THE URGENCY OF FOREIGN DIRECT INVESTMENT IN MICRO, SMALL, AND MEDIUM ENTERPRISES FINANCING FRAMEWORK: THE CASE OF INDONESIA

M. Elfan KAUKAB [ID]*

Faculty of Economics and Business, Universitas Sains Al-Qur'an, Wonosobo, Indonesia

Abstract. This research aims to check whether the rate of production growth in the MSME sectors open to foreign direct investment (FDI) was lower than in the closed MSME sectors before the policy in 2016 and whether the growth rate of the open MSME sectors' production lower than the closed MSME sectors after the policy in 2016. The study covers a period of 9 years from 2011 to 2020 based on the data from Indonesian Statistics Bureau. Data used was industrial sectors' performance, classified into closed and open for FDI sectors. The classification is defined based on Presidential Regulation No. 44 of 2016. In total there are 13 closed and 10 open sectors. We analyse the data using t-test analysis between closed and open FDI industrial sectors. The results of the study found that the performance of open MSMEs was significantly lower than the performance of closed MSMEs, both before and after the liberalization. Therefore, the government must relax the requirements given to investors to invest in open MSMEs.

Keywords: production index, investment liberalization, FDI, MSMEs, Indonesia.

JEL Classification: F21, O15, P33.

Introduction

MSMEs in industrial sectors plays important role in a country's economic growth (Kurita et al., 2017). Even so, many are faced by MSMEs to increase their production capacity (Marchese et al., 2019). One source that can be used to overcome obstacles such as MSMEs entry constraints, human capital, and financial constraints is Foreign Direct Investment (FDI) (Boshkov, 2016). MSMEs don't even have to wait until they run out of budget to use FDI. The view that FDI is the last resort for corporate financing comes from the pecking order theory (Myers & Majiuf, 1984). According to the more recent theory, optimal capital structure perspective, FDI can be the preferred source of finance insofar as it is proportional to the firm's equity. This is because the main focus is no longer on information and financial stress, but on the cost of capital. The use of FDI combined with equity from the start can minimize the cost of capital (Yang & Zheng, 2018). Thus, FDI can be beneficial not only for companies that are running out of capital but also for companies that are trying to minimize the cost of capital. FDI can provide

the financial input expected by MSMEs to increase production and discourage entrepreneurs to become employees and deciding to start a new business. FDI provides funding from outside sources to finance the process of increasing production and innovation. FDI also provides the opportunity for MSMEs to upgrade their technological status, hence increasing their competitiveness (Prasanna et al., 2019). Foreign investors bring important technological know-how that MSMEs can learn. In this case, FDI becomes an important vehicle for technology transfer that is not obtained from domestic investment.

Previous research on the role of FDI on MSMEs growth is lacking. Reviews by Paul and Benito (2018) only identifies one research involving MSMEs (Hernandez & Nieto, 2016) in the sample of 150 articles on outward FDI. Another review by Paul and Feliciano-Cestero (2021) mentioned the research on MSMEs as one of the future research agenda. A PhD dissertation even formulated on this issue and do not relies on any previous research, mentioned that the complexity of the relationship is the issue (Dimovski, 2020). Some research taking qualitative and comprehensive turn to examine the FDI-SME linkages

*Corresponding author. E-mail: *elvankaukab@yahoo.com*

(van der Ven, 2018). Hence, there is a research gap for the effect of FDI on MSMEs growth, especially in developing countries.

While the research on FDI's role on MSMEs growth is still limited, available research is generally supportive of the positive role of FDI (Islam & Chitakunye, 2019; Hernandez & Nieto, 2016; Yue et al., 2022; Li & Hu, 2013; Lembcke & Wildnerova, 2020). Islam and Chitakunye (2019) found that FDI is a significant factor for MSMEs growth strategies in the context of food industry in Bangladesh. Lembcke and Wildnerova (2020) found that FDI tent to be associated with some growth in small firms from the study on 13 OECD countries. Yue et al. (2022) found that FDI technology spillover has a positive impact on the innovation quality of MSMEs in China. Dimovski (2020) found that Macedonian MSMEs that cooperate with multinational enterprises have increased performance.

Previous research relies heavily on primary data by surveying sample MSMEs. While the use of primary data have its benefits on the clearer association, secondary data able to capture the whole picture. The use of secondary data could be advantageous for policy intended to grow MSMEs using FDI. The finding of the research could inform the government whether the policy is right and benefit the MSMEs or detrimental for MSMEs growth.

This policy have been issued in Indonesia. The Government of Indonesia has issued a liberalization policy to open up opportunities for FDI to invest in several open MSMEs sectors in Indonesia through Presidential Regulation No. 44 of 2016 Concerning the List of Closed Business Sectors and Open Business Sectors with Requirements in the Field of Investment (Peraturan Presiden Republik Indonesia, 2016). This policy lists several MSMEs sectors that FDI can enter with a minimum capital requirement of IDR 10 billion. The minimum investment value can be reduced to IDR 2.5 billion if investors partner in the MSME's production supply chain process. Large companies that partner with MSMEs get income tax reduction facilities while the government will help MSMEs that get FDI to improve production quality and quantity according to investors' standards (Badan Koordinasi Penanaman Modal [BKPM], 2019). Research in this policy, however, found the potential of a new investment barrier due to overreaching implementing regulation, despite the law urging supply chain partnership between MSME and large corporations (Surianta & Patunru, 2021). Multi-countries research suggests that the entry regulation is not enough since investors also consider other stages of a firm's life cycle (Contractor et al., 2020).

Although FDI to Indonesia in the last three years has increased by 15% (Bank Indonesia, 2020), the quota obtained by MSMEs is very low. In the first year after the policy, foreign capital used as capital for MSMEs was only 0.84–0.95% of the total MSMEs in the creative economy industry sectors (Bekraf & BPS, 2017). This shows the ineffectiveness of the liberalization policy provided by the government in 2016.

In addition, the question arises whether MSMEs that have been opened by the government need capital from FDI? The Indonesian government stated that the growth of the MSMEs industry sectors was quite good with an average growth of 5.8% per year from 2012 to 2019 (Badan Pusat Statistik [BPS], 2020b). But is it possible that this would be better if MSMEs got an injection of funds from FDI? Study shows that for some sectors, FDI hurts productivity due to pressure to separate the market from new entrants (Dao, 2022).

The research questions raised are (1) whether the rate of production growth in the open MSME sectors was lower than in the closed MSME sectors before the policy in 2016, and (2) whether the growth rate of the open MSME sectors production was lower than the closed MSME sectors after the policy in 2016.

Referring to the low conditions of MSMEs FDI in Indonesia and the ineffectiveness of MSMEs liberalization policies to encourage FDI in MSME, especially in the industrial sectors, an analysis of the situation before and after MSMEs liberalization was conducted. In this research, we will go on to looking at the difference between MSMEs production index (a measure of production growth) in the open and closed sectors from FDI. We use data from 2011 to 2020. Independent t-test used to test whether open sectors have a lower production index than closed sectors before and after liberalization policy in 2016. The study has the implications for giving picture of the effectiveness of FDI liberalization policy to MSMEs performance and explaining the reasons behind the problem and how the government of Indonesia and MSMEs overcome it. The novelty of this research is the test of liberalization policy for FDI in Indonesian MSMEs and why the policy failed in this context.

1. Literature review and hypotheses

Because definitively, MSMEs have a small size, MSMEs have a liability of smallness (Quacoe et al., 2018). This liability creates various obstacles for MSMEs to be able to increase their production (Kim, 2019). Various forms of obstacles faced by MSMEs include industry-specific obstacles as well as obstacles in cooperation, protecting copyrights, entering markets, to financing constraints (Bianchi & Wickramasekera, 2016; Holl & Rama, 2014; Meijer et al., 2019; Mendy & Rahman, 2019). These constraints cause MSMEs to get assistance from other stakeholders such as the government and large companies, including foreign investors (O'Keeffe et al., 2016).

Assuming that the government knows this is happen in particular MSMEs sectors in the country and that the sectors have experienced a decline in production that requires sources of funds from FDI, it can be hypothesized that the government is open an investment tap in these sectors. Applied to the Indonesian context, the following hypotheses can be proposed:

Hypothesis 1: The rate of production growth in the open MSME sectors is lower than in the closed MSME sectors before the policy in 2016.

In 2016, the Indonesian government issued Presidential Regulation No. 44 of 2016 to liberalize several MSMEs sectors so that two sectors emerged: the open sectors and the closed sectors. This policy, however, failed to encourage FDI in the open MSME sectors. As a result, production problems in the open sectors can continue until now (2021). In line with this, it is hypothesized as follows:

Hypothesis 2: The growth rate of the open MSME sectors' production is lower than the closed MSME sectors after the policy in 2016.

2. Method

The purpose of this study is to find out whether openness to FDI is needed to support MSME production in Indonesia. The design of this research is quantitative. The measurement is determined by looking at the difference between the MSMEs production index in the open sectors and closed sectors investment.

A production index is an index number that describes the development of products based on a longer and more complete series of data (for example quarterly or monthly data). A production index greater than 100 indicates that production in the relevant period increased compared to the base period (base year = 100). If the production index value is lower than 100, it means that the production growth of the manufacturing industry in question in the relevant period has decreased compared to the base year (BPS, 2022).

Open and closed sectors criteria refer to Presidential Regulation No. 44 of 2016 by taking the first two digits of the Indonesian Business Field Standard Classification for each sector that is opened and closed by investment.

This research uses secondary data based on the two-digit code of the Indonesian Business Field Standard Classification (IBFSC). The secondary data obtained have a span of ten years from 2011 to 2020. Table 1 presents the data to be analyzed. Overall, before differentiating, Indonesia's MSMEs did have good growth. The 2011

Table 1. Industrial MSMEs production index in Indonesia (source: BPS, 2020a, 2021; status from Presidential Regulation No. 44, 2016)

2009 two-digit code of Indonesian Business Field Standard Classification (IBFSC) and Description	Status	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
11 Beverage	Closed	164.53	176	162.8	154.4	146.4	131.1	117.6	112.3	100.4	99.45
14 Apparel	Closed	123.35	167.4	160.5	149.9	141.7	132.4	124.1	119.4	110	105.6
15 Leather, Leather Goods, and Footwear	Closed	100.62	144.3	149.8	145.5	140.7	133.8	128.7	124.4	113.8	104.5
17 Paper and Paper Goods	Closed	153.12	187	176.3	180.5	153.1	131	112.6	108.3	106.3	100.2
18 Printing and Reproduction of Recording Media	Closed	187.89	262.5	223.5	183.6	164.8	135.3	125	112.2	109.9	103.6
19 Products from Coal and Petroleum Refining	Closed	–	–	–	–	–	–	–	–	–	–
21 Pharmaceuticals, Chemical Drug Products, and Traditional Medicines	Closed	134.23	115.4	112.1	108.6	116.2	104.7	100.1	110.7	105.2	110.2
22 Rubber, articles of rubber and plastic	Closed	70.87	83.96	87.58	85.86	91.07	93.9	97.53	106.5	100.2	108.2
24 Base Metals	Closed	82.77	135.6	159.2	140.3	125.7	122.3	123	120	107.1	105.4
26 Computers, Electronics and Optics	Closed	193.92	277.1	221.3	220.2	162.8	124.1	122.9	126.3	108.3	100.4
27 Electrical Equipment	Closed	90.00	140.2	170.9	148.6	139.7	130	118	100.8	102.5	95.06
29 Motorized Vehicles, Trailers, and Semi-Trailers	Closed	85.01	120.8	122.6	126.1	129	118.8	116.8	111.2	106.2	101.4
31 Furniture	Closed	115.23	151.3	143.1	136.6	131.2	129	121.1	113.9	112.7	109.2
33 Repair and Installation Services of Machinery and Equipment	Closed	111.99	125.5	127.4	113	110.2	122.8	118.9	110.8	103.9	100.5
10 Food	Open	175.64	194.1	182	173.9	159.2	148.1	138.6	128.8	109.5	105.4
12 Tobacco Processing	Open	24.38	34.94	33.83	63.93	80.36	76.3	70.87	95.05	99.31	98.14
13 Textile	Open	120.56	147.8	143.1	145.6	142.7	130.1	120.9	115.8	107	104
16 Wood, Cork (Excluding Furniture) and Matting	Open	91.43	111.2	108.2	105	103.1	99.57	103.4	104.8	101.5	100.9
20 Chemicals and Articles of Chemicals	Open	209.05	210.3	197.6	167.6	141.2	122.8	107.4	109.1	102.1	100.6
23 Non-Metallic Minerals	Open	101.83	115.4	111.2	104.3	103.7	102.6	104.2	108.8	104.6	101.9
25 Metal Goods, Not Machines and Equipment	Open	74.09	95.35	89.87	84.19	85.42	97.04	100.6	100.5	105	106.1
28 Machinery and Equipment	Open	87.22	98.12	104	115.3	118	98.89	87.83	101.3	105.4	101.7
30 Other Transportation Equipment	Open	81.20	98.16	102.2	108.1	103.4	92.08	94.69	99.96	105.1	101.9
32 Other Processing	Open	84.29	140.5	132.1	129.7	118.7	119.5	116.6	109.1	105.2	105.7
xx No longer a manufacturing group anymore	Closed	–	–	–	–	–	–	–	–	109	–
AMOUNT		131.48	159.7	152.1	143.9	137.4	129.9	122.9	117.2	109	104.7

production index was only 105 while in 2019 it reached 160. This value was recorded in 25 industrial sectors. Based on Presidential Regulation No. 44 of 2016, 10 of the 25 sectors are open to foreign investment. Two industrial sectors, leaving the sample number to 23. Industrial sectors without data are products from coal and petroleum refining (IBSFC code 19) and longer a manufacturing group anymore (IBSFC code xx). Another secondary data was collected from the Indonesian Statistics Agency (Badan Pusat Statistik [BPS], 2020a, 2021) to test the significance of the variables.

The data is tested using an independent t-test every year to find out whether each year MSMEs in the open

Table 2. Normality test output

Year	Shapiro-Wilk		
	Statistic	df	Sig.
2020	0.939	23	0.172
2019	0.949	23	0.275
2018	0.980	23	0.901
2017	0.986	23	0.976
2016	0.963	23	0.530
2015	0.928	23	0.098
2014	0.942	23	0.199
2013	0.967	23	0.616
2012	0.971	23	0.714
2011	0.975	23	0.804

sectors have a lower production index than MSMEs in the closed sectors. An independent sample t-test is a comparative test or difference test to find out whether two groups of data on an interval/ratio scale have a significant difference in mean. The two groups are not paired in the sense that the data sources come from different subjects. The Independent t-test has two outcomes based on whether the variance is assumed to be equal or not. The use of the Levene test for equality of variances was carried out to determine whether the data variance was equal or unequal (Brown & Forsythe, 1974). Levene's test does not assume that the data must be normally distributed but must remain continuous. If the Levene statistic is > 0.05, it can be said that the data variation is homogeneous. Levene's test is the most robust test of variance equality at small sample sizes (Hosken et al., 2018). It is also the simplest and most widely used univariate variance quality test.

Before that, the data were tested for normality using the Shapiro-Wilk test to decide whether the independent t-test could be used to compare the two groups. The Shapiro-Wilk test is used because the data is below 50. If the research data is not normally distributed (the results of the Shapiro-Wilk test are significant), then non-parametric statistical analysis is used.

3. Result

The low sample size, which is only 23 industries (two industries have no data), requires that the normality test used is the Shapiro-Wilk test. All statistics for each year

Table 3. t-test Analysis

Year	Openness	Mean (SD)	Equal variances assumed		Equal variances not assumed	
			t	Sig	t	Sig
2011	Closed (n = 13) Open (n = 10)	103.36(sd 4.37) 102.63(sd 2.58)	0.466	0.646	0.498	0.624
2012	Closed (n = 13) Open (n = 10)	106.65(sd 4.28) 104.47(sd 2.88)	1.384	0.181	1.457	0.160
2013	Closed (n = 13) Open (n = 10)	113.60(sd 7.19) 107.32(sd 9.63)	1.793	0.084*	1.724	0.104
2014	Closed (n = 13) Open (n = 10)	117.41(sd 9.24) 104.50(sd 18.58)	2.186	0.040**	2.012	0.066*
2015	Closed (n = 13) Open (n = 10)	123.78(sd 12.12) 108.69(sd 21.09)	2.020	0.042**	2.020	0.064*
2016	Closed (n = 13) Open (n = 10)	134.81(sd 20.92) 115.57(sd 25.61)	1.984	0.060*	1.930	0.070*
2017	Closed (n = 13) Open (n = 10)	145.63(sd 35.14) 119.76(sd 34.93)	1.754	0.094*	1.756	0.095*
2018	Closed (n = 13) Open (n = 10)	155.16(sd 39.01) 120.41(sd 46.74)	1.944	0.065*	1.897	0.075*
2019	Closed (n = 13) Open (n = 10)	160.54(sd 55.57) 124.58(sd 51.12)	1.591	0.126	1.610	0.123
2020	Closed (n = 13) Open (n = 10)	124.12(sd 40.35) 104.97(sd 52.72)	0.988	0.334	0.954	0.354
Average	Closed (n = 13) Open (n = 10)	128.51(sd 19.84) 111.29(sd 25.22)	1.834	0.081*	1.776	0.094*

Note: *Correlation is significant at the 0.10 level; **Correlation is significant at the 0.05 level.

(nine years) show a non-significant statistical value (p > 0.050), indicating that the data are all normally distributed. Because the data is normally distributed, independent t-tests can be used to compare two groups. Table 2 summarizes the result of the normality test.

From the data, t-test is carried out to compare the production indexes of each industrial sector from closed and open groups. In this way, it can be seen whether the open sector underperforms the closed sector and thus requires FDI as an alternative source of funding. Nine years were used in the analysis from 2011–2019 to see whether consistently different open and closed sectors differ each year. The findings are presented further in Table 3.

Table 4 shows the results of Levene's test to choose whether to use the t-test results of equal variances or unequal variances. The results show that in all years, except 2015, the significance value is greater than 0.05 so it can be said that the variance of the two groups of data population studied (open vs closed) is the same (homogeneous). Meanwhile, for 2015, the significance value of Levene's test is lower than 0.05 so the variances of the two data groups studied for 2015 are different (heterogeneous). This means that the final t-test result taken for 2015 comes from the output for equal variances not assumed.

It was observed that the average closed sectors production index in 2011 was 103.36 (SD = 4.37) compared to the open sectors in the same year, 102.63 (SD = 2.58), which did not have a significant difference. The average value of the closed sectors' production index in 2012 was 106.65 (SD = 4.28), while for the open sectors 104.47 (SD = 2.88) was also not significant; the average value of the production index for 2013 in the closed sectors was 113.60 (SD = 7.19), compared to 107.32 for the open sectors (SD = 9.63 p < 0.10). The average 2014 production index for the closed sectors was 117.41 (SD = 9.24), while the value was 104.50 (SD = 18.58) for the open sectors, p < 0.05. The average production index for 2015 in the closed sectors was 123.78 (SD = 12.12), while the open sectors were 108.69 (SD = 21.09), significant at p < 0.10.

The average value of the closed sectors' production index in 2016, when the liberalization policy was issued, was 134.81 (SD = 20.92), while for the open sectors 115.57 (SD = 25.61, p < 0.10); the average value of the production index for 2017 in the closed sectors was 145.63 (SD = 35.14), compared to 119.76 for the open sectors (SD = 34.93, p < 0.10). The average production index in 2018 for the closed sectors was 155.16 (SD = 39.01), while the value was 120.41 (SD = 46.74) for the open sectors, p < 0.10. The average production index for 2019 in the closed sectors was 160.54 (SD = 55.57), while the open sectors were 124.58 (SD = 51.12), not significantly different. The average value of the closed sectors' production index in 2020 was 124.12 (SD = 40.35), while for the open sectors 104.97 (SD = 52.72) was also not significant. It is observed that the open sectors have a lower average value in all years than the closed sectors. The average value of the closed sectors during 2011–2020 was 128.51 (SD = 19.84) while the open sectors 111.29 (SD = 25.22) was significant at p < 0.10.

Table 4. Results of Levene test of equal variances

Year	Openness	Levene's Test of Equality of Variances			Final t-Test Result	
		F	Sig	Result	t	Sig
2011	Closed (n = 13) Open (n = 10)	3.059	0.095	Equal	0.466	0.646
2012	Closed (n = 13) Open (n = 10)	1.830	0.190	Equal	1.384	0.181
2013	Closed (n = 13) Open (n = 10)	0.446	0.551	Equal	1.793	0.084*
2014	Closed (n = 13) Open (n = 10)	2.726	0.114	Equal	2.186	0.040**
2015	Closed (n = 13) Open (n = 10)	4.592	0.044	Unequal	2.020	0.064*
2016	Closed (n = 13) Open (n = 10)	0.571	0.458	Equal	1.984	0.060*
2017	Closed (n = 13) Open (n = 10)	0.069	0.796	Equal	1.754	0.094*
2018	Closed (n = 13) Open (n = 10)	0.252	0.621	Equal	1.944	0.065*
2019	Closed (n = 13) Open (n = 10)	0.026	0.874	Equal	1.591	0.126
2020	Closed (n = 13) Open (n = 10)	0.206	0.655	Equal	0.988	0.334
Average	Closed (n = 13) Open (n = 10)	0.699	0.412	Equal	1.834	0.081*

Note: *Difference is significant at the 0.10 level; **Correlation is significant at the 0.05 level.

Changes in the industrial production index before and after 2016 in the open sector show a high variation (Table 5). There are three sectors with a decline, namely tobacco processing (–48.66), metal goods, not machines and equipment (–15.97), and other transportation types of equipment (–1.33). Seven other sectors experienced an increase in the industrial production index with the most dramatic growth in the chemicals and articles of chemicals sector which reached 87.74 and food (55.33) and textile (23.71).

Table 5. Difference of industrial production index of open sectors before and after liberalization policy

Sector (Open)	Pre-2016	Post-2016	Difference
10 Food	126.08	181.41	55.33
12 Tobacco Processing	87.93	39.27	–48.66
13 Textile	115.56	139.27	23.71
16 Wood, Cork (Excluding Furniture) and Matting	102.03	103.96	1.92
20 Chemicals and Articles of Chemicals	108.40	196.14	87.74
23 Non-Metallic Minerals	104.42	108.18	3.76
25 Metal Goods, Not Machines and Equipment	101.85	85.88	–15.97
28 Machinery and Equipment	99.02	101.16	2.14
30 Other Transportation Equipment	98.75	97.42	–1.33
32 Other Processing	111.22	121.65	10.43

On the other hand, closed sectors have a positive industrial production index (Table 6). It was recorded that only one closed sector in the same period had negative growth, namely rubber, articles of rubber, and plastic which had a pre-2016 and post-2016 difference of –19.20. Twelve other closed sectors experienced positive growth with the most dramatic growth in computers, electronics, and optics which reached a difference of 111.73, printing and reproduction of recording media by 97.17, paper and paper goods by 62.35, beverage by 52.26, and apparel by 31.98.

This research visualizes these differences in the form of a graph below. It is seen that the graph of the development of the open sectors production index is below the graph of the development of the closed sectors index. The gap between both lines gets larger over time. However, when we compared the gap with the t-test results, the gap between the open and closed sectors in 2011, 2012, 2019, and 2020 are not significant. The gaps in 2011 and 2012 are so small that they visually intersect. Despite the gaps in 2019 and 2020 being larger, this gap is insignificant taking into account the data composing those graphs. The gap in 2013, 2015, 2016, 2017, and 2018 are significantly

Table 6. Difference of industrial production index of closed sectors before and after liberalization policy

Sector (Closed)	Pre-2016	Post-2016	Difference
11 Beverage	112.17	164.43	52.26
14 Apparel	118.30	150.29	31.99
15 Leather, Leather Goods, and Footwear	121.04	135.06	14.02
17 Paper and Paper Goods	111.68	174.23	62.55
18 Printing and Reproduction of Recording Media	117.20	214.37	97.17
21 Pharmaceuticals, Chemical Drug Products, and Traditional Medicines	106.18	117.58	11.40
22 Rubber, articles of rubber and plastic	101.27	82.07	–19.20
24 Base Metals	115.56	129.47	13.91
26 Computers, Electronics and Optics	116.40	228.13	111.73
27 Electrical Equipment	109.27	137.43	28.15
29 Motorized Vehicles, Trailers, and Semi-Trailers	110.88	113.63	2.75
31 Furniture	117.18	136.56	19.38
33 Repair and Installation Services of Machinery and Equipment	111.38	119.47	8.09

weak (p < 0.10). The most significant graph is in 2014 because the p-value goes lower than 0.05 (p = 0.040). This confirms that the open sectors do have greater constraints than the closed sectors and the government's move to open up these sectors to receive funding from foreign investors is the right step to raise the production index of these sectors.
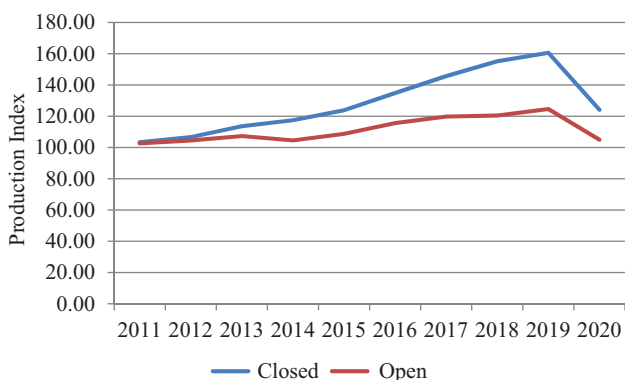

Figure 1. Development of open and closed sectors production index

Based on the t-test analysis, there is a significant difference between the open sectors' and closed sectors' production indexes. During all years, the open sectors

production index is always lower than the closed sectors production index. This shows that the open sectors (which were previously closed) had indeed experienced production problems from 2011 to 2015 before the Indonesian government finally decided these sectors were open in 2016. The sectors experienced reduced availability of financial resources, hence hampering the productivity of the sector (Agostino et al., 2022). The government hopes that by opening the sector, the needs of financial resources of the sectors could be fulfilled and have a positive effect on industrialization, which is an important element for economic growth and poverty reduction (Alqaralleh & Adayleh, 2019).

Because foreign investment interest in these sectors was very low, the trend that had occurred from 2011 continues to occur in the period 2016–2019 with an ever-increasing gap (Table 7). Finally, in 2020, the gap is getting narrower, but negatively, because both sectors are experiencing a downfall. Note that the downfall in 2020 was caused by the SARS-COV-2 pandemic. The pandemic has played a major role in influencing the industrial production index and GDP (Chevallier, 2021) due to various mobility restrictions that have damaging consequences on the economy (Spelta & Pagnottoni, 2021).

Table 7. The production index gaps between open and closed sectors

	Closed	Open	Gap
2011	103.36	102.63	0.73
2012	106.65	104.47	2.18
2013	113.60	107.32	6.28
2014	117.41	104.51	12.90
2015	123.78	108.70	15.09
2016	134.81	115.58	19.24
2017	145.63	119.76	25.87
2018	155.16	120.41	34.75
2019	160.54	124.59	35.96
2020	124.12	104.97	19.15

4. Discussion

Overall, this finding confirms the H1 and H2 hypotheses of the study that the open sectors' production index will differ significantly from the closed sectors' production index, both before and after the liberalization policy, with the open sectors having a lower production index than the closed sectors.

Simultaneously, the results answer our research questions. The question about whether the rate of production growth in the open MSME sector was lower than in the closed MSME sector before the policy in 2016 is answered. The rate of production growth in the open MSME sector was indeed lower than in the closed MSME sector before the policy in 2016. As we can see from Figure 1, the production index of open sectors is below the closed sectors for 2011–2015. These annual differences are significant for

2013 to 2015 data. The differences in 2011 and 2012 are not significant.

The possible explanation for the insignificant difference between open and closed sectors at the beginning of the study timescale (2011–2012), is that in this era, there are no production capacity constraints in the open sector (Marchese et al., 2019). In 2012–2015, the constraints got bigger and the government identify the need to strengthen the capital needs of these sectors with FDI (Vladimirov, 2018). Theoretically, the FDI will bring beneficial effects for MSMEs rather than for large companies (Golob, 2017). Meanwhile, Indonesia will give investors better human and physical capital with lower costs (Bakhouche, 2021). SMEs themselves need FDI to absorb and catch up with technology through the process of learning and upgrading their skills (Jauhari & Mohammed, 2021). Hence, once the government detect the discrepancy in the production index in several sectors, they opened them for FDI with Presidential Regulation in 2016.

Meanwhile, the question about whether the growth rate of the open MSME sector production was lower than the closed MSME sector after the policy in 2016 was also answered. The growth rate of the open MSME sector production was also lower than the closed MSME sector after the policy in 2016. Figure 1 shows that the production index of open sectors is still below the closed sectors from 2016 to 2019. The statistical test shows the yearly differences are significant except for the last year (2019). The outcome is consistent with the results of Surianta and Patunru (2021), who reported that exist significant investment barriers to implement the policy effectively.

A possible explanation for this finding is that after the liberalization, small FDI inflow still unable to help open sectors in overcoming their liability of smallness (Quacoe et al., 2018). The opening of the sectors did not able to attract FDI since they did not encourage investors to invest. Many explanations could be presented. The government could be failed to increase copyrights protection or open new markets for MSMEs (Holl & Rama, 2014). The learning process did not go well due to the weak demand for skills due to the lack of foreign ownership in MSMEs (Jauhari & Mohammed, 2021). Another explanation is that the investors are not interested in investing in MSMEs because they cannot provide lower costs and better human and physical capital as promised (Bakhouche, 2021) and instead impose higher costs and unable to link with the investors supply chain. Investors also will be interested in investing in MSMEs if they are seen as being able to meet market needs or can provide the technological supply needed by investors (Melane-Lavado et al., 2018). Theoretically, two theories explain the factors that encourage investors to invest in MSMEs (Melane-Lavado et al., 2018). First, is the theory of internalization (Hennart, 1989; Teece, 1986). According to the internalization theory, the decision to invest in another country is determined by technology transfer from investors to branches to exploit the company's competitive advantage. If investment allows the supply of technology that is profitable for

investors, the investment will occur. Second, is the theory of resources and capabilities (Prahalad & Hamel, 1990). According to this theory, the decision to invest in another country is determined by the creation of value that can be obtained by investors in the destination country. If investment allows investors to get a wider and more profitable market, then the investment will occur. So, there are many explanations that need to be evaluated: the market did not profitable enough or the transfer of technology is not profited the investors, or there is low market needs, low ability to support investors' supply chain, higher costs, and lower human and physical capital. The opening of the sector by the government only address the entry point of FDI cycle. The growth, maturity, decline, and exit policies still need to be formulate. Investors needs to mitigate the risk along the FDI cycle on all level: from the government regulation, from the industry, and from the individual MSME. More information clearly needed by investors, including information on profit forecast provided by the MSME (Hossain et al., 2018).

In 2019, FDI was finally made to relieve the constraints (Meijer et al., 2019) and the sectors became profitable for investors, either because of the successful technology transfer (Hennart, 1989) or the creation of value (Prahalad & Hamel, 1990). MSMEs that have developed can also encourage FDI flows, particularly efficiency-seeking FDI because the presence of a strong regional MSMEs sector is one of the selection factors for investors in determining the location of FDI (Cook & Fallon, 2020). This is because investors are trying to learn and gain access to strategic assets. Strategic assets, such as supplier and customer networks, are mostly found in locations with a strong MSME sector (Berrill et al., 2020). In this case, the growth of closed sector MSMEs helped the growth of open sector MSMEs. Because of these, the sectors grow as well as closed sectors. Hence, we detect no significant difference in the production index in 2019. However, the open sectors still lack behind the closed sectors.

This in turn shows that the Indonesian government must further relax foreign investment in the sectors that have been opened. For example, this can be done by reducing the minimum capital investment for MSMEs so that more investment can enter the MSMEs sectors. At present, the minimum capital value of MSMEs investment from FDI sources is IDR 10 billion (USD 612,000). This value is unrealistic for MSMEs which, based on their size, require an investment of IDR 2 billion (USD 122,000) at most. By reducing the minimum investment value, the MSMEs sectors opened to foreign investment can increase their production index so that they can catch up with the closed sectors.

5. Implications of the research

This research contributes to the literature by examines the effectiveness of FDI liberalization policy to MSMEs performance based on a dataset of Indonesian manufacturing MSMEs. Our results contribute to the existing literature by proposing that passively open MSMEs sector for investment did not enough for MSMEs to overcoming their liability of smallness. Some additional measures needed to attract investors such as lowering investment threshold and expand the market profitability.

The findings of this paper provide important policy implications. This study implies the need for more cautious policies to attract foreign investors to invest in MSMEs. This study shows that the liberalization policy targeting sectors with low performance cannot produce the desired performance. Despite the sectors now open for FDI, very small FDI have been given to these sectors. This could be explained why the open sectors still did not increase so much after the liberalization and still lack behind the closed sectors. Liberalization, however, only targets entry points for FDI inflow. Careful investors evaluate not only the entry point but the whole life-cycle of the investment. Without proper policies on other points, such as growth, maturity, decline, and exit policies, the investors could feel threatened and trapped when they decide to invest in the MSMEs. The problem could also come from the sectors themselves, such as low market needs, low ability to support investors' supply chain, higher costs, and lower human and physical capital. Of course, policies that target the entry point are also encouraged, such as lowering the minimum investment capital limit and relaxing bureaucracy. Meanwhile, MSMEs also need to attract investors by disclosing the profit forecast of the firm (Hossain et al., 2018). The disclosure will increase the FDI needed to achieve the by increasing production capacity.

Conclusions

This paper examines the possibility of differences in open and closed MSMEs' productivity before and after liberalization. MSMEs have little capital to be able to increase their productivity so capital from FDI will greatly assist in increasing MSMEs' productivity, even better than the impact of FDI on large companies. The Indonesian government has rightly chosen MSMEs that have production constraints as MSMEs that are open with FDI, as Hypothesis 1. However, this policy is ineffective and results in open MSMEs that remain underdeveloped in productivity compared to closed MSMEs, in line with Hypothesis 2 research.

Overall, the current policy is still not able to attract foreign investors to invest in MSMEs. Therefore, it is difficult for MSMEs that have experienced production constraints to be able to increase their production. Without FDI, MSMEs should rely on other sources of capital such as public financial assistance, and provide more training for their employees to increase their human capital quality (Melane-Lavado & Álvarez-Herranz, 2020).

The results of the research that have been done provide interesting questions for the future direction of this research. For example, although the research in this paper directly shows the need for an increase in the open MSMEs production index with FDI, it would be interesting if the study examined the effect of FDI on open MSME

production. Furthermore, it becomes possible to examine which sectors most require FDI and how much bargaining power these sectors can attract investors.

This research, however, has some limitations. First, this research is only research with three variables: openness status, year, and industrial production index. We did not examine all variables that might affect the production index such as equity market volatility (Castro et al., 2022). Some even view the industrial production index as a proxy for GDP because it reflects the dynamics of GDP relatively consistently (Zoia et al., 2019). As a result, factors that affect GDP also have the potential to affect the industrial production index. These factors can include territorial pressure and tourism (Canale & De Siano, 2021), human capital, government consumption rate, total factor productivity, trade openness, price level (Cieślik & Turgut, 2021), to the SARS-COV-2 pandemic (Chevallier, 2021). FDI is only one of many factors that affect the industrial production index (Cieślik & Turgut, 2021).

We also do not directly measure the amount of FDI in each sector of MSMEs in each year studied so that the role of FDI on the production index is assumed to be based on theory. However, the focus on timing and policies that underlie the flow of inward FDI to the MSMEs sector provides a logical limitation, especially the absolute nature of the policy, namely open and closed. A closed sector is unlikely to receive FDI flows and therefore FDI is unlikely to affect the production index before the sector opens.

Regarding the period, we are limited by the availability of data from BPS for the industrial production index. We also treat every industrial sector equally although each sector may evolve differently in the 2011–2020 period. However, we aim to show how the production index in these sectors changes, depending on the conditions of openness before and after liberalization.

Because we focus on industry-level effects, we may miss some regional-level effects. The distribution of industry in Indonesia is relatively heterogeneous, with western regions such as Java and Sumatra being economic centers with a high industrial sector while eastern regions such as Maluku and Papua have far fewer industrial companies.

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