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INDONESIA

SELECTED ISSUES

July 2, 2024

Approved By
Asia and Pacific Department

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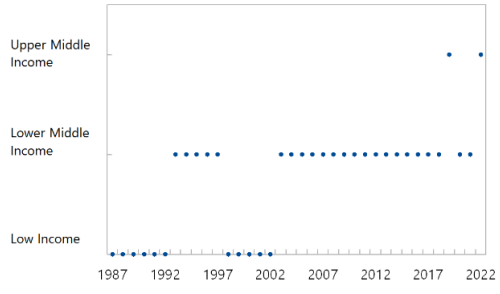
GOLDEN VISION 2045: STRUCTURAL REFORMS TO ACHIEVE HIGH-INCOME STATUS

Given Indonesia's goal of becoming a high-income country by 2045, this paper seeks to provide guidance as to how best to achieve this objective. To this end, we identify "success countries" that have transitioned into high-income status and show that: (i) Indonesia lags in key structural areas, relative to the success countries' initial conditions; (ii) further progress in these key areas supported the success countries' convergence process, pointing to the important role of structural reforms. We also benchmark Indonesia's granular structural gaps vis-à-vis its current upper-middle income and high-income peers, to help gauge structural reform priorities. Finally, we follow recent work (Budina et al., 2023), to assess the impact of structural reforms on real output, to help prioritize the possible agenda. Our results indicate that external sector regulation and economic openness, governance, business regulation and human development areas should be implemented in priority, as they would enhance inclusiveness and support a leveling up of living standards for the country as a whole. Moreover, these reforms have been shown to be complementary and likely to deliver stronger output effects when bundled together.

A. Achieving and Sustaining High Growth-International Experience

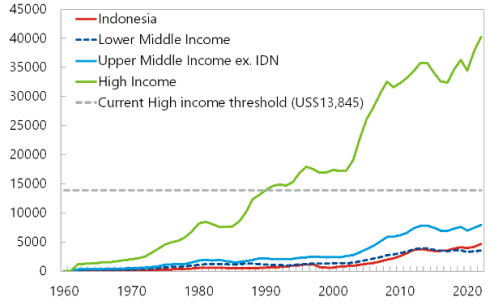
1. Indonesia aims to achieve high-income status by 2045. In 2019, President Joko Widodo reiterated its Golden Indonesia Vision, which set the goal for Indonesia to become an advanced, fair, and prosperous nation by 2045.[1] This ambition was restated by President-elect Prabowo Subianto in his program for the 2024-29 Presidency. Indonesia is already among the largest twenty economies in the world, the largest member of the ASEAN group, and an upper-middle income country. Its structural strategy is meant to support these ultimate objectives and consists in enhancing the value-added following from Indonesia's commodity production.[2]

Figure 1. Income Status
(Based on World Bank's income classification)



Sources: World Bank, World Development Indicators; and IMF staff calculations.

Figure 2. Average GNI Per-Capita
(In current US$, average by income group)



Sources: World Bank, World Development indicators; and IMF staff calculations.

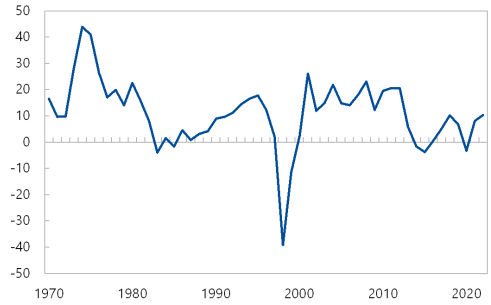
[1] To support this ambition, Indonesia has inquired about joining the OECD in July 2023, and became the first country in Southeast Asia to start accession talks with the OECD in February 2024.

[2] Indonesia is a global producer and exporter of coal, agriculture, including palm oil and fisheries, and mining related products including nickel.

2. Breaking through the middle-income trap will require growing fast, for long. After a short stay in the upper middle-income (UMI) group pre-pandemic (in 2019), Indonesia re-transitioned from Lower Middle-Income (LMI) to becoming UMI (World Bank's income classification) in 2022 (Figure 1 and 2). Assuming the global GNI per capita thresholds continue to move as in the last two decades, and assuming Indonesia stays at an annual population growth of 1 percent (as observed since 2000), reaching high-income status by 2045 will require an annual GNI growth rate of around 8 percent (in current US$); roughly equivalent to 5.5-6 percent real annual GDP growth (assuming annual inflation stays at its target, 2.5 percent), and be sustained over two decades. This would level up Indonesia's GNI per capita level by 50 percent by 2045. While Indonesia has experienced very high growth episodes (e.g., in the 1970s' and in 2000s', Figure 3), its potential growth is currently estimated at around 5 percent; therefore, structural reforms are needed to support an upfront and durable increase of the potential and observed growth rates.

Figure 3. GNI Growth

(In percent, year-on-year)



Sources: World Bank, World Development Indicators; and IMF staff calculations.

3. Available studies indicate Indonesia's economic structure faces gaps relative to what would be needed to support higher and sustained growth rates. For example, Hausman's predicted medium term growth for Indonesia based on its degree of Economic Complexity is estimated around 5.6 percent;[3] which falls short of what would be required to become a high-income country by 2045, let alone considering uncertainties along the way-high growth rates need to be sustained for 20 years for Indonesia' to transition to high income. Hausmann shows that Economic Complexity is tightly linked to income growth, explaining a large share of income variations across countries. Hausman's Economic Complexity Index (ECI) suggests that Indonesia's economy has gradually become less complex over the last decade, owing to a lack of export diversification. On the upside, Indonesia is slightly more complex than expected from its current income level; this means that it should grow rapidly towards the level of income that is compatible with its complexity degree.

4. In this paper, we seek to identify the determinants for high and sustained country growth episodes, to shed light on reform priorities to support Indonesia's ambition. To this end, we search for key structural characteristics of AEs and EMEs that have achieved either (i) a sustained period of high growth ("Growth for Long", Group 1) or (ii) quick convergence towards the high-income status, (Group 2).

- **First, we identify the countries with "growth for long" (GFL) episodes (Group 1)**. These success countries are defined as countries having had sustained high growth leading into reaching high-income status. More specifically, we look at growth trajectories by countries since

[3] The Economic Complexity concept is based on the country's export structure, as it contains information on its knowledge/production capabilities. See Hausman (2011), and updated *Atlas of Economic Complexity*, online data.

1962[4] to identify those cases that experienced at least 11 consecutive years of strong growth (defined as nominal annual GNI growth higher than 8 percent, the benchmark for Indonesia), and managed to become either an AE or a HI EME[5] by 2022 or earlier.[6] There are 11 such "success" countries for which the "growth for long" (GFL) strand lasted at least 11 years: almost all experienced a long stretch of strong growth starting in the 60s' (see Box 1, Fig. 1 and 2).

- **Second, we look at "fast convergence" (FC) countries**. We define Group 2 countries as those that transitioned from LMI to HI status since 1960, and durably remain HI in the latest WB classification.[7] Only ten EMEs and AEs satisfy these criteria (see Box 1, Fig. 3), and all of them transitioned in less than 20 years; two of which are also in the "growth-for-long" group (defined above), namely Chile and Panama.

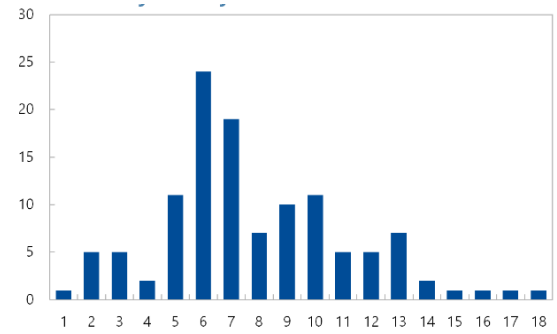
5. The success episodes provide insights for a blueprint to help achieve Indonesia's vision. In the remainder of this paper, our 19 "success" stories are used as a comparator group to try to identify the characteristics or features that both provided a fertile ground at the start of these success trajectories, and accompanied them over time.

Box 1. Success Countries

(see Annex A. for details)

Group 1 (or "growth-for-long", GFL) success countries: EMEs and AEs that experienced a stretch of at least 11 years of strong growth starting as MI and now HI or AE.

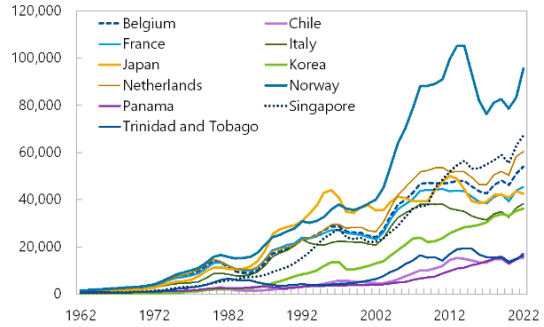
Max Number of Consecutive Years with Strong GNI Growth



Sources: World Bank, World Development Indicators; and IMF staff calculations.

Group 1 Countries: GNI Per-Capita

(In current US$, Atlas method)



Sources: World Bank, World Development Indicators; and IMF staff calculations.

[4] This excludes low-income countries, as well as Venezuela (for which GNI per capita data is missing) and Syria (only country in our AE/EME sample that is still low-income in 2022). The panel is unbalanced, as GNI data is not available over the whole period for all countries.

[5] EMEs and AEs are based on the IMF's WEO classification, while HI countries are based on the WB's GNI-based income classification.

[6] This allows us to exclude countries that appear stuck in the middle-income trap.

[7] This excludes three countries that went back to Upper Middle Income after their upgrade to High Income (Argentina, Mauritius, and Russia), and Guyana, which only transitioned to HI in 2022.

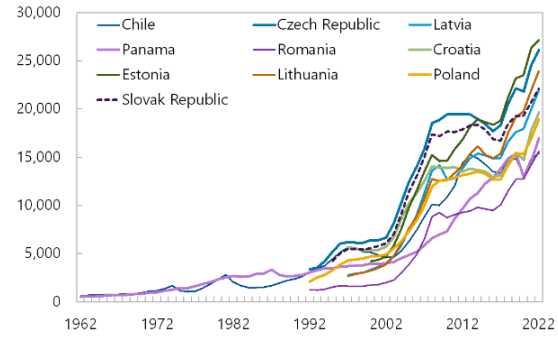
Box 1. Success Countries (Concluded)

(see Annex A. for details)

Group 2 (or "fast convergence", FC) success countries: EMs and AEs having sustainably transitioned from LMI to HI over our time period.

Group 2 Countries: GNI Per-Capita

(In current US$, Atlas method)



Sources: World Bank, World Development Indicators; and IMF staff calculations.

B. Where is Indonesia Starting from and What Roads Have Success Stories Followed?

6. This section identifies the potential gaps Indonesia would need to bridge to strengthen its chances to become a high-income economy in the next two decades. To this end, we look at Indonesia's starting conditions, as it begins its course towards the high-income goal, comparing them to where the success countries stood at the start of their growth episodes. We also study the evolution of such key variables for the success countries through their income convergence path, to identify regularities that could help guide Indonesia's reform agenda.

7. Our work draws on the literature to select potential drivers of sustainable and inclusive growth. Some recent papers look at the structural drivers of growth, or explain the evolution of other economic outcomes, such as Foreign Direct Investment (FDI) flows. We start from the economic features most often cited as structural determinants of growth, such as trade or economic openness, governance, business regulation and the labor and credit markets (see, for instance, Berg and Ostry, 2011, OECD, 2018(b), and Budina et al., 2023). We then extend this framework to other possible determinants, to get a more comprehensive picture of the structural features that have accompanied sustained growth episodes across the world. This provides us with a basis for our analysis, see variables in Table 1 (and Annex A for details):

- ***First, human capital and labor productivity*** have been underlined as key aspects of strong and sustainable growth, including for Indonesia (see Salinas, 2021; OECD, 2018(a), 2021, and 2023; and WB, 2023(a), for the former; and Alekhina et al., 2020, Kang, 2021, Hausman, 2011, for the latter).

Table 1. Indonesia: Structural Areas and Indicators

Structural area	Variables
	Gross National Income (Data and classification)
1) GDP structure (as share of GDP)	Public and private investment Public and private consumption Exports of goods and export of services Imports of goods and services
2) Trade regulations and barriers	Measure of Aggregate Trade Restrictions (MATR) IMF External sector reform index OECD Trade Facilitation Performance Index Taxes on International trade (% of revenues) Tariff rate (simple mean on all products) Non Trade Measure Coverage ratio (all measures)
3) External sector openness and trade structure	Economic openness (sum of exports and imports as share of GDP) FDI (share of GDP) Hausman Complexity Outlook Index (COI) Herfindahl-Hirschman Prod. Concentration Index (1 = conc.to 0 = diversified)
4) Governance	Worldwide Governance Indicators (WGI): Control of Corruption Government Effectiveness Political Stability Regulatory Quality Rule of Law Voice and Accountability IMF Governance reform index
5) Credit market regulation and financial inclusion	IMF Credit market regulation index Domestic credit to private sector (% of GDP) Private credit by deposit money banks (% of GDP) Private credit by deposit money banks and other FIs (% of GDP) Financial inclusion: % of respondents having a bank account Financial inclusion: % of respondents keeping money in a financial account
6) Business regulation and infrastructure	Infrastructure: Mobile cellular subscriptions Infrastructure: Access to electricity Infrastructure: Access to drinking water (% of population) Infrastructure: Logistics performance index (1=low to 5=high) IMF Business regulation index
7) Labor market	Unemployment rate Labor Force participation rate Weekly h. worked per employee Out. per worker (thousands, const. p., PPP) Share of informal employment Vuln. employment (% of total empl.) IMF Labor market regulation index
8) Human capital	Primary school enrollment rate Compulsory education duration (years) Share of 25+ that completed at least prim. education Adult literacy rate (% of 15+ people) Hausman Economic Complexity Index (ECI)
9) Human development, Health, and Demographics	Human Development Index (HDI, UNDP) Poverty headcount ratio at $2.15 a day (2017 PPP, % of population) GINI coefficient Gender Inequality Index (GII, UNDP) Female Labor Force part. rate (% ages 15+) Life expectancy at birth (years) Current health exp. (% of public exp.) Age dependency ratio (% of working-age pop.) Population ages 15-64 (% of pop.)

Note: The variables referred to as IMF reform indices are the ones developed in Budina et al. (2023). The Governance reform index is a simple average of the six WGI indices. The External sector index is an average of four indicators incorporating information on tariffs, non-tariff trade barriers, black-market exchange rate, and control of the movement of capital and people. The Credit Market regulation index comprises three components on ownership of banks, the size of private sector borrowing, interest rate controls. The Labor Market regulation index incorporates information on hiring and firing regulation, and the degree of centralized collective wage bargaining. The Business regulation index is an average of subcomponents on bureaucracy costs, administrative requirements, and impartial public administration. Except for the first index, subcomponents are all sourced from the Fraser institute. They are scaled from 0 to 1, with higher values indicating a higher degree of freedom.

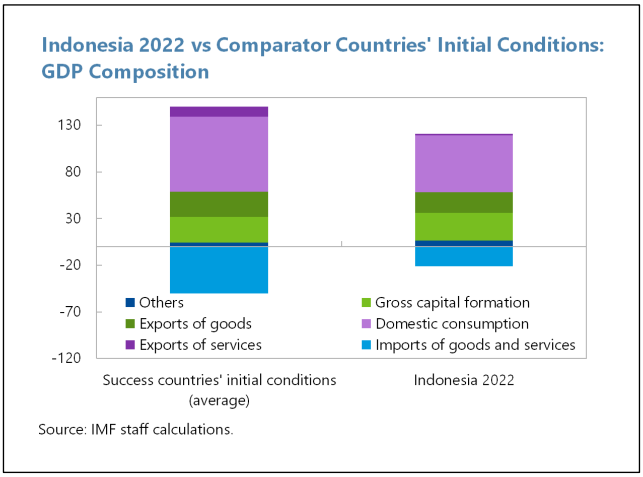
- ***Second, determinants of the investment environment*** such as infrastructure and financial inclusion are also found to be key (Salinas, 2011; OECD 2018(a), Alekhina et al., 2020 and Kang, 2021, among others).

- ***Third, additional aspects of development*** that must be examined as drivers of inclusive and sustainable growth; these include demographics (which is key for Indonesia, see, for example, OECD, 2021), as well as poverty and gender inequalities (Berg and Ostry, 2011, Alekhina et al. 2020, OECD, 2023, and WB, 2023(b) and (c)).

- ***Finally, we also include the demand side structure of GDP*** in our analysis, to get a better understanding of how relying on various components supported growth in the success countries.

Initial Conditions: Where Does Indonesia Start?

8. The first step is to compare initial conditions. The paper looks at Indonesia's economic and structural characteristics as of 2022 and compares them to the initial characteristics of the identified success countries in Groups 1 and 2. More specifically, the analysis includes indicators reflecting the GDP growth drivers (public and private consumption and investment, exports), governance (Worldwide Governance Indicators, WGI), human capital features (education and health), demographics, human development (HDI, poverty and gender inequality), and labor market and infrastructure. We also include Hausman's indicators of economic complexity, as well as indicators of economic complexity and openness (Table 1).



- **GDP composition: Indonesia's GDP is less reliant on external supply and demand than the comparators**. Indonesia's GDP is less reliant on imports than the success countries when they started their strong and sustained growth trajectory (21 vs. 50 percent of GDP); this is compensated by both lower domestic consumption (61 vs. 80 percent of GDP), and lower exports of services (2 vs. 11 percent of GDP).[8]

- **Exports and openness: Indonesia's exported products are less economically complex than the success countries at their starting point, and its economy is less open**. Hausman's Economic Complexity Index (ECI) is based on the fact that the productive knowledge that a society uses is reflected in the variety and structure of its exports. This indicator accounts for both the diversity of a country's exports and their ubiquity (with greater ubiquity measured through the number of exporters of the same products, and the types of products exported by these exporters). Indonesia had a relatively low ECI in 2022, compared to where the success

[8] For these three GDP components, Indonesia lies at the bottom of the distribution, compared to where the comparator countries started their strong growth trajectory.

countries started (-0.1 vs 0.7, on average); this is likely mostly explained by the low complexity of its products (Figure 4); notably, Indonesia does not stand out as having a less diversified economy than comparator countries-its Hirschman-Herfindahl export product concentration index is very close to the success countries' initial conditions' average. Finally, Indonesia's economic openness is low compared to the comparator average at the start of the high growth trajectory; this is reflected in lower net FDI inflows as a share of GDP (1.6 vs. 4.9 percent of GDP), lower economic openness (proxied by the sum of exports and imports over GDP, 21.1 vs. 46.4 percent of GDP), higher tariff rate (simple mean on all products, 6.3 vs. 5.0 percent), and a lower external sector reform index (0.67 vs. 0.83), pointing to a lower degree of economic freedom in trade and external finance (the index describes the extent to which countries can freely exchange goods and services, as well as ideas, see Budina et al., 2023).

Figure 4. Economic Complexity (Hausman, 2011)

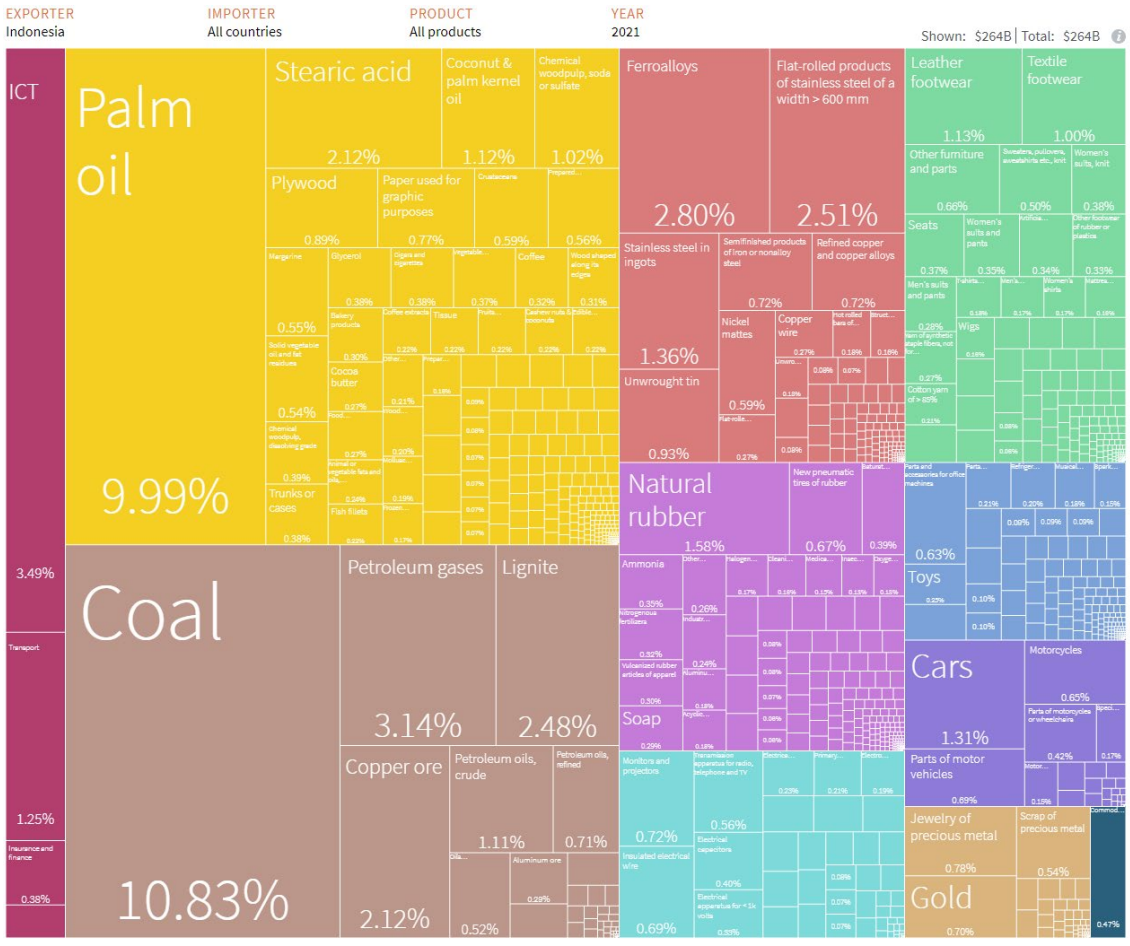
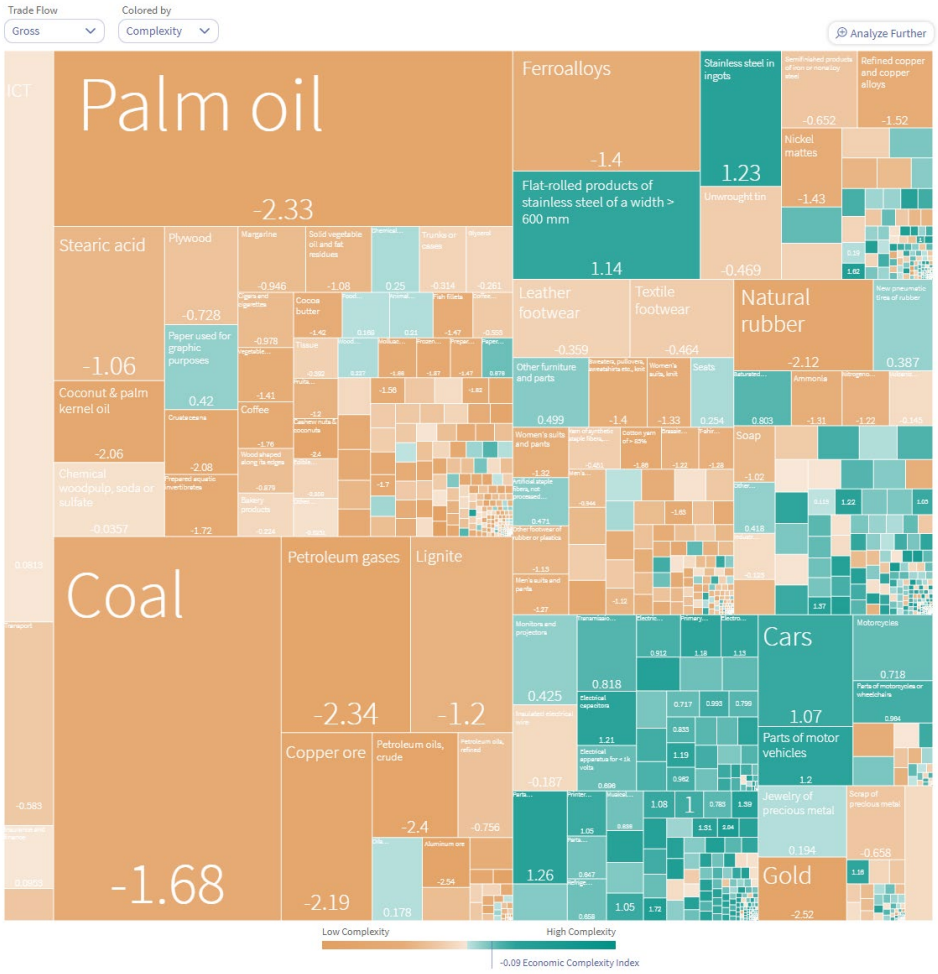


Figure 4. Economic Complexity (Hausman, 2011) (Concluded)



Source: Atlas of Economic Complexity, Hausman (2011). The first (diversification) tree map displays a breakdown of exports from Indonesia in 2021, showing each product share of total exports (Services in red, agriculture in yellow, textiles in green, minerals in brown, metals in orange red, chemicals in pink, vehicles in purple, machinery in blue, electronics in light blue. The second (complexity) tree map shows the same exported products, with color denoting their level of complexity (from low complexity products (in brown, to high complexity product, in green).

- ***Governance: Indonesia fairs lower in terms of governance than the average growth success stories at their starting point***. Based on the WGI indicators (D. Kaufmann, Natural Resource Governance Institute and Brookings Institution, and A. Kraay, World Bank), Indonesia is in the bottom quarter of the distribution for the indicators related to control of corruption, government effectiveness, political stability, regulatory quality, rule of law, and voice and accountability. While these indicators are survey- and perception-based and should be therefore interpreted with caution, it is striking that all of them indicate similar results, which calls for stepping up governance and anti-corruption reforms, and government effectiveness to bring them in line with those observed at the start for the success cases.

- ***Human capital: Indonesia's indicators are below those in the success cases at the start of their growth trajectory, with demographics offering a window opportunity in the coming years.***

  - ***Education***. While not an outlier, Indonesia is in the second quartile (Q2) of the distribution, and below average for most relevant education outcome indicators, including school enrollment rate (100.6 percent vs. 103.1 percent),[9] duration of compulsory education (9 vs. 9.2 years), and adult literacy rate (96 percent, vs. 97 percent). Indonesia also has a lower share of people aged 25 years or more that have completed at least primary education (82 percent, vs. almost 87 percent) than the average "success case" at the start of the growth episode.

  - ***Productive knowledge***. While Hausman's Economic Complexity Index (ECI) informs on the complexity of a country's exports, it also embeds information on each economy's productive capabilities, given that a country can produce a product only to the extent it has the requisite knowledge. In other words, the ECI can be seen as a measure of human capital. Under this lens, Indonesia is also below average, with an ECI of -0.1 (compared to 0.7 on average).

  - ***Human development and health***. Indonesia's life expectancy is lower than the mean of the comparator group, as is its health expenditure as a share of GDP. The Human Development Index is below the average of success countries at the start of their episodes, although it is still in the range considered as "high human development" under the UNDP classification. Indonesia fairs similarly on inequality (GINI coefficient) compared to other countries' starting conditions.

  - ***Gender***. Indonesia fairs below the success country average, based upon the UNDP's Gender Inequality Index. Female labor participation ranks very high relative to the success countries.

  - ***Demographics***. Indonesia has a lower age dependency ratio than average and a stronger demographic dividend (proxied by the share of the population aged 15-64 years).[10] This provides a window of opportunity to strengthen health and education spending upfront, before dynamics change—with population starting to age, and the dependency ratio to increase. Results emphasize the importance of effectively and urgently investing in human capital to help strengthen Indonesia's initial conditions to better support a sustained high growth episode.

- ***Labor market: Indonesia has a strong participation rate, but lower labor productivity and more vulnerable employment than the success cases at the start***. Indonesia has a low unemployment rate (as of 2022, 5.9 percent, vs. 8.2 on average for success countries at the start)

[9] Gross primary school enrollment rate, which explains values higher than 100.

[10] The country has also a lower life expectancy at birth (by 10 years, relative to the success countries at the start).

and higher labor force participation than the comparators (67 vs. 58 percent). However, the International Labour Organization (ILOS)'s estimate of the share of vulnerable employment (over total employment)[11] is higher (50 vs. 18 percent of total employment), and labor productivity weaker than that in the comparators—with low hours worked per employee (38 vs. 42 on average), and low output per worker[12] —compared to initial settings for the success countries.

- ***Infrastructure services/Utilities: Indonesia fairs well in terms of electricity and digital access but lower on access to water***. Mobile subscriptions per 100 people are much higher than average starting conditions in the success countries (115 vs. 20 on average); this result must be nuanced since internet connectivity has risen significantly in the last two decades. Indonesia does not lag in terms of electricity access (99 vs. 97 percent) either, despite its complex geography. While data for comparator countries is scarce, access to drinking water is slightly lower in Indonesia than in comparator countries at the start of their strong growth trajectory (94 vs. 96 percent of the population).

9. These findings provide initial guidance on areas where Indonesia could benefit from an upfront structural reform boost, to improve the grounds to achieve its objective within the settled—ambitious—timeframe. This analysis does not provide evidence of causality between the potential growth drivers at the starting point and the high GDP growth rates that followed in the success countries. That said, it is striking that Indonesia does have a gap to bridge, not only to reach its ambition in the next two decades, but to set initial conditions similar to those in countries that entered strong growth trajectories—which are likely to have supported the process. The exercise provides some initial evidence that improvements in key horizontal areas (education and human capital, including to enhance productivity and economic capabilities; economic openness, labor vulnerability and governance) should be part of the equation for Indonesia to succeed in durably lifting growth; the current demographics offer a window of opportunity to do so in the coming years.

Structural Variables Along the Strong Growth Trajectory

10. After focusing on initial conditions, this section looks at the evolution of the above-described structural features along the "growth for long" (GFL) and "fast convergence" (FC) episodes, for the "success" countries.[13] We focus on the evolution of the variables of interest during the first 20 years of the success countries' strong growth trajectories (corresponding to a different period in each case). We focus on the median value in every year of the trajectory and

[11] This vulnerable employment estimate by the ILO refers to the sum of (i) own-account workers (i.e., without employees) and (ii) contributing family workers (also known as unpaid family workers). The series is part of the "ILO modeled estimates database," including nationally reported observations and imputation for missing data, primarily to capture regional and global trends with consistent country coverage, they are to be used with caution.

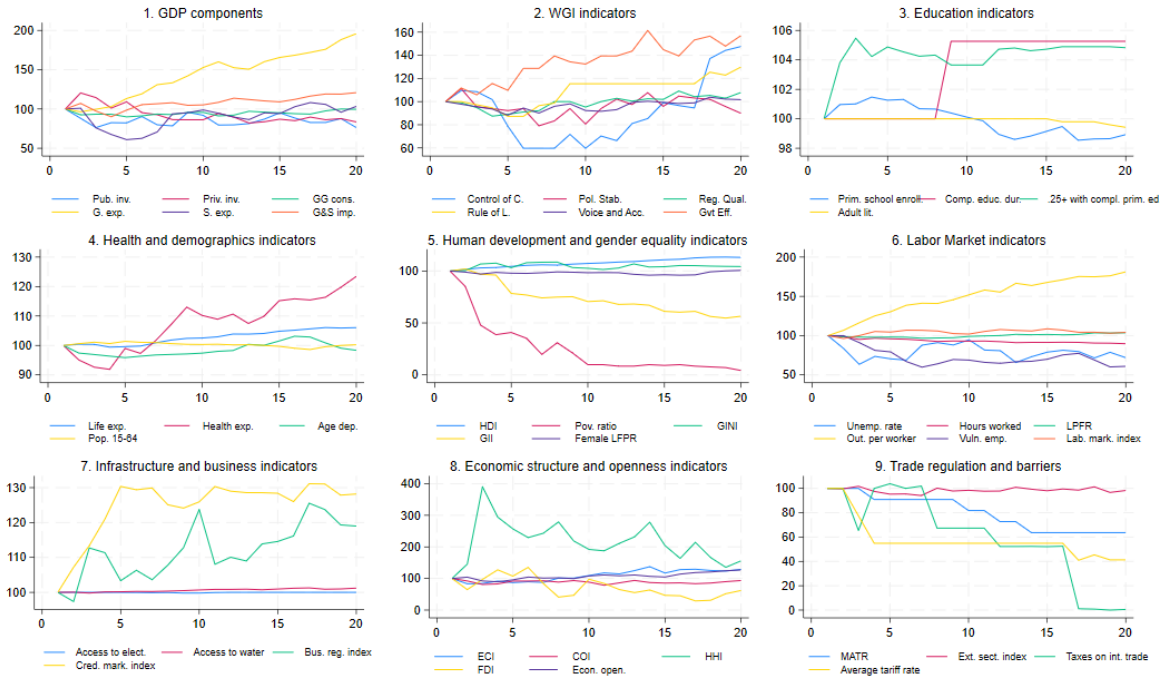
[12] Output per worker, in GDP at constant international US dollars, at purchasing power parity, amounts to 26,000 for Indonesia in 2022, compared to around 38,000 on average for the comparator group at the start of their strong growth trajectory.

[13] In this section, we exclude Panama and Trinidad and Tobago from the sample, as they are respectively a small state (exporting oil and gas) and financial center, and we do not want them to bias results (if outliers).

rebase all variables at 100 in the first year, to get a clear picture (not driven by outliers) of the structural variables that increase the most over the success countries' strong growth trajectories.

11. The identified growth trajectories were overall accompanied by an opening of the economy, institutional strengthening, rising human capital and labor productivity, and poverty reduction. Of the *WGI indicators*, government effectiveness, control of corruption and rule of law indicators increased the most along the strong growth trajectories of the reference countries (Figure 5, chart 2).[14] Regarding the *composition of GDP*, good exports and total imports saw a particularly significant increase during the growth episodes, likely reflecting the fact that strong growth was supported by an opening of the economy (chart 1). This is confirmed by the fact that *economic openness, proxied by the sum of exports and imports over GDP* (as well as *trade barriers indicators*) rose (resp. declined) along the strong growth trajectories (charts 8 and 9). *Human capital* indicators increased substantially during the growth episodes (education variables, chart 3; output per worker, chart 6, and ECI, whose median increases slowly, but steadily over time, chart 8). Finally, *development variables* also expanded along the strong growth trajectories, in particular health expenditure and life expectancy (chart 4), and there was an important reduction in poverty and gender inequality along the way (chart 5).

Figure 5. Structural Variables Along the Success Countries' Strong Growth Trajectory



Source: See Annex A for details on sources for all data series. Staff calculations.

Note. Horizontal axis corresponds to the year along the growth trajectory, series show median of the success countries in each of these years, variables are rebased at 100 in the first year of the trajectory.

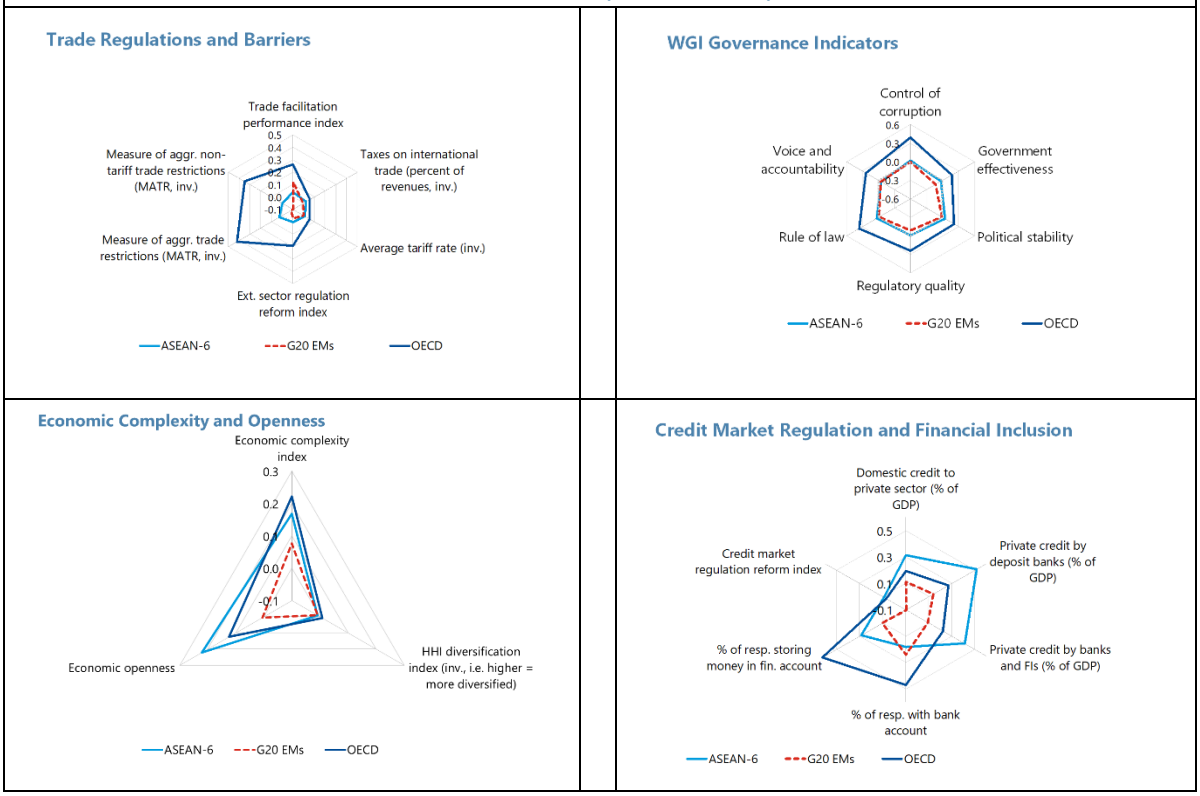
[14] Note that for the success countries whose strong growth trajectory starts before 1996, we attribute the WGI scores of the year 1996 (first year in which WGI is available).

C. A Granular Look into Current Structural Gaps

12. Taking advantage of the enhanced granularity in recent data, this section examines Indonesia's structural gaps vis-à-vis current peers and OECD countries.[15] We use the previous variables, and add new indicators that are only available more recently—such as the structural reform indicators used by Budina et al. (2023), on external sector regulation, business, credit and labor market, a Measure of Aggregate Trade Restrictions (MATR, see Estefania-Flores et al., 2022), the survey-based OECD Trade Facilitation Performance Index, financial inclusion variables from the Global Financial Inclusion Database, private credit data from the WB, and the WB's Logistics Performance Index (and its infrastructure component). All variables are normalized (0 to 1) for the entire sample of AEs and EMs (with higher values denoting better outcomes), and we focus on gaps between Indonesia and each comparator's group's median (such that results are less likely biased by outliers). Gaps should not be interpreted in relation to a possible frontier in each area, but rather as gaps to be bridged to help resemble the typical country in each comparator group. Negative gaps indicate that Indonesia performs better than the comparator group's median in a specific area. Many of the indicators are based on public perception and surveys, but still considered as they do allow to get a broader picture of the considered structural areas.

Figure 6. Granular Structural Characteristics, Gap to Comparator Groups

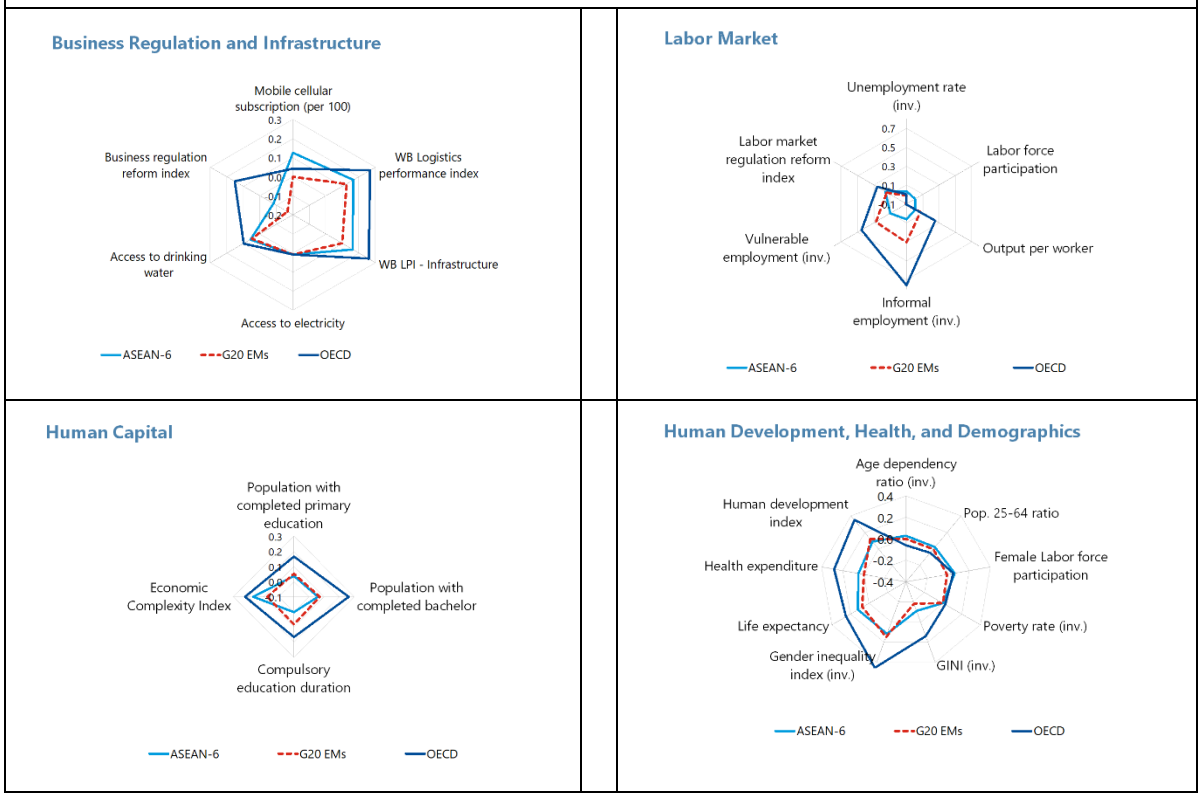
(Indonesia's Gaps Relative to Peer Group Median, Positive Gap Indicates a Worse Outcome Relative to Comparator Group)



[15] See Annex D for description of comparator groups.

Figure 6. Granular Structural Characteristics, Gap to Comparator Groups (Concluded)

(Indonesia's Gaps Relative to Peer Group Median, Positive Gap Indicates a Worse Outcome Relative to Comparator Group)



Trade and Economic Openness

13. Indonesia is less open to trade than OECD comparators. While being close to other ASEAN-6 members in terms of economic openness, Indonesia has stronger trade barriers and weaker trade facilitation performance than OECD countries, which calls for efforts to improve the trade policy framework. As underlined earlier, Indonesia's economic openness (proxied by the sum of exports and imports over GDP) is significantly lower than in G20 EMs and OECD countries, and even more so compared to other ASEAN-6. Additionally, and similarly to other ASEAN-6 countries (and G20 EMs), Indonesia stands out as having more trade restrictions and barriers to trade (in particular, non-tariff) than OECD countries. Indonesia's non-tariff measures (NTMs) are high; they add up to an average tariff equivalent of 30 percent, more than in other countries in the region.[16] Important efforts are also needed to improve logistics and trade facilitation to reduce—inter alia—the time, costs, and uncertainty of cross-border transactions, for example (see Figure 6, charts 1 and 3).

[16] WB and IBRD, 2022.

Economic Sophistication and Human Capital

14. While exports are as diversified as in comparator countries, Indonesia has the least sophisticated exports within ASEAN-6 countries, and has lower labor productivity and weaker human capital than comparator group medians. The economy is diversified (as per the HHI export product concentration index); however, Indonesia's economic complexity has fallen over time, and Indonesia's largest exports remain in low complexity products (agriculture and minerals, Fig. 7). This is in line with Indonesia's lower labor productivity compared to G20 EMs and OECD members (see World Bank, 2023(b)). The low economic sophistication is likely linked to important gaps in human capital—reflected in much lower duration of compulsory education and the share of population having at least a Bachelor's degree, especially relative to G20 and OECD EMs. This calls for deliberate actions to increase education funding, improve learning time (including catching up learning time lost during the pandemic, increasing access to early childhood education and broadening secondary education attendance) and the quality of learning (increasing teachers' accountability and service delivery, for example) as Indonesia learning outcomes remain low compared to peers (see OECD, 2021, World Bank, 2021, 2023(a) and (c)).

Governance

15. Strengthening governance and anti-corruption efforts, while enhancing the legal system would support accountability and business certainty. Gaps are identified relative to peers in these areas. Indonesia, similar to ASEAN-6 and G20-EMs median countries (although outperforming the latter in some areas), lags the OECD median country significantly in each of the WDI governance areas-Government Effectiveness, Regulatory Quality, Voice and Accountability, Political Stability, Controlling Corruption and the Rule of Law.

Investment Environment

16. Efforts are needed to strengthen the quality of Indonesia's infrastructure and logistics, its business environment and lay the ground for an infrastructure base capable of supporting stronger economic activity. Indonesia fairs relatively well on credit market and business regulation indices compared to peers (although it lags the OECD median in terms of business regulation liberalization). Indonesia's infrastructure, however, has gaps relative to peers, as reflected by the access to drinking water, lower individual connectivity via cell phone subscription, and most importantly, to all comparator medians on the WB's logistic performance index, in particular its infrastructure subindex (see Figure 6, chart 5). Looking more specifically, gaps are seen in all subcomponents compared to comparators, including infrastructure, customs, shipping, tracking and tracing, and timeliness. Transportation costs are particularly high (see Indonesia Investments, 2023) and contributed to headline inflation to a great extent in 2022/2023. Lower financial inclusion, reflected in the lower share of people indicating that they either store money in a financial account or have a bank account, and lower private credit to GDP than comparators, also contributes to a less conducive, and less attractive business environment (see World Bank, 2023(a), underlining that Indonesia has one of the largest unbanked populations in the world).

Human Development and Labor Market Vulnerability

17. Achieving inclusive growth will require to close human development gaps. This includes efforts to enhance heath, reduce labor vulnerability and informality, and gender gaps, so as to level up living conditions broadly, without dividing the population between those gaining from stronger growth and those left behind. Indonesia currently has a demographic advantage, with a favorable age dependency ratio that is still growing (see OECD, 2021). However, it does lag all comparators in terms of human development, in particular health and gender inequality outcomes, and stands out for its high informality and vulnerable employment rates. While inequality measured by the GINI index seems better than median ASEAN-6 and median G20-EM, this survey-based indicator is subject to underreporting and survey-access difficulties, and may mask income inequalities between regions, gender, formal/informal sectors and other subcategories of the population, and inequalities in terms of access to services (education, sanitation and health, for example, see Hill, 2021, World Bank, 2023(c), [and placeholder to cite WB work on labor and consumption inequality]). Promoting job quality and social protection to reduce vulnerable employment, reducing informality (which is widespread across regions, demographic categories and sectors, see Ma et al., 2023), by further increasing labor market flexibility (see gap on the Labor market regulation reform index that reflects hiring and firing regulations, and the degree of flexibility of wage determination, by Fraser), would help increase both productivity and the potential of the labor force.

D. Informing Indonesia's Growth Plan

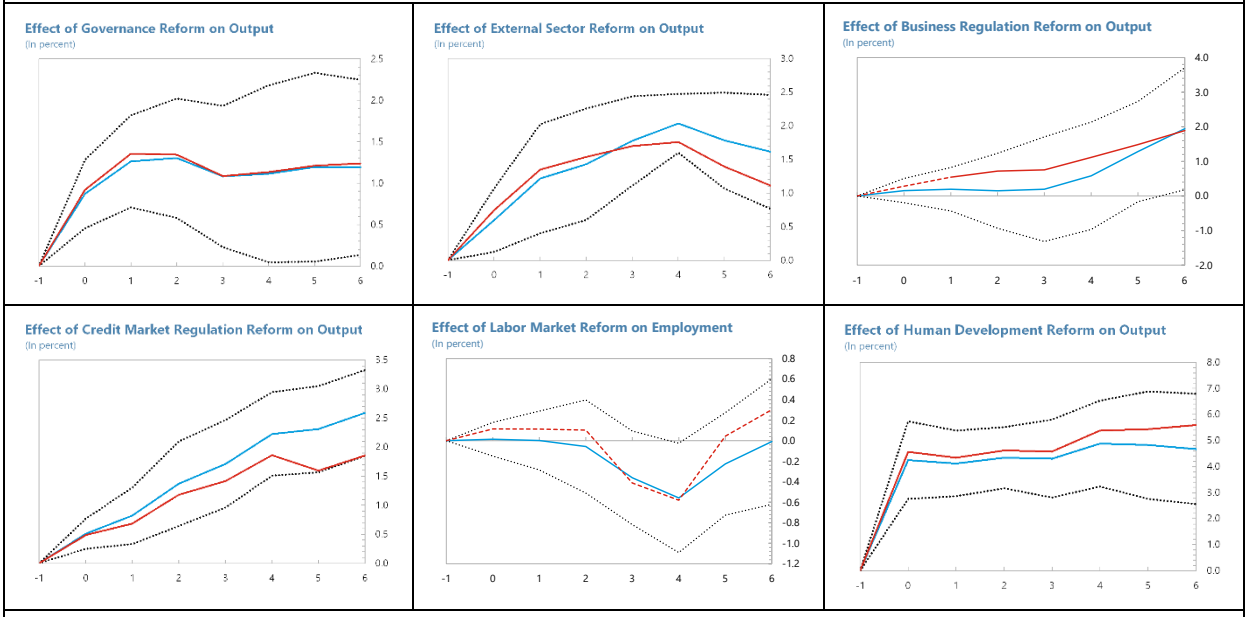
18. This section examines the impact of key structural reform variables on growth to inform Indonesia's structural reform agenda. We employ the local projection method by Jordà (2005), following the methodology developed in Budina et al. (2023). We compute structural reform indicators by area (governance, external sector, business, credit market and labor market).[17] We look at the potential gains in output growth from major structural reforms, defined as episodes for which an improvement in the relevant indicator is at least two standard deviations of the distribution (of annual changes in the relevant reform indicator across the whole sample of AEs and EMEs). To better tailor to Indonesia's needs, we focus on AEs and EMs, and include one additional reform indicator that reflects reforms related to overall human development (based on the Human Development Index, that incorporates information on education/schooling, health outcomes, and GNI pc), to add an inclusiveness aspect to the analysis. Regressions are run over the period 1996-2022 (the period over which variables are available).

19. Key findings suggest that governance, external sector regulation, credit market regulation reforms, and reforms improving human development would all have a positive, significant effect on output. Local projection estimates help gauge the effect of reforms in various

[17] Reform indicators are constructed as averages of corresponding sub-variables, sourced from the Fraser Institute and WGI governance indicators, see Budina et al. (2023) for details.

areas on real GDP.[18] Except for labor market regulation and business regulation reforms, all structural reforms are found to have a positive, significant effect on real output, with governance and human development related reforms having an immediate impact, while external sector and credit market regulation reform have a more gradual impact over the years (see Figure 7). Labor market regulation reforms are not found to have a significant on employment (as for Budina et al., whose estimates focus on EMDEs). Business regulation reforms have a non-significant (and positive) effect on the whole sample, but this positive impact becomes significant after two years, conditional on being an EME country.[19]

Figure 7. EMs and AEs: Effects of Structural Reforms on Real Output, and Conditional on Being an EM



Source: IMF staff estimates.

Note: t=0 is the year of the shock. The lines show the effect on real output of a major economic reform in the years after the shock, with dotted lines showing 90 percent confidence intervals. Red lines show effects of reforms, conditional on being an EM, with dashed components of the red lines indicting statistical insignificance (at the 10 percent level).

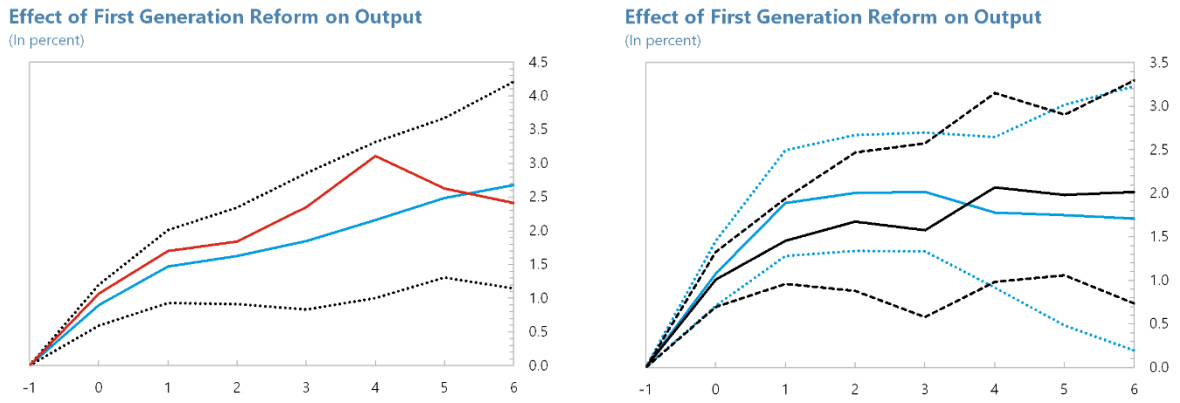
20. Results also suggest that packaging reforms yields better output outcomes. Looking at the effect of "first-generation" structural reforms (external sector regulation, governance, and business regulation reforms, to which we add the human development reform), packaged together, yields a positive and significant effect. More precisely, such a reform package (characterized by an increase of two standard deviations of the average of the underlying reform indices) could raise output levels by around 1.5-2 percent after two years. The effect is stronger and could raise up to around 3 percent after four years, conditional on implementing all reforms simultaneously (red line, Figure 8, left hand side chart). The effect of the reform package does not significantly depend on

[18] Dependent variables are real GDP (at Purchasing Power Parity) or employment (for Labor market regulation). We control for lags of the dependent variable, past growth, expected growth, and past reforms (two lags each), country and year fixed effects, use OLS estimates, and generate impulse responses for the estimated coefficients of interest using the associated Driscoll-Kraay (1998) robust standard errors. See Budina et al (2023) for details.

[19] For Budina et al., on EMDEs, this reform is found to have a positive and significant impact overall.

how much reforms the country has already achieved (below or above median of the reform package indicator). In other words, implementing such a package continues to have significant effects even for countries that have already made important reform progress in the past (see Figure 8, right hand side chart).

Figure 8. EMs and AMs: Effects of Packaged Reforms on Real Output



Source: IMF staff estimates.

Note: t=0 is the year of the shock. The lines show the effect on real output of a major economic reform in the years after the shock, with dotted lines showing 90 percent confidence intervals. LHS: Red line shows effects of reform package, conditional on implementing all four reforms simultaneously, with dashed components of the red lines indicating statistical insignificance (at the 10 percent level). RHS: Blue (resp. black) line shows effect of reform package for countries with below (resp. above) median reform package.

21. These results help guide a possible sequencing of structural reforms in Indonesia (see Table 2). On the basis of the above, reforms on external sector regulation, governance, business regulation and human development-related reforms should be implemented in priority. Implementing this group of reforms in tandem would help ensure that any upcoming growth gains are broadly shared. These reforms are complementary and mutually reinforcing, with governance being foundational, business regulation efforts making it easier for firms to operate and expand, and external sector reforms supporting competitiveness. All reforms (except on business regulation) would have immediate, significant effects on real output. Because some of these reforms will require financing, they will need to be supported by upfront efforts to further expand the fiscal space in the short-term, particularly with domestic revenue mobilization. Reforms in other areas, such as credit market regulation reforms, are likely to deliver stronger output effects, once the first set of reforms has been implemented.[20] While the comprehensive Job Creation Omnibus Law was enacted during the pandemic with the objective of improving the investment climate and generate new job opportunities, more is needed to finalize implementation regulations and streamline regulations further, improve business certainty, ease trade and logistics processes, level up learning outcomes, and enhance social protection. More broadly, laying the ground to support stronger activity and ensure the growth gains are evenly shared will be crucial to help reach Indonesia's ambition.

[20] In this sample, credit market regulation reforms have a stronger effect on output for countries that are above-median in the package-reform, but the effect of labor market reforms remains broadly insignificant in the sample.

Table 2. Indonesia: A Roadmap for Structural Reforms

	Short-term	Medium-term
A. Fiscal Policy	1. Increase domestic tax revenue to bolster fiscal space. This should also endure beyond the short-term. 2. Prioritize high-quality spending supportive of Indonesia's development and closely monitor fiscal risks 3. Increase coverage and adequacy of the social safety net, improve targeting of subsidies.	4. Better align retail fuel prices with international prices. 5. Enhance the strategic direction of MTFF, and its articulation with the annual budget and long-term plans; ensure the General Government accounts comprehensively reflects fiscal activities. 6. Strengthen SNG's own-revenue sources and PFM, including current and investment spending execution and service delivery capacities
B. Inclusion and Development	1. Boost size and quality of health spending and social protection, for a broadly shared growth. 2. Boost education spending, improve learning time and quality to reduce skill mismatch and increase productivity and knowledge capabilities/economic sophistication.	3. Tackle gender inequality, to further increase the labor force and potential growth.
C. Governance	Strengthen governance and anti-corruption framework, improve legal system to support accountability and business certainty.	
D. Trade and Foreign Investment Policy	1. Avoid intensifying restrictive trade policies (including in the IP context) and transition away from NTMs that distort trade and investment decisions and risk international spillovers.	2. Foster openness in trade and FDI, and increase trade facilitation (e.g. to reduce time, cost and uncertainty of crossborder transactions)
E. Business climate	1. Reduce regulatory uncertainty, bureaucracy costs and administrative hurdles. 2. Strengthen infrastructure and logistics	
F. Credit Market 1/	1. Develop regulation to strengthen the development of credit scores; establish an oversight framework for the Credit Reporting Systems 2. Reforms to enhance capital market development (e.g., repo market, development of interest rate and forex derivatives). 3. Strengthen regulatory approach to alternative financing models (DFS) 4. Introduce a regulatory green taxonomy and update reporting requirements for firms and financial institutions	5. Expand (direct) access to the fast payment system (BI-FAST) and build on the National Standard for Payment Open API (SNAP) to develop a comprehensive approach to open banking/finance 6. Foster the presence of institutional investors in the domestic market 7. Enhance financial literacy and reduce the digitalization gap across Indonesian provinces 8. Explore ways to scale and utilize the domestic banking system to mobilize climate finance.
G. Labor market	1. Enhance the hiring and firing regulation, assess the extent to which wage determination encourages informality.	2. Tackle labor informality and duality, while ensuring the protection of workers.

1/ See 2024 FSAP Recommendations, Annexes VII and VIII, and Selected Issues Paper on Access to Finance by SMEs.

Annex I. Data and Results

A. Data Description

Structural area	Variables	Source	Available time period	Note
	Gross National Income (Data and classification)	World Bank (World Development Indicators)	1962-2022	
1) GDP structure (as share of GDP)	Public and private investment	IMF WEO Database	1969-2023 (not for all countries)	
	Public and private consumption	World Bank (World Development Indicators)	1960-2022	
	Exports of goods and export of services	IMF WEO Database	1960-2023 (not for all countries)	
	Imports of goods and services	World Bank (World Development Indicators)	1960-2022	
2) Trade regulations and barriers	Measure of Aggregate Trade Restrictions (MATR)	IMF AREAER Database	1999-2021	
	IMF External sector reform index	Fraser Institute (using Budina et al. methodology)	1970-2021 (not in all years)	Incorporates data from TPIs, incl. International Country Risk Guide and Global Competitiveness
	OECD Trade Facilitation Performance Index	OECD	2017, 2019 and 2022	Survey-based
	Taxes on International trade (% of revenues)	World Bank	1990-2022 (not in all years)	
	Tariff rate (simple mean on all products)	World Bank	1990-2020 (not in all years)	
3) External sector openness and trade structure	Economic openness (sum of exports and imports as share of GDP)	(staff calculations, from above)		
	FDI (share of GDP)	World Bank (World Development Indicators)	1970-2022	
	Hausman Complexity Outlook Index (COI)	Atlas of Economic Complexity (Hausman)	1995-2021	Author estimate, based on official data.
	Herfindahl-Hirschman Prod. Concentration Index (1 = conc.to 0 = diversified)	World Bank (based on mirrored exports)	1988-2022	
4) Governance	Worldwide Governance Indicators (WGI): Control of Corruption Government Effectiveness Political Stability Regulatory Quality Rule of Law Voice and Accountability	D. Kaufmann (Natural Resource Governance Institute and Brookings Institution) and A. Kraay (World Bank)	1996-2022 (every 2 years at the start)	Survey-based
	IMF Governance reform index	(staff calculations, from the above, using Budina et al. methodology))	1996-2022 (every 2 years at the start)	
5) Credit market regulation and financial inclusion	IMF Credit market regulation index	Fraser Institute (using Budina et al. methodology)	1970-2021 (not in all years)	Incorporates data from TPIs, incl. International Country Risk Guide and Global Competitiveness Report
	Domestic credit to private sector (% of GDP)	World Bank (World Development Indicators)	1990-2022 (not for all countries)	
	Private credit by deposit money banks (% of GDP)	WB Global Financial Development Database	1990-2021 (not for all countries)	
	Private credit by deposit money banks and other FIs (% of GDP)	WB Global Financial Development Database	1990-2021 (not for all countries)	
	Financial inclusion: % of respondents having a bank account	Global Financial Inclusion Database	2011, 2014, 2017 and 2021	
	Financial inclusion: % of respondents keeping money in a financial account	Global Financial Inclusion Database	2011, 2014, 2017 and 2022	Survey of hard data
6) Business regulation and infrastructure	Infrastructure: Mobile cellular subscriptions	World Bank	1980-2022	
	Infrastructure: Access to electricity	World Bank	1990-2021	
	Infrastructure: Access to drinking water (% of population)	World Bank	2000-2022	
	Infrastructure: Logistics performance index (1=low to 5=high)	World Bank	2007-2022 (every 2 to 4 years)	
	IMF Business regulation index	Fraser Institute (using Budina et al. methodology)	1970-2021 (not in all years)	Incorporates data from TPIs, incl. International Country Risk Guide and Global Competitiveness
7) Labor market	Unemployment rate	IMF WEO Database	1960-2023 (not for all countries)	
	Labor Force participation rate	International Labor Organization (ILO)	1991-2022	
	Weekly h. worked per employee	International Labor Organization (ILO)	1990-2022 (not for all countries)	
	Out. per worker (thousands, const. p., PPP)	International Labor Organization (ILO)	1991-2024	
	Share of informal employment	International Labor Organization (ILO)	1999-2022 (not for all countries)	
	Vuln. employment (% of total empl.)	International Labor Organization (ILO)	1991-2022	Modeled ILO estimate
	IMF Labor market regulation index	Fraser Institute (using Budina et al. methodology)	1970-2021 (not in all years)	Incorporates data from TPIs, incl. International Country Risk Guide and Global Competitiveness
8) Human capital	Primary school enrollment rate	World Bank	1970-2022	
	Compulsory education duration (years)	World Bank	1998-2022	
	Share of 25+ that completed at least prim. education	World Bank	70-2022 (scarce data, not for all countries)	
	Adult literacy rate (% of 15+ people)	World Bank	75-2022 (scarce data, not for all countries)	
	Hausman Economic Complexity Index (ECI)	Atlas of Economic Complexity (Hausman)	1995-2021	Author estimate, based on official data.
9) Human development, Health, and Demographics	Human Development Index (HDI, UNDP)	United Nations Development Programme (UNDP)	1990-2022	Based on official data
	Poverty headcount ratio at $2.15 a day (2017 PPP, % of population)	World Bank (World Development Indicators)	1980-2022 (not for all countries)	
	GINI coefficient	World Inequality Database	1990-2022	
	Gender Inequality Index (GII, UNDP)	United Nations Development Programme (UNDP)	1990-2022	Official data and international agencies
	Female Labor Force part. rate (% ages 15+)	United Nations Development Programme (UNDP)	1990-2022	
	Life expectancy at birth (years)	World Bank (World Development Indicators)	1960-2021	
	Current health exp. (% of public exp.)	World Bank	2000-2021 (or 2020 for most countries)	
	Age dependency ratio (% of working-age pop.)	World Bank (World Development Indicators)	1960-2021	
	Population ages 15-64 (% of pop.)	World Bank (World Development Indicators)	1960-2022	

Note: For some structural variables that present data gaps or correspond to surveys that might not be run in every year (WGI, Fraser Institute variables, and LPI, among others), we fill gaps either with the latest available value or with linear interpolation, to maximize the number of comparator countries for each variable. For WGI and education data, countries are assigned the of the first observation for the years before (1997, for WGI data to the extent the first observation year is close enough to the start of the growth trajectory of the considered country. For data not available in 2022 (health and complexity indicators, financial inclusion, and electricity access for example), we assign to Indonesia the latest available value (2021 or 2020), for the purpose of comparing Indonesia's current conditions with the initial conditions of the "success" countries.

B. Description of the "Success" Countries

List of the "Success" Countries and Characteristics of their Strong Growth Trajectory 1/

Country Name	Success story group	Start of the strong growth trajectory	End of the trajectory	For group 2: Duration of the convergence to HI	For Group 1: Duration of the longest strong growth stretch	WB 2022 Income classification	IMF country classification
Belgium	1	1964	1980	.	17	High Income	AE
Chile	2	1994	2012	19	11	High Income	EM
Croatia	2	1996	2008	13	6	High Income	EM
Czech Republic	2	1995	2006	12	6	High Income	AE
Estonia	2	1998	2006	9	6	High Income	AE
France	1	1963	1975	.	13	High Income	AE
Italy	1	1963	1975	.	13	High Income	AE
Japan	1	1963	1975	.	13	High Income	AE
Korea	1	1967	1981	.	15	High Income	AE
Latvia	2	2002	2009	8	7	High Income	AE
Lithuania	2	2002	2012	11	7	High Income	AE
Netherlands	1	1963	1980	.	18	High Income	AE
Norway	1	1969	1980	.	12	High Income	AE
Panama	2	1999	2017	19	11	High Income	EM
Poland	2	1997	2009	13	6	High Income	EM
Romania	2	2006	2019	14	7	High Income	EM
Singapore	1	1965	1976	.	12	High Income	AE
Slovak Republic	2	1997	2007	11	6	High Income	AE
Trinidad and Tobago	1	1972	1982	.	11	High Income	EM

[1] For the two countries (Panama and Chile) that were in both groups, we consider only their most recent success trajectory, which results in classifying them in Group 2 (transitioning from lower middle to high income within our sample).

C. Descriptive Analysis: Starting Conditions

The following box plots are showing Q1 to Q3 range (colored in blue), lower and upper adjacent values[1] (vertical tick marks to the left and right of the interquartile box, respectively), and blue dots are for outside values (i.e. beyond one and a half interquartile range).

[1] Lower (upper) adjacent value is the furthest observation which is within one and a half interquartile range of the lower (upper) end of the box.

Figure AI.1. GDP Components, Indonesia Vs. Success Countries

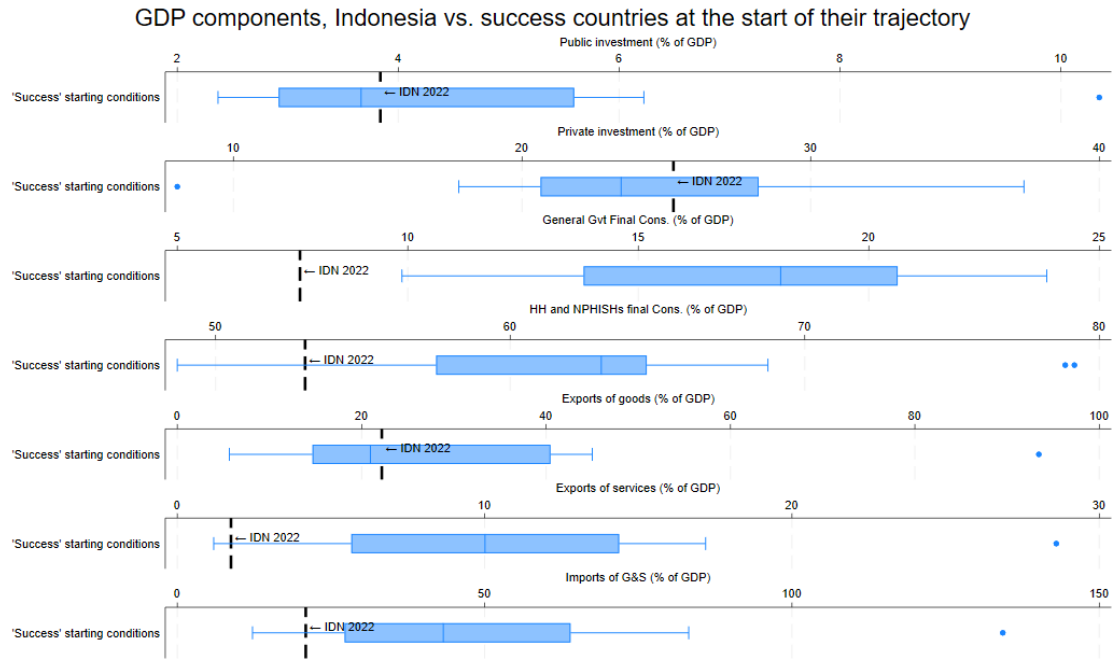


Figure AI.2. WGI Development Indicators, Indonesia Vs. Success Countries

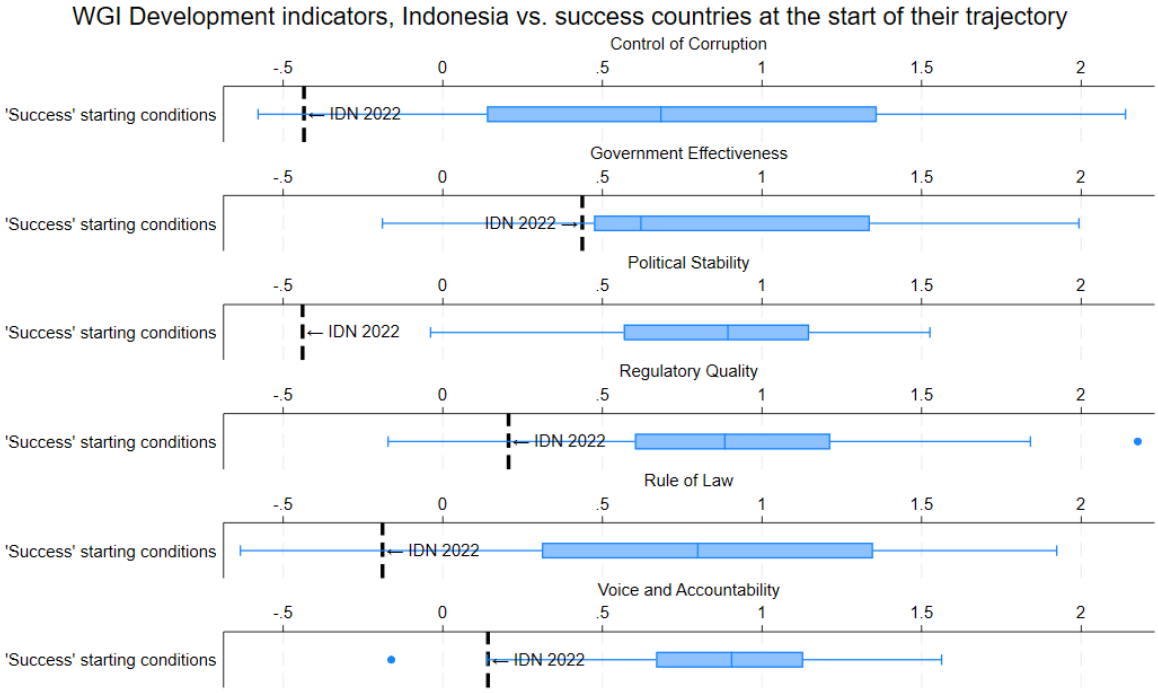


Figure AI.3. Education Indicators, Indonesia Vs. Success Countries

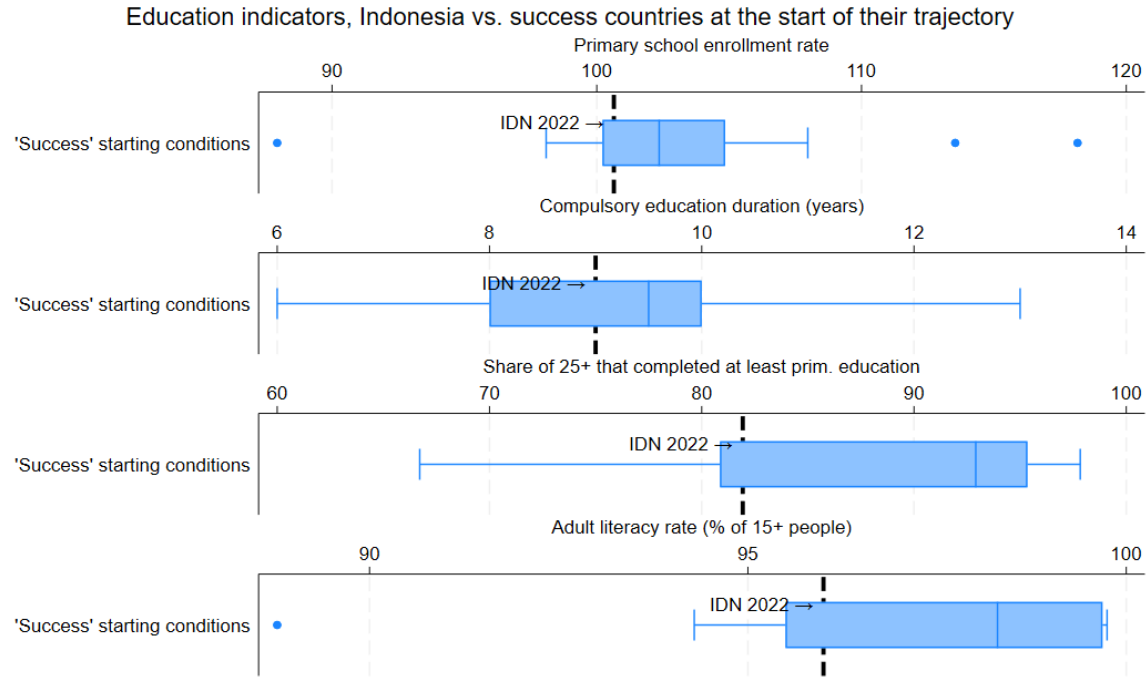


Figure AI.4. Health and Demographics Indicators, Indonesia Vs. Success Countries

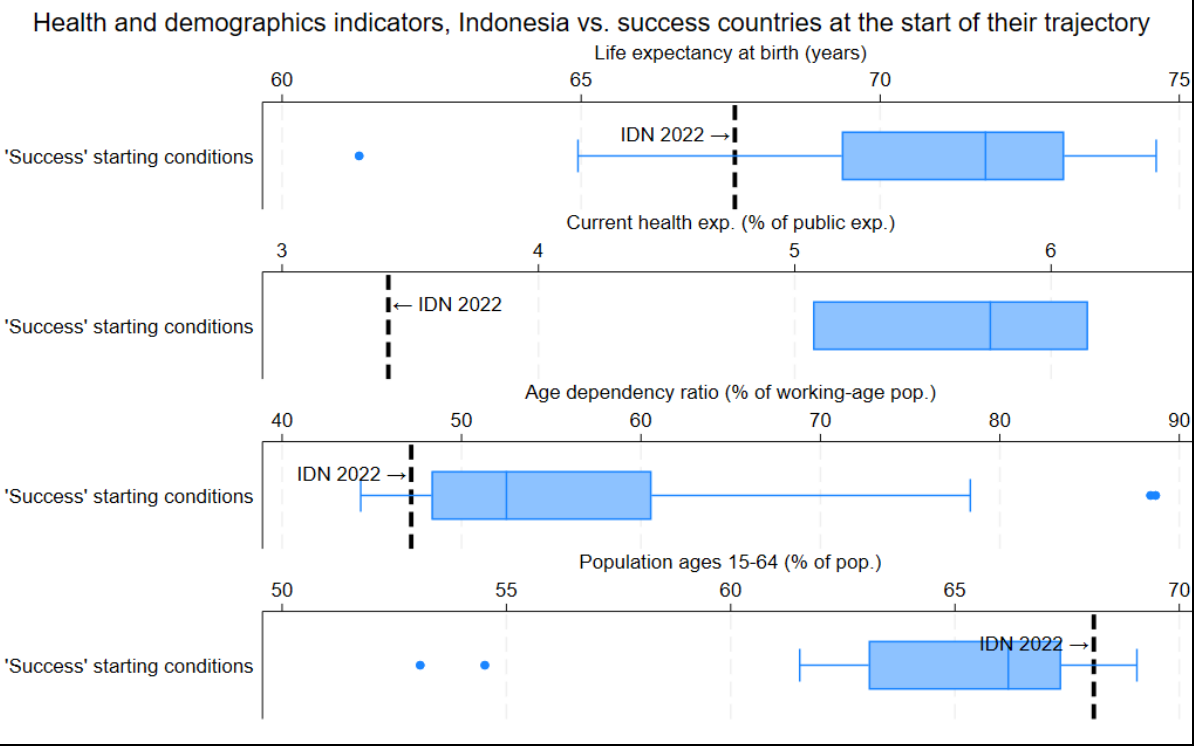


Figure AI.5. Human Development and Gender Indicators, Indonesia Vs. Success Countries

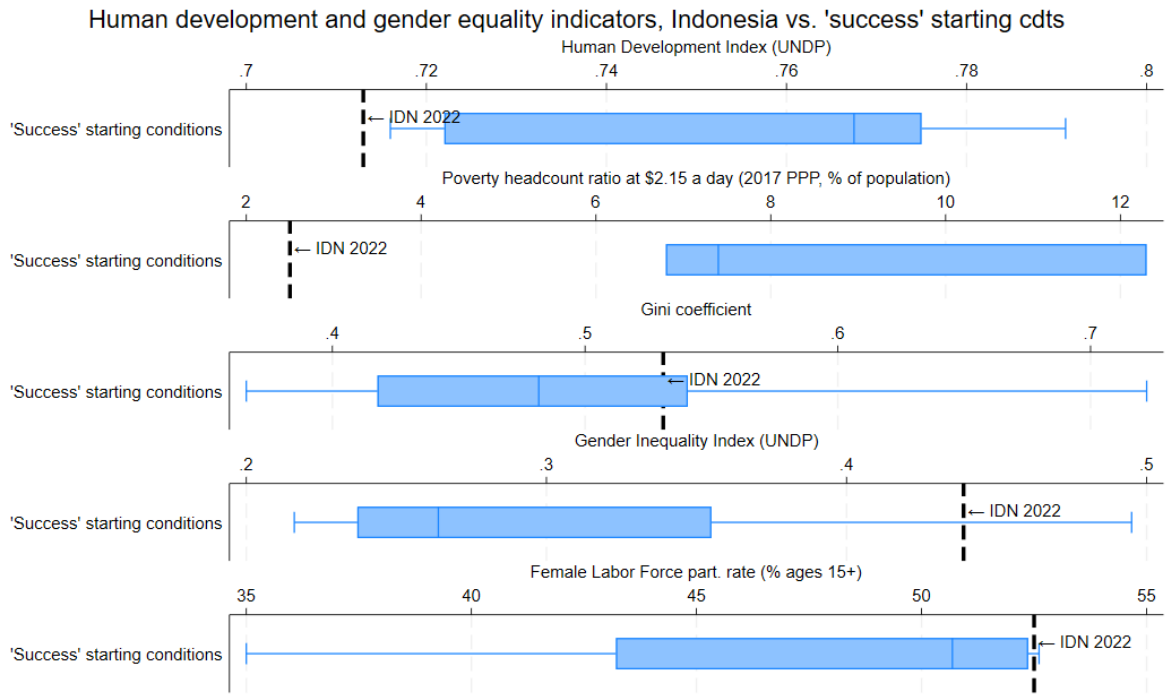


Figure AI.6. Labor Market Indicators, Indonesia Vs. Success Countries

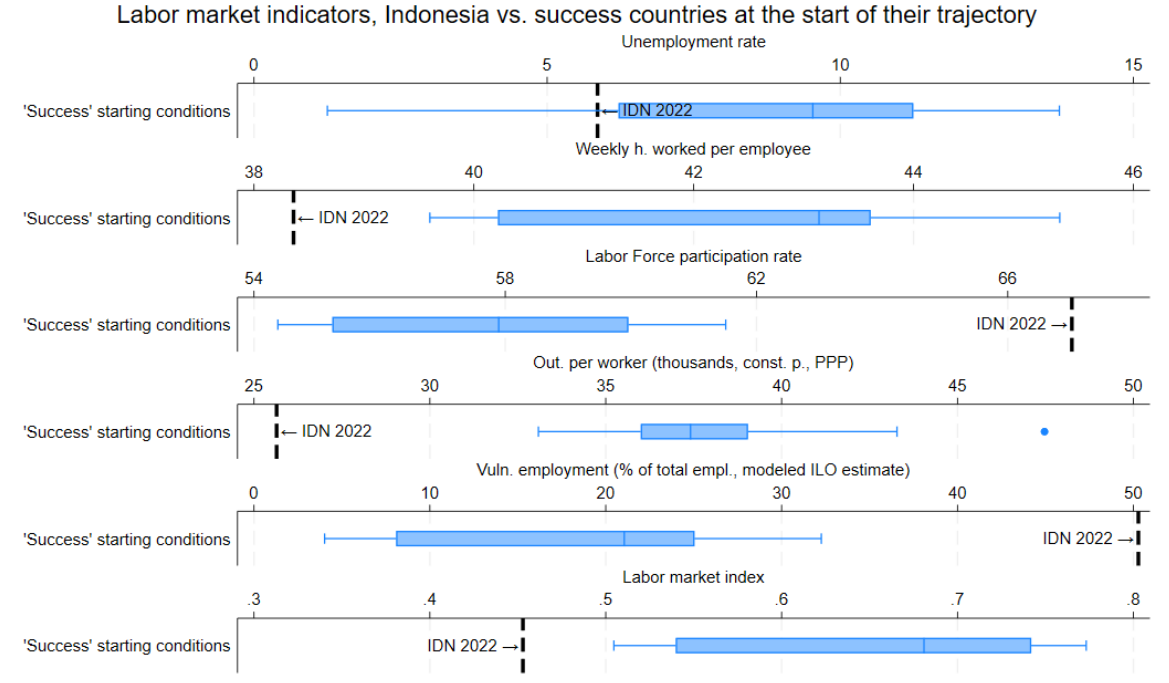


Figure AI.7. Infrastructure, Credit and Business Regulation Indicators, Indonesia Vs. Success Countries

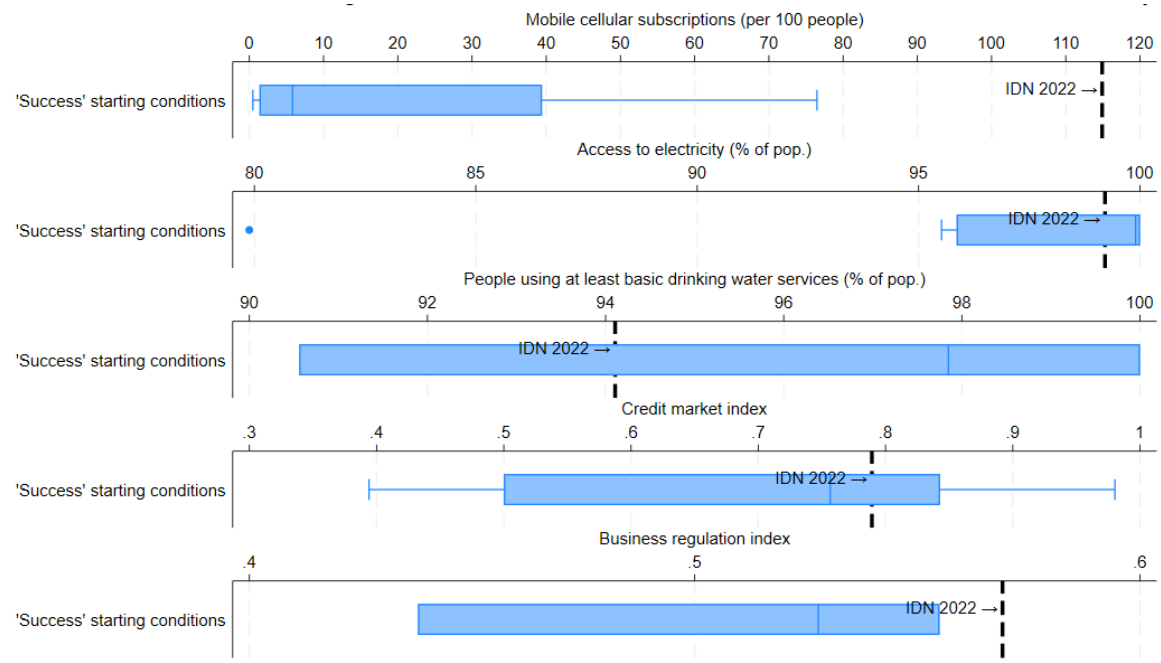


Figure AI.8. External Sector Openness And Trade Structure, Indonesia Vs. Success Countries

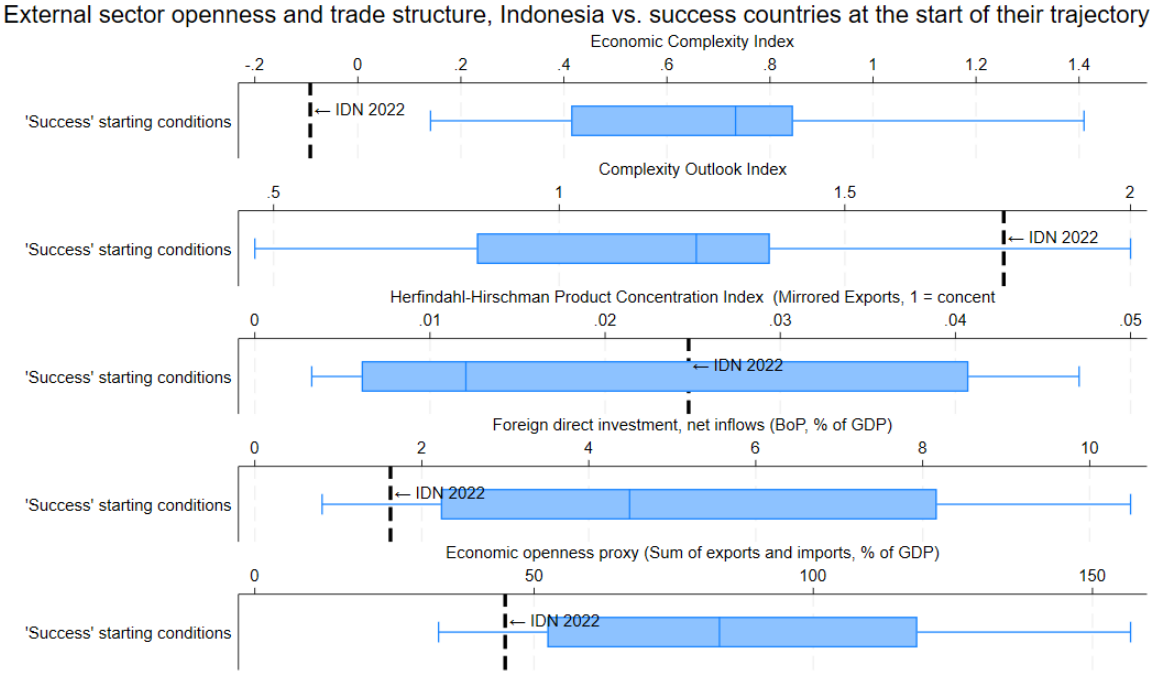
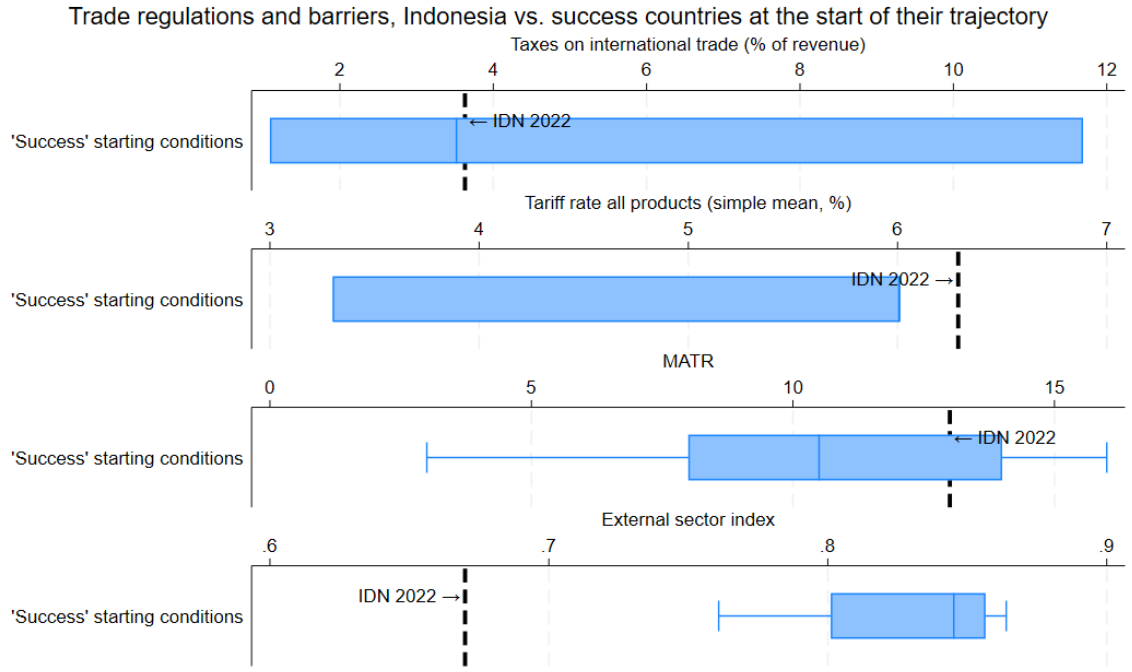


Figure AI.9. Trade Regulations and Barriers, Indonesia Vs. Success Countries



D. Comparator Spider Charts: Country Groupings

Country	ASEAN-6	G20-EM	OECD country	Group 1 success country	Group 2 success country	IMF classification	WB income classification (as of 2022)
Argentina		×				EM	UM
Australia			×			AE	H
Austria			×			AE	H
Belgium			×	×		AE	H
Brazil		×				EM	UM
Canada			×			AE	H
Chile			×		×	EM	H
China		×				EM	UM
Colombia			×			EM	UM
Costa Rica			×			EM	UM
Croatia					×	EM	H
Czech Republic			×		×	AE	H
Denmark			×			AE	H
Estonia			×		×	AE	H
Finland			×			AE	H
France			×	×		AE	H
Germany			×			AE	H
Greece			×			AE	H
Hungary			×			EM	H
Iceland			×			AE	H
India		×				EM	LM
Indonesia	×	×				EM	UM
Ireland			×			AE	H
Israel			×			AE	H
Italy			×	×		AE	H
Japan			×	×		AE	H
Korea			×	×		AE	H
Latvia			×		×	AE	H
Lithuania			×		×	AE	H
Luxembourg			×			AE	H
Malaysia	×					EM	UM
Mexico		×	×			EM	UM
Netherlands			×	×		AE	H
New Zealand			×			AE	H
Norway			×	×		AE	H
Panama					×	EM	H
Philippines	×					EM	LM
Poland			×		×	EM	H
Portugal			×			AE	H
Romania					×	EM	H
Russia		×				EM	UM
Saudi Arabia		×				EM	H
Singapore	×			×		AE	H
Slovak Republic			×		×	AE	H
Slovenia			×			AE	H
South Africa		×				EM	UM
Spain			×			AE	H
Sweden			×			AE	H
Switzerland			×			AE	H
Thailand	×					EM	UM
Trinidad and Tobago				×		EM	H
Turkey		×	×			EM	UM
United Kingdom			×			AE	H
United States			×			AE	H
Vietnam	×					EM	LM

Note: AE = Advanced Economy, EM = Emerging Market. H = High income, LM = Lower Middle Income, UM = Upper Middle Income.

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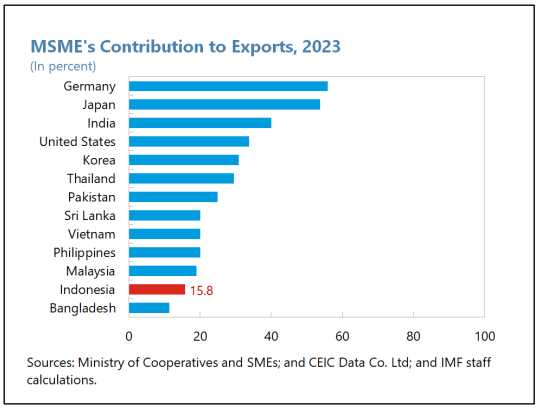
FINANCING BARRIERS AND PERFORMANCE OF MICRO, SMALL, AND MEDIUM ENTERPRISES (MSMES)

Using the World Bank Enterprise Survey (WBES), we analyze SMEs' access to finance in Indonesia and determinants of export diversification and firm performance. Our findings reveal that young, domestically owned firms, and those that face inadequate infrastructure experience significant barriers to financial access. Firm age, foreign ownership, and website availability positively affect export diversification. Limited financial access adversely affects sales growth and labor productivity, particularly for domestic firms, although managerial experience can mitigate these effects.

A. Introduction

1. Micro, Small, and Medium Enterprises (MSMEs) are pivotal to the economic fabric. International evidence suggests that MSMEs generally serve as a significant source of employment and innovation, and have a critical role in fostering economic growth and reducing poverty (Beck and Demirguc-Kunt, 2006). However, these enterprises often face substantial barriers to financial access, which hampers their potential for expansion. The primary constraints include stringent lending criteria, lack of collateral, and insufficient credit history, which disproportionately affect smaller firms compared to larger ones (Ayyagari et al., 2014). Additionally, the lack of access to finance is intricately linked to lower rates of export orientation and suboptimal performance among MSMEs. Research indicates that MSMEs with better access to financial services tend to engage more in export markets and exhibit improved business performance (Abor et al., 2014). Addressing these financial barriers could unleash the potential of MSMEs to contribute more robustly to economic development and job creation in developing economies.

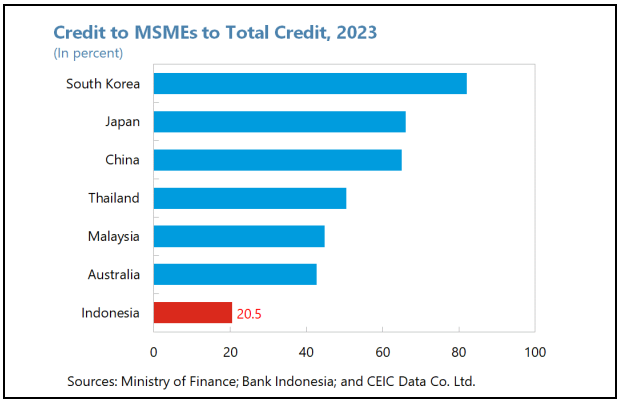


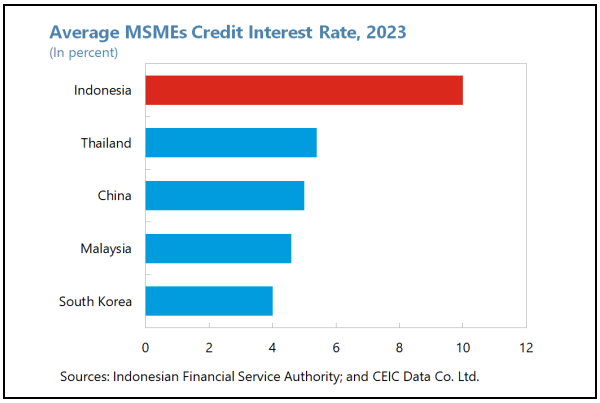
Sources: Ministry of Cooperatives and SMEs; and CEIC Data Co. Ltd; and IMF staff calculations.

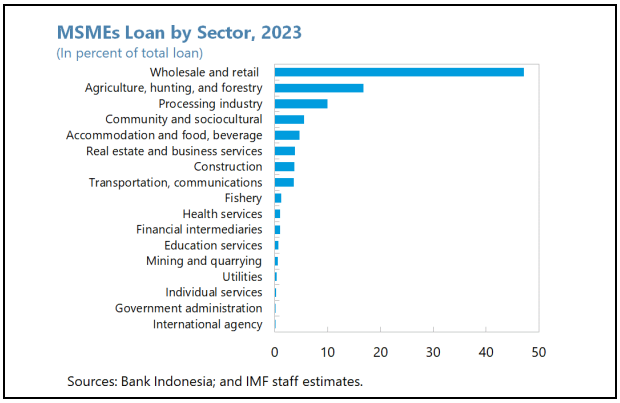
2. MSMEs dominate Indonesia's economy and their performance will be key to achieving the Golden Vision 2045. According to Statistics Indonesia data, MSMEs contribute 61 percent of Indonesia's GDP, absorb 97 percent of the nation's workforce, and represent 99 percent of all business units. These statistics represent a larger MSME presence than in peer countries. However, Indonesia's MSMEs encounter formidable challenges hindering their growth: 67 percent operates within the informal sector, exhibit low levels of productivity growth and innovation, and limited access to global export markets. Specifically, Indonesia's MSMEs contribute only 15.8 percent to exports, which is relatively low compared to other countries (Figure 1). This reflects barriers, particularly in human capital, logistics, regulatory complexity, market access, and financing.

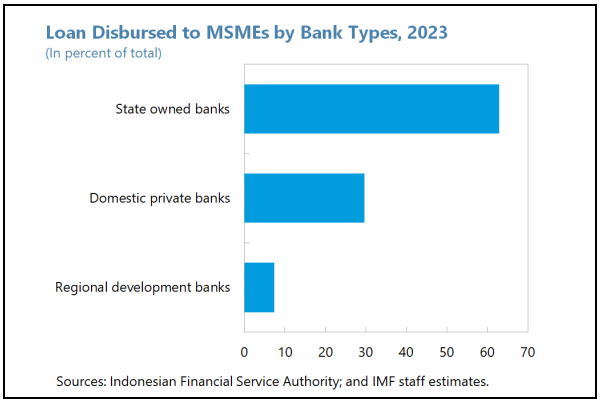
3. Access to finance for MSMEs lags peers and is a primary hurdle for their development (Figure 2). Higher borrowing costs than peer countries (Figure 3) and the uneven distribution of

financing across sectors (Figure 4) exacerbate the challenge, leaving a substantial credit gap with 47 percent of demand unmet (EY Parthenon, 2023). State-owned banks, particularly Bank Rakyat Indonesia, dominate the lending landscape to MSMEs (Figure 5), with loan disbursements concentrated in Java. MSMEs face high interest rates, lack of collateral, low financial literacy, and complex application processes, often resulting in rejected proposals (Statistics Indonesia, 2019). Financial institutions also struggle to assess MSMEs' creditworthiness, worsened by MSMEs' low participation in training programs and poor financial management, complicating the financing landscape further (Ministry of Trade of Indonesia, 2019).









4. This paper is structured as follows. First, using the World Bank Enterprise Survey (WBES), we provide the descriptive landscape of Indonesian enterprises. Second, utilizing the WBES, we follow Hosny (2020) to analyze firm characteristics associated with more access to finance and export diversification; and we quantify the impact of these structural factors on firm performance. We conclude with policy recommendations.

B. Indonesian Enterprises Landscape

5. WBES Indonesia provides a comprehensive and representative landscape of Indonesian enterprises[1]. WBES is a survey conducted by the World Bank on firms' perceptions of their business environments. WBES has taken place three times in Indonesia (2009, 2015, 2023) with the number of

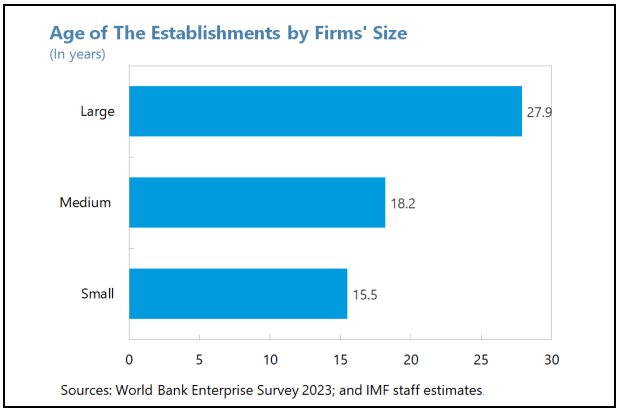
[1] The size of the enterprises includes small, medium, and large.

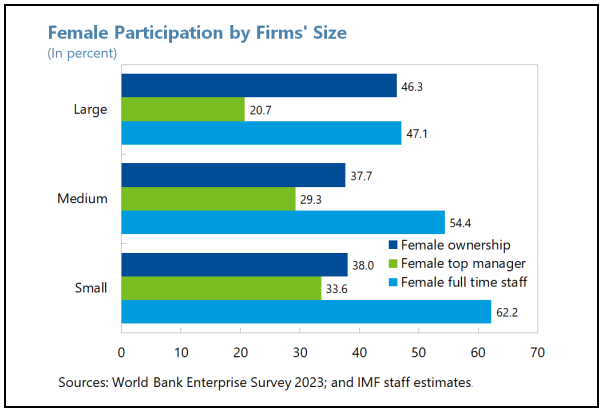
firms at 1,444, 1,320, and 2,955 respectively. The WBES's samples are randomly selected and comprise three levels of stratification: size, industry classification, and region. For firm size, we use the number of full-time equivalent workers (i.e., permanent workers plus seasonal workers in a full-time scale)[2] unless the number of workers is fewer than five, in which case size is determined from the administrative data. Java, particularly Jakarta, dominates the economy. Almost one-sixth of all non-agricultural firms in Indonesia are based in Jakarta. Most Indonesian firms operate in retail services, representing about 45 percent of the economy. Small and medium-sized firms are largely sole proprietorships.

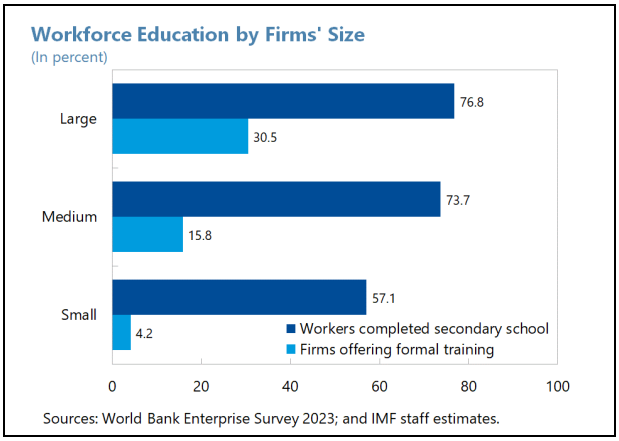
6. SMEs tend to be younger than large firms and face low human capital, although they provide more managerial opportunities for women. In the sample, SMEs are relatively mature, having been in operation for 15-18 years on average. Foreign ownership is low at 1-2 percent compared to about 7 percent for large firms. Although SMEs have proportionally fewer female workers, more small firms are managed and fully or partly owned by females compared to medium and large firms. Smaller firms have lower educational attainment and offer less on-the-job training, while managers also have less experience than in medium and large firms.

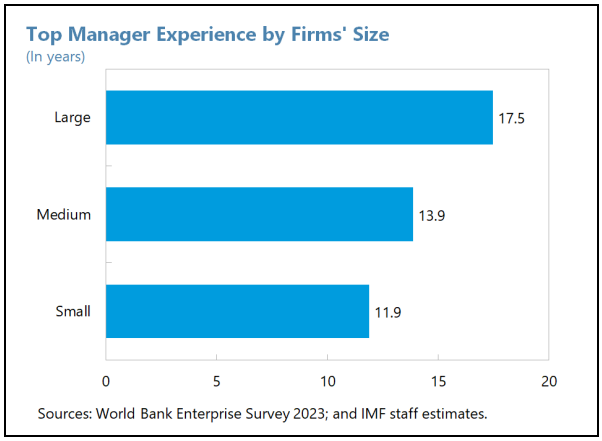
7. Available evidence suggests that governance weaknesses affect larger firms more than smaller firms, although this may reflect that the latter are under the radar through informality. The graph indicates that gratification payments and bribery are more prevalent among large firms compared to small and medium firms; this result should be caveated as it is possible that governance issues in smaller firms are not captured as these tend to operate more in the shadow economy.

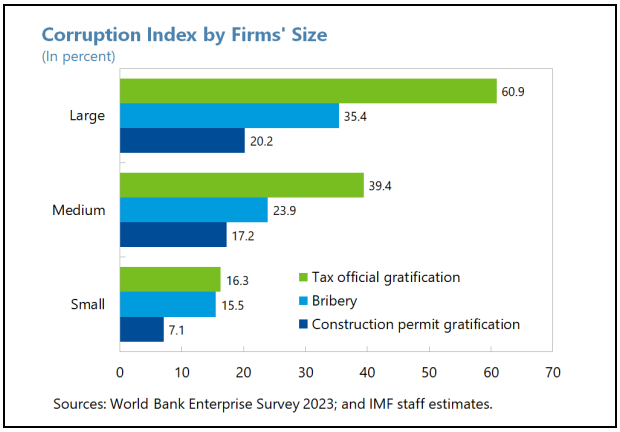
[2] Two full-time seasonal workers working for 6 months are equivalent to one full-time permanent worker.

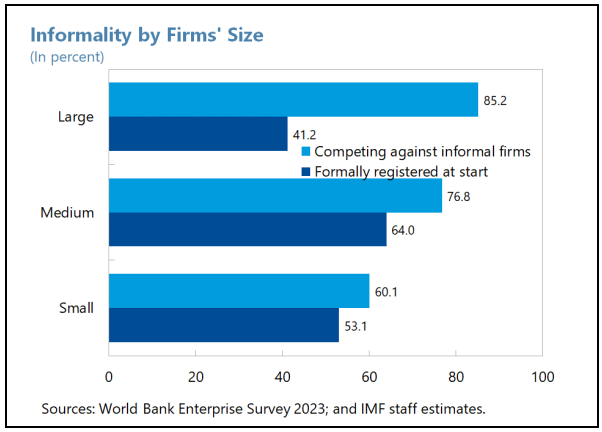




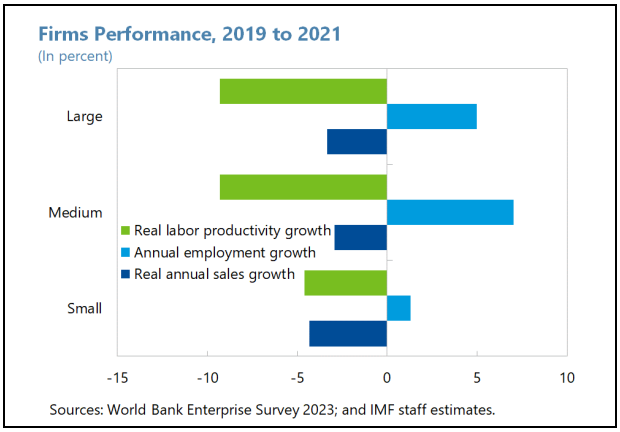


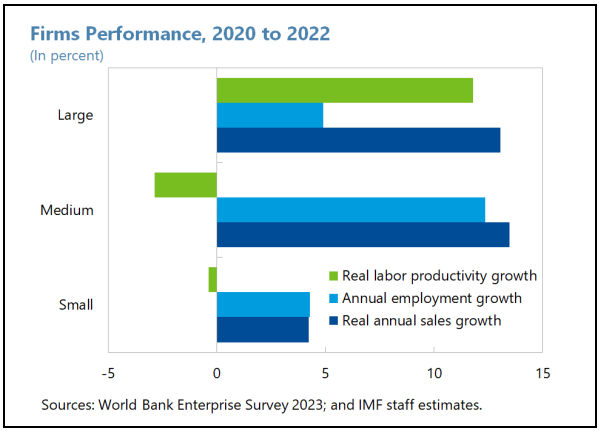


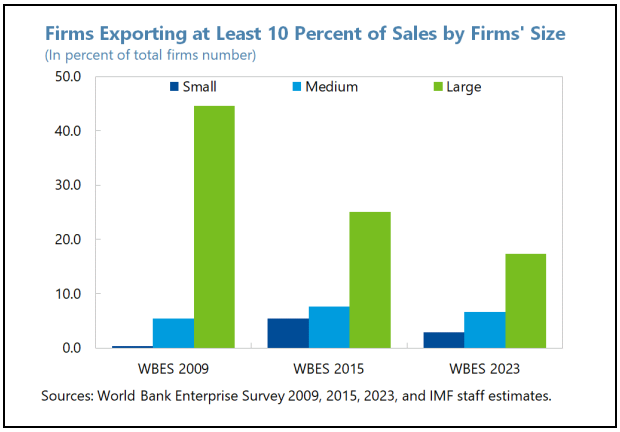


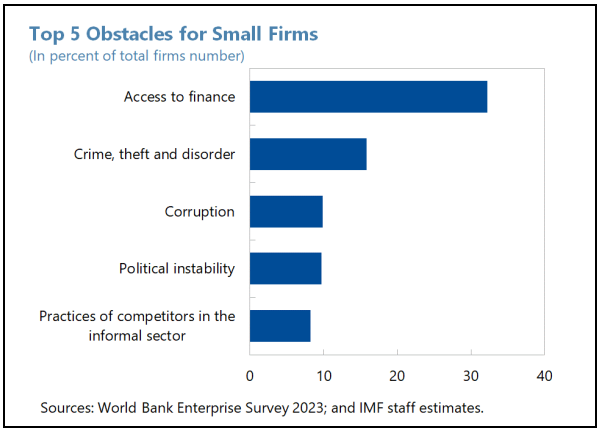


8. Small firms suffered most during COVID-19. The outbreak of COVID-19 in March 2020 shrunk firms' sales from 2019 to 2021, with disproportionally higher impact among small firms. Nonetheless, Indonesian firms hired more employees in the same period, resulting in negative productivity growth. Meanwhile, all firms experienced improved performance in nearly all indicators from 2020 to 2022, indicating a major comeback after the pandemic. Overall, 95 percent of Indonesian firm's products are sold in the domestic market reflecting the inwards orientation of SMEs and barrier to accessing financing.

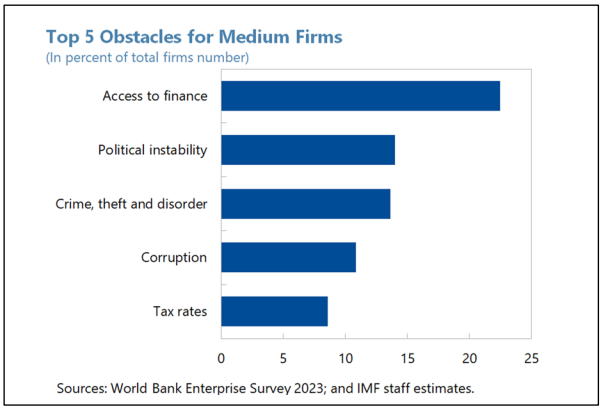


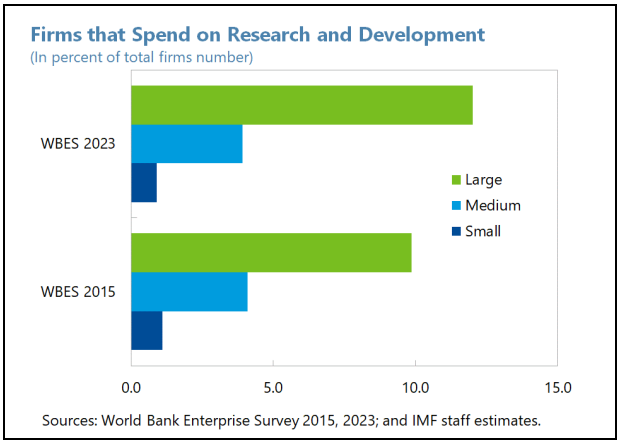


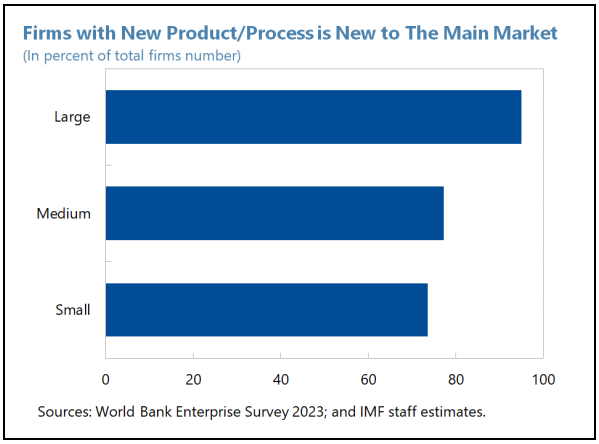


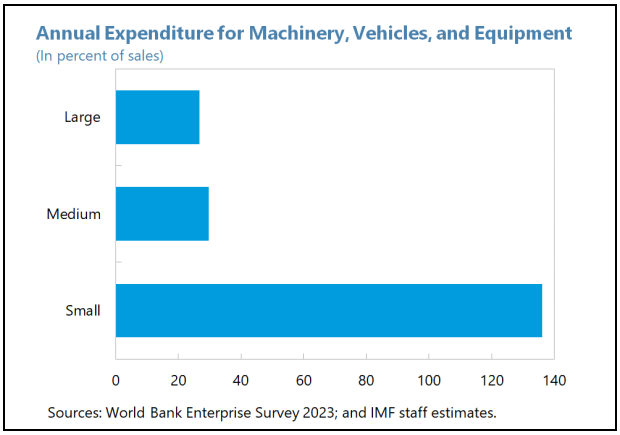


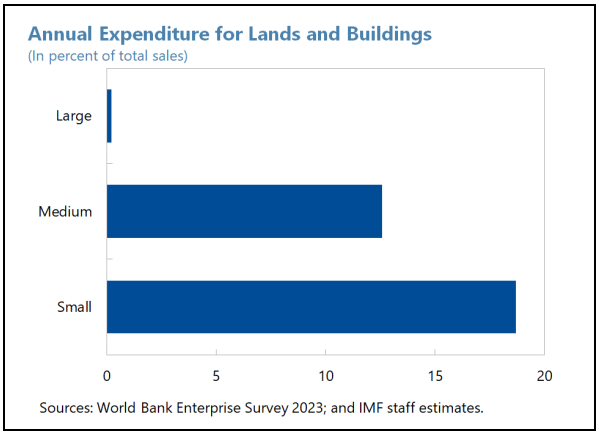
9. Smaller firms spend less on R&D and are less likely to introduce new products or processes to the market. R&D spending has broadly stagnated for SMEs; these also bring fewer breakthrough products to the market. R&D spending by small firms may be crowded out by their expenditure on machinery, vehicles, and equipment which, at 136 percent, exceeds their gross revenue. High spending on land and buildings also indicates high financing needs.



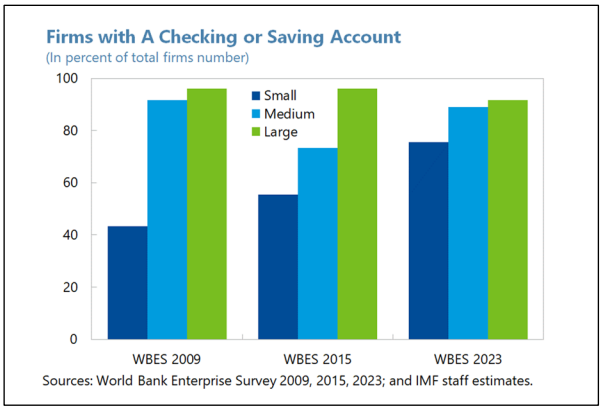


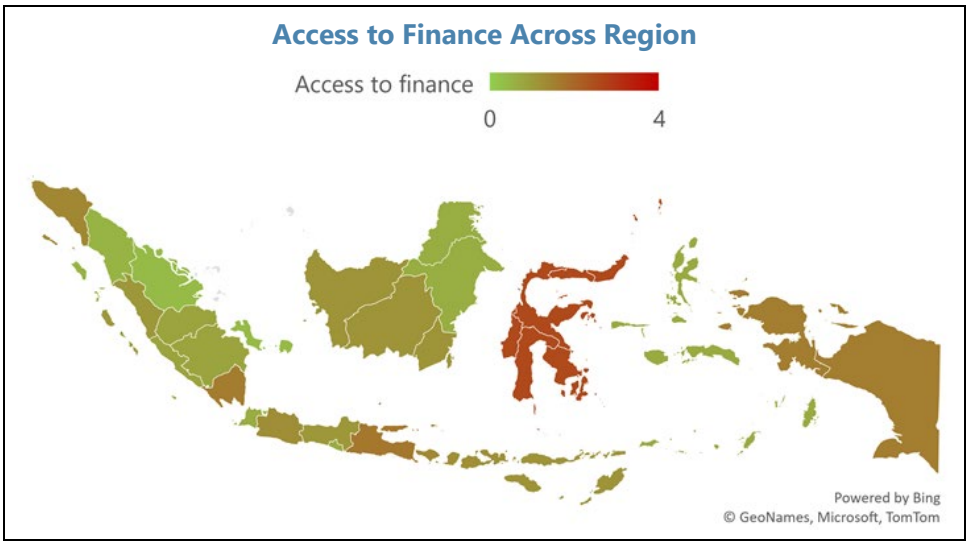


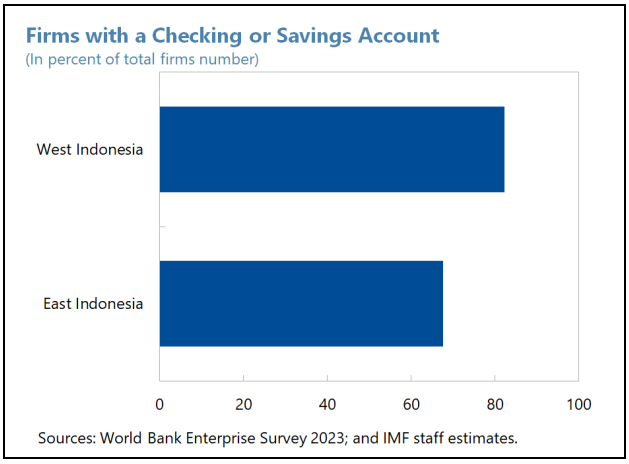


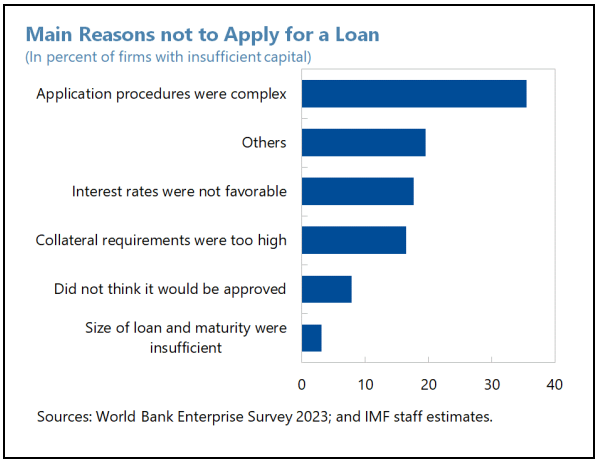


10. Financial inclusion for small firms has improved, but access to finance is still a top obstacle for SME, especially in Eastern Indonesia. The proportion of small firms with a checking or savings account increased from 43 percent in 2009 to almost 76 percent in 2023. Nonetheless, small firms remain more prone to liquidity constraints, with only 6.3 percent having an overdraft facility. While access to finance has improved overall in Indonesia, there remains a significant disparity between East and West Indonesia, as illustrated by fewer checking/savings accounts in East Indonesia. Furthermore, among small firms with insufficient capital (about 35 percent of total) cited complex procedures as a reason not to apply for a loan or credit.









C. Determinants of Firms' Access to Finance

11. This section examines factors affecting access to finance. As seen in Section B, access to finance is a top obstacle for SMEs in Indonesia. Using an ordered/binary logit model, we extend our scope to which firms perceive access to finance as a constraint to business. The dependent variable is "Access to finance" constructed from the ordinal responses to the question: To what degree is access to finance an obstacle to their current operations of this establishment? Responses ranged from "No obstacle" (a value of 0) to "Very severe obstacle" (a value of 4). Estimation is done by maximum pseudo-likelihood:

$$AccessToFinance_{is} = f(X_{is})$$

where the dependent variable $AccessToFinance_{is}$ of firm i in sector (or sector x region) s is a function of X_{is}, a set of explanatory variables representing firm characteristics. $AccessToFinance_{is}$ would range from 0 to 4 in the ordered logit, while we also suppress the responses into a binary variable (0/1) for the use in a binary logit. Firm characteristics, the independent variables, come from survey questions covering aspects such as firm age, size and ownership structure, top manager characteristics, and

infrastructure. The choice of explanatory variables builds on recent research by Hosny (2020) and Islam and Meza (2023). Interpretation, especially for causality, should be approached with caution due to the limitations inherent in cross-sectional data analysis.

12. The empirical results are broadly in line with expectations (Table 1).

- ***Mature firms***—having run their business longer than 20 years—are less likely to report access to finance as a business obstacle, compared to firms in a growth phase (6-20 years). The coefficient on the indicator of young firms (equal or less than 5 years) consistently also indicates a negative relationship but is statistically insignificant throughout the variation of model specifications.

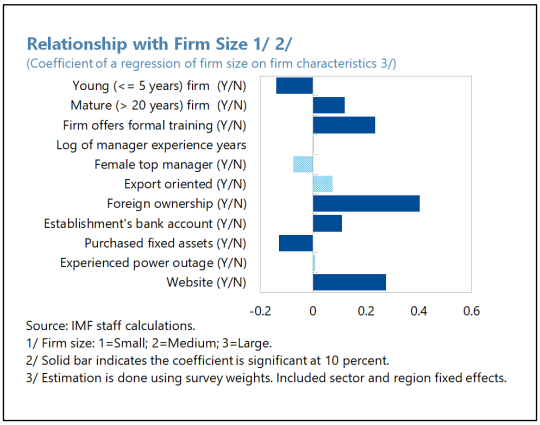
- ***Foreign firm ownership*** shows some evidence of easier access to finance (Table 1 column 3-4), in line with some literature (e.g. Beck et al. 2006; Mertzanis 2017)[3].

- ***Firms that experienced power outages*** in the previous year and that do not have their own website appear to be associated with lower access to finance, suggesting firms situated in the worse infrastructure tend to report access to finance as an obstacle. Managers' capacity could also impact on both setting up a website and applying for a loan.

- ***There is some evidence that credit--constrained firms*** are likely to report access to finance as a business obstacle, in line with Islam and Meza (2023).

- **However*, we could not find clear evidence on the relationship between export orientation and access to finance***. Coefficients are not statistically significant, and signs of them are mixed in ordered logit analysis. This might reflect that the pandemic impact could confound the relationship between two variables as exporters could be hit harder[4].

- Controlling for firm characteristics, ***we could not find a significant different perception of financial access by firm size***. However, while our estimates indicate that firm age, foreign ownership, and availability of website are negatively associated with the perception of access to finance as a major constraint, positive relationships of firm size with those characteristics are observed. This suggests that larger firms would less likely report access to finance as constraints, which is in line with expectations.



[3] Foreign-owned enterprises are expected to report lower financing obstacles as they likely have easier access to external financing (Sembenelli and Schiantarelli 1996; and Harrison and McMillan 2003).

[4] Weighted average of sales growth for export-oriented firms stood at -7.5 percent in the sample, while that for the non-exporters at 1.5 percent.

- Additionally, concerning behavioral differences by firm size, limiting the estimation sample only to SMEs does not significantly change these results (Table AI.1).

Table 1. Indonesia: Determinants of Access to Finance

Dependent variable: Access to finance as obstacles	Ordered Logit				Binary Logit			
Independent variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Young (<= 5 years) firm (Y/N)	-0.238	-0.168	-0.325	-0.237	-0.382	-0.515	-0.835	-0.856
	(0.507)	(0.521)	(0.542)	(0.590)	(0.576)	(0.542)	(0.692)	(0.560)
Mature (> 20 years) firm (Y/N)	-0.104	-0.400*	-0.235	-0.558**	-0.473	-0.644*	-0.422	-0.754*
	(0.217)	(0.209)	(0.255)	(0.233)	(0.366)	(0.377)	(0.411)	(0.396)
Firm offers formal training (Y/N)	0.404	0.048	0.003	0.127	0.792	0.367	0.523	0.762
	(0.425)	(0.444)	(0.460)	(0.473)	(0.540)	(0.733)	(0.590)	(0.906)
Log of manager experience years	0.122	0.121	0.167	0.122	0.078	-0.135	-0.026	-0.251
	(0.140)	(0.189)	(0.153)	(0.208)	(0.214)	(0.236)	(0.214)	(0.258)
Female top manager (Y/N)	-0.155	-0.181	-0.017	-0.081	-0.555	-0.301	-0.537	-0.368
	(0.206)	(0.210)	(0.217)	(0.225)	(0.347)	(0.368)	(0.366)	(0.395)
Export oriented (Y/N)	-0.129	0.100	-0.024	0.524	0.331	0.404	0.594	1.034
	(0.523)	(0.720)	(0.621)	(0.749)	(0.680)	(1.139)	(0.740)	(0.805)
Foreign ownership (Y/N)	-0.390	-0.325	-1.305**	-1.486*	0.562	-0.283	-1.412	-2.339
	(1.123)	(1.030)	(0.635)	(0.855)	(1.103)	(0.995)	(0.948)	(1.681)
Establishment's checking or savings account (Y/N)	-0.194	0.021	-0.270	-0.086	-0.349	0.612	-0.541	0.320
	(0.286)	(0.328)	(0.314)	(0.357)	(0.378)	(0.518)	(0.395)	(0.551)
Purchased fixed assets (Y/N)	0.043	0.095	-0.037	0.029	-0.049	-0.090	0.006	0.171
	(0.309)	(0.303)	(0.326)	(0.323)	(0.449)	(0.567)	(0.471)	(0.546)
Experienced power outage (Y/N)	0.774***	0.500*	0.917***	0.738***	-0.331	0.002	-0.042	1.337
	(0.213)	(0.279)	(0.195)	(0.249)	(0.435)	(0.982)	(0.437)	(0.905)
Website (Y/N)	-0.445**	-0.810***	-0.388	-0.780***	-0.468	-1.017***	-0.607*	-1.199***
	(0.218)	(0.292)	(0.240)	(0.294)	(0.330)	(0.359)	(0.350)	(0.379)
Firm size: Medium (20-99 employees)	0.370	0.331	0.352	0.171	0.278	0.601	0.228	0.330
	(0.228)	(0.244)	(0.232)	(0.249)	(0.361)	(0.371)	(0.343)	(0.384)
Firm size: Large (100+ employees)	0.098	-0.029	0.302	-0.046	-0.256	0.067	0.102	-0.097
	(0.284)	(0.296)	(0.297)	(0.336)	(0.604)	(0.668)	(0.647)	(0.818)
Credit constrained (Y/N)			0.644**	0.729**			0.507	0.207
			(0.255)	(0.324)			(0.328)	(0.458)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	No	Yes	No	Yes	No	Yes	No	Yes
Observations	1763	1763	1600	1600	1763	1680	1600	1518

Standard errors in parentheses. Estimation is done using survey weights. Constant and dummies are not reported.
* p<0.10, ** p<0.05, *** p<0.01

D. Drivers of Firm's Export Diversification

13. In this section, we analyze what factors are associated with firm's efforts on export diversification. SMEs in Indonesia appear to be less likely to commit the export diversification. To find which firm characteristics are associated with export diversification, we estimate a logit model, where the dependent variable is a binary export diversification. The export diversification is an interaction variable of export orientation multiplied by an indicator of diversification (1 for R&D or process improvement in last year; otherwise 0), following Hosny (2020). The explanatory variables

include firm characteristics and variables for access to finance. This analysis is also not immune to the limitations of cross-sectional data analysis, especially for the interpretation of causality.

14. The results show that some firm characteristics, such as firm age, foreign ownership and availability of a firm's website, are associated with export diversification efforts (Table 2).

- The relationship between firm age and the likelihood of export diversification appears to be U-shaped. Both young and mature firms are more likely to put their efforts on export diversification, compared to firms in a growth phase (Table 2 columns 1-3). The U-shape is also evidenced in a quadratic form of the log value of firm age (columns 4 and 6). Combined with the estimated relationship with firm age and access to finance, mature firms would have easier access to finance, resulting in more activities in export diversification. As regards young firms, export diversification could be driven by the necessities for the transition to the next stage, rather than the access to finance.

- Foreign ownership shows a significant positive relationship with export diversification, likely due to advantages such as better access to international networks or knowledge transfers from a foreign owner.

- There is also clear evidence that export diversification is positively associated with availability of website, which can facilitate reaching external markets.

- There is weak evidence that banked firms are more likely to spend for export diversification. However, the indicator for firms that reported access to finance as major constraints does not clearly show any significant relationship with export diversification.

- Limiting the estimation sample only to SMEs does not significantly change these results (Table AI.2).

Table 2. Indonesia: Determinants of Export Diversification

Dependent variable: Export diversification (Y/N)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Young (<= 5 years) firm (Y/N)	4.869***	5.105***	8.022***				
	(1.266)	(1.079)	(2.259)				
Mature (> 20 years) firm (Y/N)	2.838***	3.199***	2.626**				
	(0.903)	(0.921)	(1.314)				
Log of age of firm				-3.816*	-5.638	-7.236**	-6.107
				(2.101)	(3.547)	(3.151)	(3.888)
Log of age of firm x Log of age of firm				0.740**	1.051	1.265**	1.129
				(0.364)	(0.667)	(0.544)	(0.708)
Log of manager experience years	-0.157	-0.458	0.026	-0.251	-0.620	-0.643	-0.630
	(0.707)	(0.630)	(0.680)	(0.598)	(0.640)	(0.636)	(0.573)
Foreign ownership (Y/N)	3.900***	4.820***	8.790***	3.189***	4.297***	7.004***	3.793***
	(1.013)	(1.364)	(2.694)	(0.868)	(1.500)	(2.160)	(1.201)
Website (Y/N)	4.146***	3.993*	6.781***	3.737***	4.705**	7.512***	4.599*
	(1.230)	(2.186)	(2.250)	(1.244)	(2.146)	(2.552)	(2.542)
Establishment's checking or savings account (Y/N)	0.776	1.180	1.598	2.132*	2.803*	1.880	
	(1.173)	(1.147)	(2.378)	(1.255)	(1.647)	(2.310)	
Acees to finance as major constraints (Y/N)	-1.921	-2.148	2.421	-3.146	-2.861	2.269	-2.884
	(1.193)	(1.433)	(1.772)	(2.568)	(2.310)	(1.548)	(2.319)
Size FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	No	Yes	Yes	No	Yes	Yes	Yes
Sector FE	No	No	Yes	No	No	Yes	No
Observations	1785	785	574	1785	785	574	790

Standard errors in parentheses. Estimation is done using survey weights. Constant and dummies are not reported.
* p<0.10, ** p<0.05, *** p<0.01

E. Firm Performance and Financial Access

15. In this section, we investigate the impact of limited access to finance on firm performance. Financial constraints can directly affect firm's growth (Ayyagari et al., 2006). Given the importance of SMEs in Indonesia's economy and difficulties in accessing credit for SMEs, it is imperative to better understand the relationship of firm performance with access to finance constraints.

16. A linear regression model for firm performance is specified:

$$Y_{irst} = b_1 AccessToFinance_{irst} + B'X_{irst} + a_s + a_r + a_t + e_{irst}$$

where the dependent variable Y_{ist} is a measure of firm performance—the annualized growth rate of nominal and real sales (nominal sales deflated by GDP deflator), productivity (real sales per employee), and employment for last two years—of firm i of sector s in region r at time t. The time dimension is added as the relevant year t for a firm's performance can be either 2022 or 2021, depending on the timing of the interview. The measures of performance are imputed based on the comparison with two previous year's, that is, 2020 or 2019. Any different impact of COVID-19 on the performance measures during these periods would be controlled by a time fixed effect a_t. The variable of interest is $AccessToFinance_{irst}$, and the coefficient b_1 would show the weighted average of

the difference in performance measure between firms that reported access to finance as a major constraint and those not. Control variables X_{irst} include firm characteristics and variables for export diversification. Region-specific effect a_s is also included.

17. We use an endogenous treatment effects estimator to estimate causal effects from observed data. The treatment group constitutes firms facing limited access to finance. The perception of access to finance (reported access to finance as major or very severe constraints) is used for the treatment but could be formed endogenously, resulting in a selection bias problem. Particularly, a reverse causality cannot be ruled out, based on the survey design. However, it is not deterministic whether the bias is downward: for instance, a firm with good performance is expected to be offered better credit by banks, whereas the firm's perception on access to finance can be worsened if expanding investments driven by a good performance lead to significant financing needs. The endogenous treatment effects model (Heckman 1976, 1978; Cameron and Trivedi 2005; Wooldridge 2010) can mitigate this problem, by assigning treatment based on the estimated probability of a treatment, including at least an exogenous variable that is included in the model for treatment and excluded in the main regression model (of firm performance). In our first stage equation, region X sector average value of $AccessToFinance_{irst}$, i.e. the probability of treatment in the region-sector ($AccessToFinance_{rs}$), is added as an instrumental variable to the set of firm characteristics variables specified in Section A.[5] This follows Ayyagari et al. (2006) to isolate the exogenous part of the possibly endogenous perception of access to finance.[6] For example, a major concern is reverse causality such that firm's performance can affect the perception of access to finance. When we consider the perception of financial access at the region-sector level of aggregation, the causality is likely to run from the average degree of perception of access to finance to individual firms, not vice versa (Ayyagari et al 2006). Nevertheless, caution in the interpretation of causality is warranted if endogeneity arises beyond the scope of these efforts. The estimation is done by the maximum likelihood method.

18. The estimation results suggest that firms with better financial access likely have a better performance (Table 3). The firms that report access to finance as a major constraint experience lower (annualized) nominal sales growth by 17 percentage points, compared to other firms (column 1-2). The estimate on sales growth inches up by inflation adjustment but still stands around 17 percentage points (column 3-4). This negative impact of financial access constraints is mainly channeled through loss of labor productivity (real sales per employee), with the coefficient of financial obstacles at 24 percentage points (column 5-6), instead of softening employment, whose coefficient is insignificant, albeit negative (column 7-8). We find that this pattern is clear in domestic firms—by adding an interaction term of the variable of interest and a dummy for foreign ownership (≥ 10 percent), while foreign-owned firms appear to be less sensitive to financial constraints in real sales and productivity with a negative relationship with constrained financing and employment (Figure 1 left panel). Additionally, another estimation with an interaction term with manager

[5] For estimation results for the first stage equation, see Table AI.3.

[6] Ayyagari et al. (2006) uses average value of the financial obstacles for each country-size group as an instrumental variable to mitigate the concern on reverse causality.

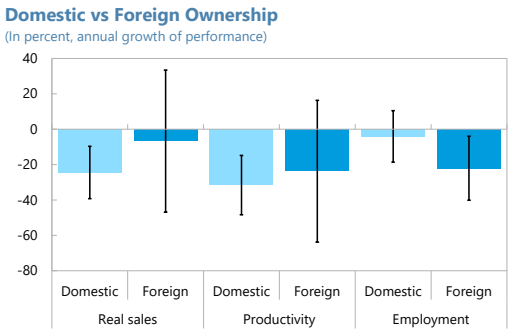
experience (years) suggests that experienced manager could mitigate the negative impact of constrained access to finance on real sales (Figure 1 right panel). The size of negative relationship between financial access constraints and real sales (black line) decreases over year in manager experience, and the coefficient become insignificant in 25 years of manager experience, with 10 percent of significance level. The gains from manager experience appear to benefit employment (orange line), resulting in no significant change in loss of productivity (green line).

Table 3. Indonesia: Endogenous Treatment Regression: Firm Performance

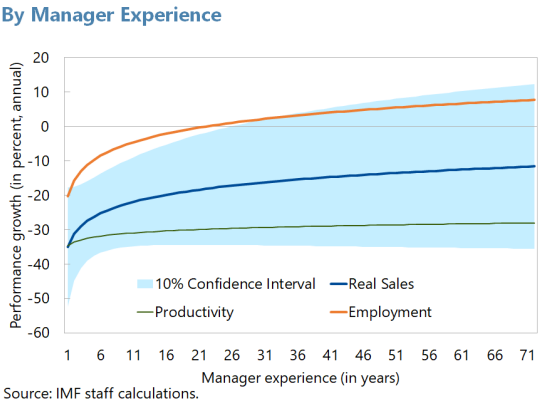
Dependent variables:	Nominal Sales		Real Sales		Productivity		Employment	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Access to finance as major constraints (Y/N)	-16.945**	-16.571**	-17.193**	-16.761**	-24.158**	-24.545**	-7.382	-7.266
	(7.353)	(7.478)	(7.637)	(7.765)	(10.805)	(10.965)	(5.906)	(5.893)
Export oriented (Y/N)	-10.287*	-9.867*	-10.453*	-9.856*	-10.656	-10.325*	10.005	10.303
	(5.678)	(5.141)	(5.674)	(5.131)	(6.521)	(6.061)	(6.679)	(6.881)
Export oriented * Improved methods		40.651***		40.989***		48.048***		26.387
		(9.881)		(9.945)		(12.119)		(22.806)
Export oriented * R&D		0.230		-1.512		4.652		-12.481
		(32.880)		(32.088)		(27.965)		(7.863)
Young (<= 5 years) firm (Y/N)	-2.176	-2.068	-2.188	-2.059	-19.751**	-19.944**	17.755**	17.854**
	(4.737)	(4.748)	(4.749)	(4.760)	(9.579)	(9.621)	(7.276)	(7.287)
Mature (> 20 years) firm (Y/N)	-2.470	-2.469	-2.536	-2.523	-7.389*	-7.746*	1.792	2.032
	(2.899)	(2.923)	(2.916)	(2.941)	(4.222)	(4.291)	(2.737)	(2.788)
Foreign ownership (Y/N)	1.438	1.810	1.438	1.906	3.677	1.726	-11.601***	-10.067**
	(5.636)	(5.684)	(5.548)	(5.643)	(7.146)	(7.002)	(4.353)	(4.335)
Female top manager (Y/N)	-1.626	-1.576	-1.657	-1.600	-0.076	-0.218	-1.064	-0.956
	(2.247)	(2.250)	(2.246)	(2.248)	(3.022)	(3.044)	(1.955)	(1.964)
Log of manager experience years	-0.973	-0.925	-1.006	-0.962	-2.318	-2.157	2.379*	2.291
	(1.435)	(1.447)	(1.422)	(1.433)	(1.866)	(1.897)	(1.407)	(1.425)
Last completed fiscal year	14.879***	15.063***	19.089***	19.277***	15.015***	14.807***	5.389	5.686
	(3.808)	(3.899)	(3.786)	(3.879)	(4.395)	(4.514)	(3.468)	(3.519)
Website (Y/N)	-0.910	-0.990	-1.021	-1.087	-1.955	-1.759	-0.876	-0.976
	(3.187)	(3.226)	(3.189)	(3.227)	(3.700)	(3.723)	(2.465)	(2.515)
Experienced power outage (Y/N)	-0.065	-0.070	-0.045	-0.039	-1.063	-1.179	-1.424	-1.331
	(1.927)	(1.915)	(1.928)	(1.913)	(2.310)	(2.338)	(1.391)	(1.403)
Size FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1125	1116	1125	1116	1071	1063	1363	1351
Rho	0.420	0.408	0.433	0.420	0.649	0.655	0.252	0.252
LR test for rho=0	3.168	2.901	2.985	2.723	5.006	5.009	4.803	4.668
p-value	0.075	0.089	0.084	0.099	0.025	0.025	0.028	0.031

Standard errors in parentheses. Estimation is done using survey weights, except for LR test for independent equations. Constant and dummies are not reported.
* p<0.10, ** p<0.05, *** p<0.01

Figure 1. Indonesia: Financial Access Constraints and Performance, by Ownership and Management Experience



Source: IMF staff calculations.
Note: Solid bar for significant coefficient; line for 10 percent confidence interval.



Source: IMF staff calculations.

19. Coefficients for control variables are broadly in line with expectations. The coefficient for export-oriented firms turns out negative, likely reflecting vulnerability to the pandemic shock[7]. Nevertheless, better firm performance is associated with higher export diversification efforts, especially for the export-oriented firms with the efforts for the process improvement[8] mainly through enhanced productivity (column 6). Young and mature firms appear to record lower productivity growth, compared to firms in a growth phase (column 5-6). Young firms' employment tends to grow faster than other firms, partly due to their small size. However, sales growth does not show any significant difference over firm age. There is evidence that foreign ownership is negatively associated with employment. This might reflect a heterogenous response of foreign-owned firms—tends to be more sensitive to external shocks than domestic firms (Meriküll and Room 2014)—to the pandemic shock. There is strong evidence that the growth rate for the period of 2020-2022 is much higher than the one for 2019-2021 in terms of both sales and productivity (column 1-6). This is natural such that the latter reflects the impact of COVID-19, while the former shows the developments since COVID-19.

20. The statistics for the endogeneity of the treatment suggests that the treatment and firm performance can be correlated even conditional on the control variables. The estimated correlation between the treatment-assignment errors and the outcome errors, Rho, is positive in all

[7] For instance, Lebastard et al. (2023) shows a negative impact of COVID-19 pandemic shock on French exporting firms and a more persistent impact on GVC participants.

[8] During the last three years, has this establishment introduced any new or improved process? These include: methods of manufacturing products or offering services; logistics, delivery, or distribution methods for inputs, products, or services; or supporting activities for processes?

models. The likelihood ratio test (LR test for Rho=0) rejects the null hypothesis of no correlation between the errors of the treatment and performance equations.[9]

21. Limiting the estimation sample only to SMEs does not significantly change these results, except for export orientation and exporter's R&D effort (Table 4). The coefficients of export orientation for sales are estimated around -20 percentage points in the SMEs sample (column 1-4), double from the one in the whole sample, and the coefficients of export diversification efforts by R&D turn significantly negative. The two changes suggest that exporting SMEs could be more vulnerable to the pandemic shock than large exporters. On the other hand, efforts for process improvement by exporting SMEs are still associated with better performance, as seen in the whole sample.

Table 4. Indonesia: Endogenous Treatment Regression: Firm Performance, SMEs Only

Dependent variables:	Nominal Sales		Real Sales		Productivity		Employment	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Access to finance as major constraints (Y/N)=1	-18.362**	-17.392**	-18.625**	-17.597**	-24.554**	-24.510**	-8.299	-8.188
	(7.795)	(7.931)	(8.041)	(8.215)	(10.881)	(11.226)	(6.467)	(6.454)
Export oriented (Y/N)	-23.526***	-18.857***	-23.551***	-18.770***	-16.702**	-7.439	11.296	11.601
	(5.377)	(4.680)	(5.436)	(4.706)	(8.379)	(6.695)	(7.671)	(7.877)
Export oriented * Improved methods		50.480***		50.781***		46.306***		23.604
		(9.797)		(9.873)		(12.042)		(23.289)
Export oriented * R&D		-35.627***		-36.541***		-37.738***		-17.896*
		(12.108)		(12.220)		(14.318)		(9.677)
Young (<= 5 years) firm (Y/N)	-2.133	-1.649	-2.139	-1.645	-20.021**	-19.806**	18.590**	18.756**
	(4.737)	(4.739)	(4.749)	(4.751)	(9.553)	(9.622)	(7.301)	(7.315)
Mature (> 20 years) firm (Y/N)	-2.887	-2.814	-2.954	-2.870	-7.791*	-8.141*	2.339	2.512
	(3.052)	(3.058)	(3.068)	(3.078)	(4.346)	(4.403)	(2.780)	(2.834)
Foreign ownership (Y/N)	4.746	5.180	4.916	5.382	8.223	3.972	-13.076***	-11.622**
	(5.022)	(5.124)	(5.035)	(5.134)	(7.608)	(7.606)	(4.346)	(4.591)
Female top manager (Y/N)	-1.711	-1.536	-1.741	-1.561	0.284	0.249	-1.102	-0.970
	(2.296)	(2.291)	(2.296)	(2.290)	(3.071)	(3.091)	(1.991)	(2.002)
Log of manager experience years	-0.962	-0.930	-0.992	-0.964	-2.473	-2.312	2.473*	2.415*
	(1.467)	(1.468)	(1.454)	(1.455)	(1.919)	(1.933)	(1.421)	(1.437)
Last completed fiscal year	14.344***	14.649***	18.568***	18.868***	14.405***	14.329***	4.213	4.490
	(3.920)	(3.995)	(3.898)	(3.974)	(4.516)	(4.613)	(3.505)	(3.551)
Website (Y/N)	-1.181	-1.099	-1.293	-1.199	-2.221	-1.931	-0.209	-0.331
	(3.295)	(3.329)	(3.296)	(3.331)	(3.767)	(3.781)	(2.488)	(2.537)
Experienced power outage (Y/N)	-0.190	0.046	-0.170	0.073	-0.738	-0.565	-1.608	-1.483
	(2.010)	(1.988)	(2.012)	(1.987)	(2.426)	(2.442)	(1.424)	(1.439)
Size FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	937	932	937	932	893	889	1149	1142
Rho	0.457	0.429	0.471	0.442	0.658	0.655	0.302	0.300
LR test for rho=0	3.311	2.842	3.169	2.686	5.174	4.800	4.482	4.366
p-value	0.069	0.092	0.075	0.101	0.023	0.028	0.034	0.037

Standard errors in parentheses. Estimation is done using survey weights, except for LR test for independent equations. Constant and dummies are not reported.
* p<0.10, ** p<0.05, *** p<0.01

[9] Without addressing the endogeneity, the estimates appear to be lower but still significantly negative for sales, while those for productivity become insignificant (Table AI.4).

F. Conclusions and Policy Recommendations

22. We analyze the determinants of SMEs' access to finance in Indonesia and factors influencing export diversification and firm performance. Our findings reveal that young, domestically owned firms, and those that face inadequate infrastructure experience significant barriers to financial access, highlighting the challenges that especially smaller firms encounter. Firm age, foreign ownership, and website availability positively affect export diversification. Limited financial access adversely affects sales growth and labor productivity, particularly for domestic firms, although managerial experience can mitigate these effects. Improving access to finance and hence firm performance, could be facilitated by establishing adopting a national credit reporting system strategy and simplification of registration for the collateral registry,[10] improving the ease of doing business to stimulate foreign participation, and improving connectivity through infrastructure and digitalization.

[10] See FSAP (2024).

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Appendix I. Additional Estimation Results

Table AI.1. Indonesia: Determinants of Access to Finance, SMEs only

Dependent variable: Access to finance as obstacles	Ordered Logit				Binary Logit			
Independent variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Young (<= 5 years) firm (Y/N)	-0.251	-0.169	-0.343	-0.246	-0.402	-0.488	-0.859	-0.805
	(0.506)	(0.521)	(0.542)	(0.592)	(0.580)	(0.548)	(0.701)	(0.564)
Mature (> 20 years) firm (Y/N)	-0.097	-0.395*	-0.241	-0.553**	-0.455	-0.645*	-0.424	-0.755*
	(0.221)	(0.213)	(0.260)	(0.238)	(0.377)	(0.390)	(0.420)	(0.412)
Firm offers formal training (Y/N)	0.493	0.107	0.093	0.211	0.885	0.422	0.614	0.873
	(0.469)	(0.487)	(0.505)	(0.514)	(0.564)	(0.766)	(0.618)	(0.971)
Log of manager experience years	0.099	0.115	0.152	0.124	0.043	-0.142	-0.037	-0.243
	(0.143)	(0.194)	(0.155)	(0.212)	(0.215)	(0.238)	(0.217)	(0.263)
Female top manager (Y/N)	-0.130	-0.155	0.015	-0.068	-0.531	-0.258	-0.517	-0.334
	(0.212)	(0.216)	(0.223)	(0.230)	(0.354)	(0.372)	(0.373)	(0.405)
Export oriented (Y/N)	0.010	0.205	0.034	0.665	0.385	0.417	0.663	1.113
	(0.603)	(0.879)	(0.704)	(0.873)	(0.730)	(1.257)	(0.780)	(0.881)
Foreign ownership (Y/N)	-0.213	-0.347	-1.804**	-2.786***	0.789	-0.171	-1.590	-2.947
	(1.689)	(1.449)	(0.912)	(1.008)	(1.238)	(1.117)	(1.249)	(2.045)
Establishment's checking or savings account (Y/N)	-0.183	0.031	-0.276	-0.080	-0.392	0.592	-0.558	0.338
	(0.290)	(0.336)	(0.313)	(0.363)	(0.382)	(0.542)	(0.396)	(0.578)
Purchased fixed assets (Y/N)	0.010	0.097	-0.038	0.050	-0.045	-0.014	0.017	0.290
	(0.310)	(0.309)	(0.327)	(0.328)	(0.456)	(0.584)	(0.475)	(0.556)
Experienced power outage (Y/N)	0.787***	0.479	0.940***	0.746***	-0.285	-0.061	0.026	1.343
	(0.218)	(0.292)	(0.203)	(0.258)	(0.447)	(1.021)	(0.447)	(0.929)
Website (Y/N)	-0.447**	-0.842***	-0.386	-0.810***	-0.489	-1.113***	-0.627*	-1.331***
	(0.224)	(0.304)	(0.246)	(0.303)	(0.342)	(0.372)	(0.361)	(0.392)
Credit constrained (Y/N)			0.625**	0.733**			0.504	0.224
			(0.260)	(0.334)			(0.336)	(0.475)
Size FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	No	Yes	No	Yes	No	Yes	No	Yes
Observations	1446	1446	1334	1334	1446	1367	1334	1256

Standard errors in parentheses. Estimation is done using survey weights. Constant and dummies are not reported.

* p<0.10, ** p<0.05, *** p<0.01

Table AI.2. Indonesia: Determinants of Export Diversification, SMEs only

Dependent variable: Export diversification (Y/N)	(1)	(2)	(3)	(4)	(5)	(6)
Young (<= 5 years) firm (Y/N)	5.266***	5.487***	11.084**			
	(1.041)	(1.283)	(5.281)			
Mature (> 20 years) firm (Y/N)	1.854	2.709***	4.798**			
	(1.139)	(0.971)	(1.888)			
Log of age of firm				-4.213**	-6.163	-6.539
				(1.898)	(4.296)	(4.586)
Log of age of firm x Log of age of firm				0.636*	1.079	1.140
				(0.346)	(0.776)	(0.806)
Log of manager experience years	0.774	0.119	-0.419	0.370	-0.272	-0.279
	(0.732)	(0.558)	(3.620)	(0.912)	(0.751)	(0.712)
Foreign ownership (Y/N)	4.385***	5.816***	35.901***	3.228**	5.801***	5.989***
	(1.490)	(2.134)	(5.600)	(1.431)	(2.019)	(1.994)
Website (Y/N)	4.105***	4.689*	5.866	4.352**	4.667	4.868*
	(1.262)	(2.423)	(3.892)	(2.001)	(3.186)	(2.941)
Access to finance as major constraints (Y/N)	-2.049	-0.079	0.195	-4.939	-0.016	0.143
	(1.341)	(1.170)	(2.265)	(4.458)	(1.224)	(1.199)
Size FE	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	No	Yes	Yes	No	Yes	Yes
Sector FE	No	No	Yes	No	No	No
Observations	1141	338	151	1141	338	394

Standard errors in parentheses. Estimation is done using survey weights. Constant and dummies are not reported.
* p<0.10, ** p<0.05, *** p<0.01

Table AI.3. Indonesia: Endogenous Treatment Regression: Firm Performance, First Stage Regression

Dependent variables: Access to finance as major constraints (Y/N)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Credit constrained (Y/N)	0.124	0.129	0.122	0.128	0.159	0.165	0.103	0.106
	(0.271)	(0.277)	(0.271)	(0.277)	(0.202)	(0.202)	(0.281)	(0.287)
Young (<= 5 years) firm (Y/N)	0.026	0.029	0.028	0.030	-0.612	-0.605	0.146	0.153
	(0.385)	(0.385)	(0.385)	(0.386)	(0.449)	(0.451)	(0.353)	(0.353)
Mature (> 20 years) firm (Y/N)	-0.806***)	-0.817***)	-0.804***)	-0.815***)	-0.860***)	-0.872***)	-0.545**	-0.553**
	(0.247)	(0.248)	(0.246)	(0.247)	(0.234)	(0.234)	(0.250)	(0.251)
Log of manager experience years	-0.071	-0.060	-0.068	-0.058	0.037	0.045	0.170	0.179
	(0.138)	(0.138)	(0.138)	(0.138)	(0.105)	(0.106)	(0.160)	(0.161)
Female top manager (Y/N)	-0.137	-0.154	-0.133	-0.149	-0.248	-0.255	-0.067	-0.073
	(0.220)	(0.219)	(0.219)	(0.218)	(0.228)	(0.226)	(0.242)	(0.241)
Foreign ownership (Y/N)	-1.175***)	-1.213***)	-1.175***)	-1.216***)	-1.118*	-1.142**	-0.361	-0.387
	(0.442)	(0.449)	(0.440)	(0.448)	(0.575)	(0.578)	(0.575)	(0.539)
Experienced power outage (Y/N)	0.245	0.232	0.242	0.229	0.135	0.126	0.183	0.182
	(0.399)	(0.397)	(0.397)	(0.396)	(0.335)	(0.333)	(0.324)	(0.323)
Website (Y/N)	-0.923***)	-0.898***)	-0.927***)	-0.901***)	-0.887***)	-0.876***)	-0.282	-0.271
	(0.264)	(0.265)	(0.263)	(0.264)	(0.240)	(0.240)	(0.258)	(0.259)
Region-sector average value of the dependent variable	5.658***	5.764***	5.608***	5.718***	4.411***	4.416***	5.411***	5.453***
	(0.947)	(0.979)	(0.975)	(1.008)	(1.403)	(1.450)	(0.746)	(0.750)
Size FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1125	1116	1125	1116	1071	1063	1363	1351

Standard errors in parentheses. Estimation is done using survey weights, except for LR test for independent equations. Constant and dummies are not reported.
* p<0.10, ** p<0.05, *** p<0.01

Table AI.4. Indonesia: OLS Regression: Firm Performance

Dependent variables:	Nominal Sales		Real Sales		Productivity		Employment	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Access to finance as major constraints (Y/N)	-4.566	-6.839**	-4.608	-6.782**	-2.549	-5.192	-0.845	-0.340
	(3.722)	(3.317)	(3.660)	(3.290)	(5.073)	(4.794)	(3.884)	(3.996)
Export oriented (Y/N)	-2.001	-3.216	-2.051	-3.088	-1.594	-2.583	9.840	10.396
	(5.688)	(4.803)	(5.707)	(4.838)	(9.634)	(9.035)	(6.703)	(6.974)
Export oriented * Improved methods		49.564***		49.861***		31.425***		8.110
		(13.577)		(13.697)		(10.717)		(17.945)
Export oriented * R&D		-0.643		-1.935		3.210		-12.219
		(29.253)		(28.786)		(26.543)		(7.976)
Young (<= 5 years) firm (Y/N)	-3.286	-1.562	-3.225	-1.554	-18.027**	-16.304*	15.546**	15.300**
	(4.333)	(4.296)	(4.327)	(4.305)	(8.877)	(9.174)	(6.755)	(6.822)
Mature (> 20 years) firm (Y/N)	-2.483	-2.212	-2.515	-2.252	-5.433	-5.282	2.062	2.202
	(2.369)	(2.343)	(2.353)	(2.332)	(3.699)	(3.715)	(2.747)	(2.803)
Foreign ownership (Y/N)	-15.672	-13.868	-15.957	-14.163	-12.684	-12.225	-10.881**	-10.060**
	(13.789)	(13.199)	(14.032)	(13.487)	(15.564)	(14.386)	(4.189)	(4.290)
Female top manager (Y/N)	-0.099	-0.928	-0.148	-0.942	1.064	0.201	-0.928	-0.671
	(2.221)	(2.139)	(2.210)	(2.136)	(2.956)	(2.910)	(1.885)	(1.882)
Log of manager experience years	-0.607	-0.220	-0.623	-0.256	-2.361	-1.793	1.812	1.606
	(1.334)	(1.317)	(1.318)	(1.303)	(1.868)	(1.880)	(1.354)	(1.383)
Last completed fiscal year	16.310***	14.665***	20.438***	18.880***	17.164***	15.008***	4.724	5.446
	(3.963)	(3.790)	(3.919)	(3.770)	(4.681)	(4.603)	(3.271)	(3.349)
Website (Y/N)	-0.837	-0.112	-0.891	-0.197	-1.178	0.045	-0.302	-0.627
	(3.001)	(2.945)	(2.984)	(2.934)	(3.687)	(3.617)	(2.233)	(2.280)
Experienced power outage (Y/N)	0.172	0.054	0.183	0.076	-1.600	-1.758	-1.537	-1.392
	(1.936)	(1.880)	(1.930)	(1.875)	(1.990)	(1.990)	(1.481)	(1.502)
Size FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1221	1206	1221	1206	1143	1131	1484	1464

Standard errors in parentheses. Estimation is done using survey weights. Constant and dummies are not reported.

* p<0.10, ** p<0.05, *** p<0.01