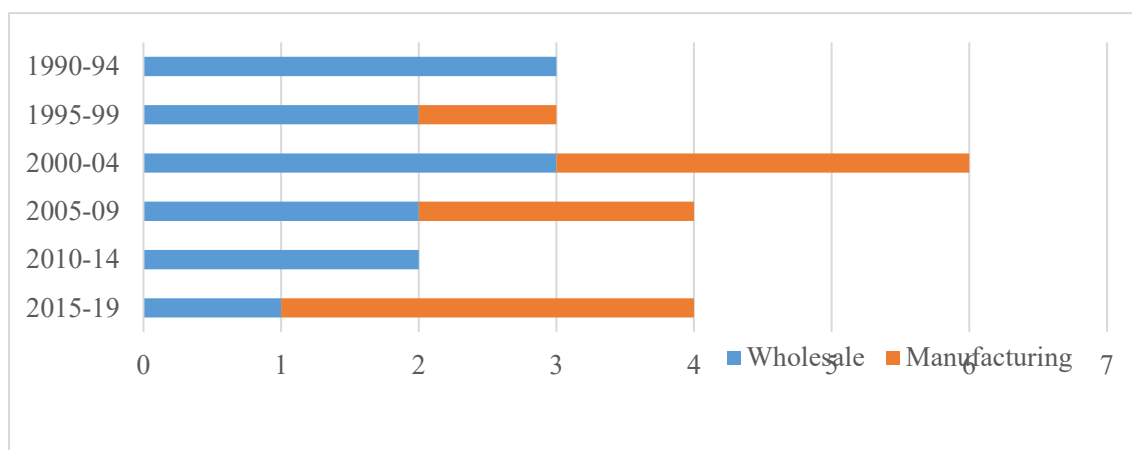
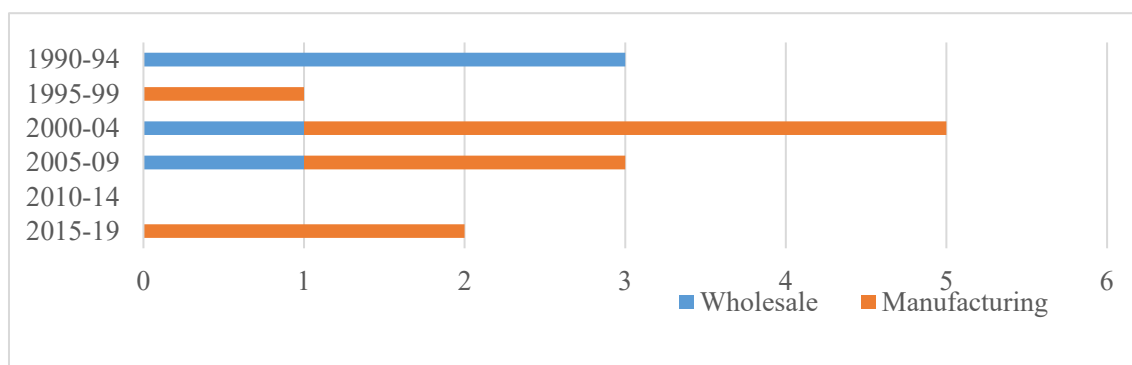
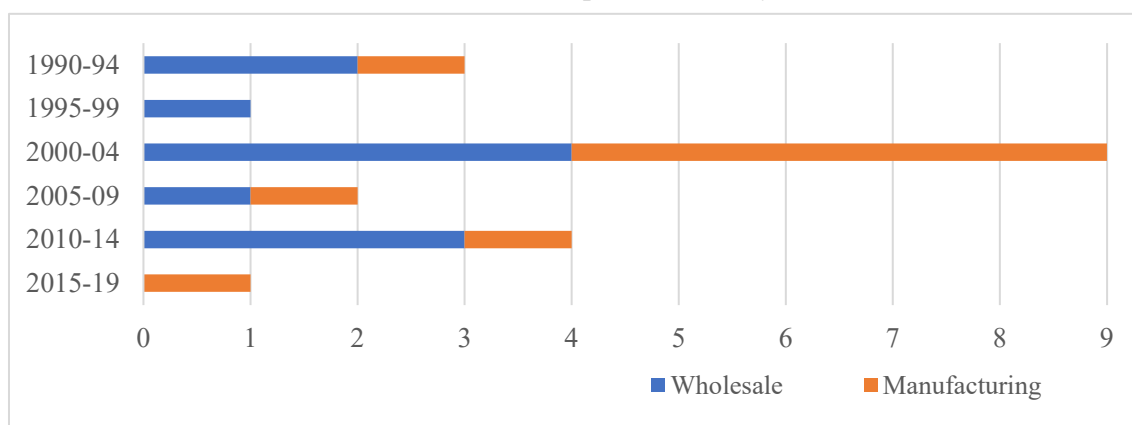


Fig. 2c Distribution of Establishment Years of Japanese Affiliates in Poland, 1990-2022:

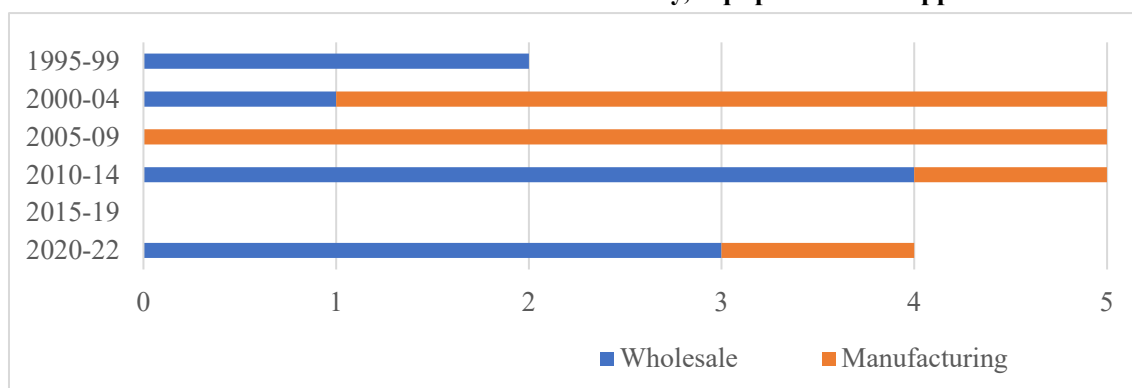
Wholesalers and Manufacturers of Transportation Equipment



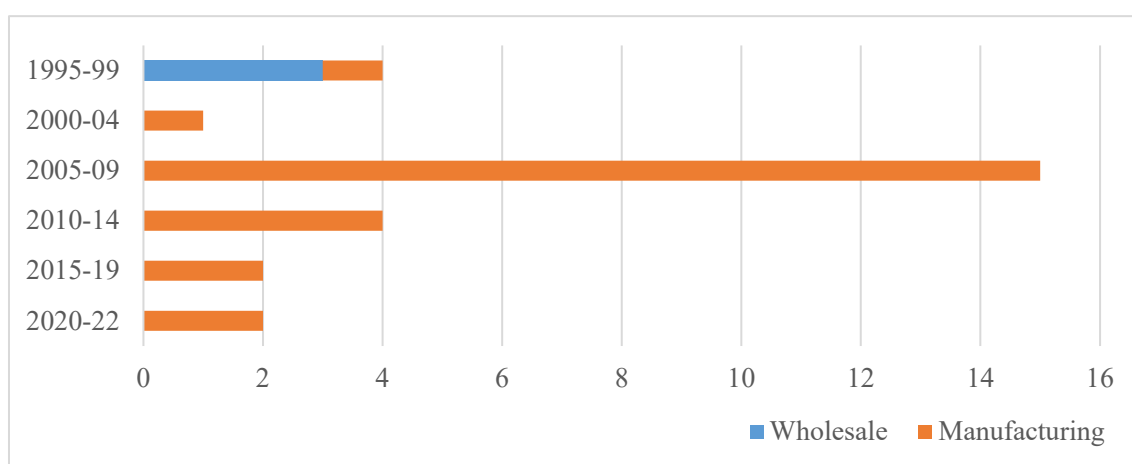
**Fig. 3a Distribution of Establishment Years of Japanese Affiliates in Czech Republic, 1990-2022:
Wholesalers and Manufacturers of General-Purpose Machinery**



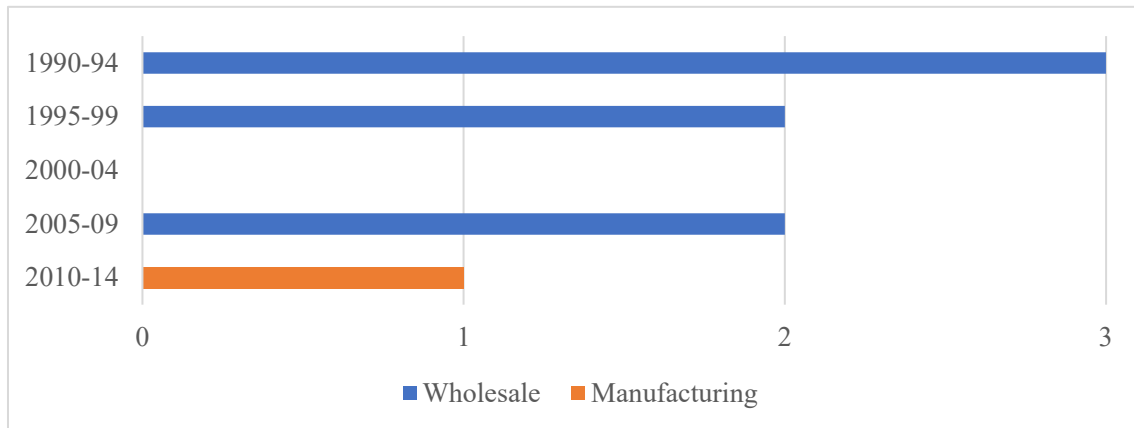
**Fig. 3b Distribution of Establishment Years of Japanese Affiliates in Czech Republic, 1990-2022:
Wholesalers and Manufacturers of Electrical Machinery, Equipment and Supplies**



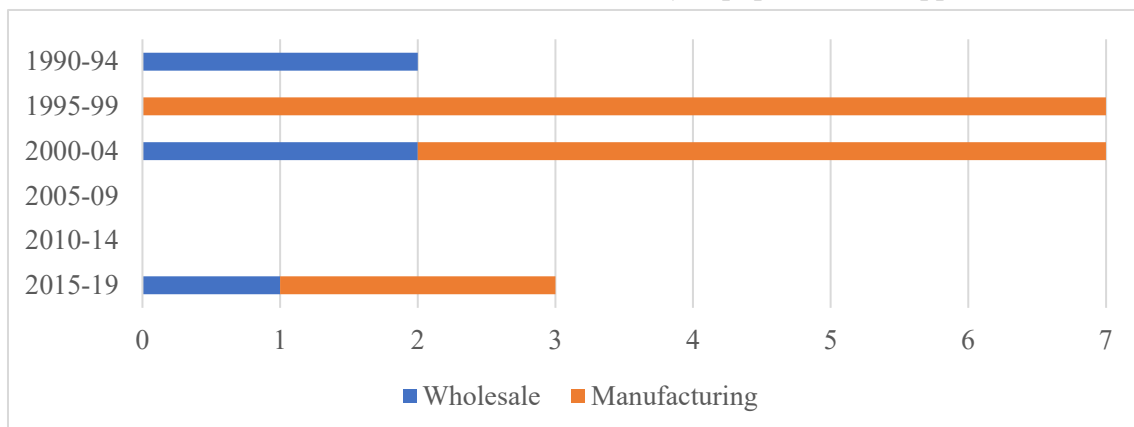
**Fig. 3c Distribution of Establishment Years of Japanese Affiliates in Czech Republic, 1990-2022:
Wholesalers and Manufacturers of Transportation Equipment**



**Fig. 4a Distribution of Establishment Years of Japanese Affiliates in Hungary, 1990-2022:
Wholesalers and Manufacturers of General-Purpose Machinery**



**Fig. 4b Distribution of Establishment Years of Japanese Affiliates in Hungary, 1990-2022:
Wholesalers and Manufacturers of Electrical Machinery, Equipment and Supplies**



**Fig. 4c Distribution of Establishment Years of Japanese Affiliates in Hungary, 1990-2022:
Wholesalers and Manufacturers of Transportation Equipment**

