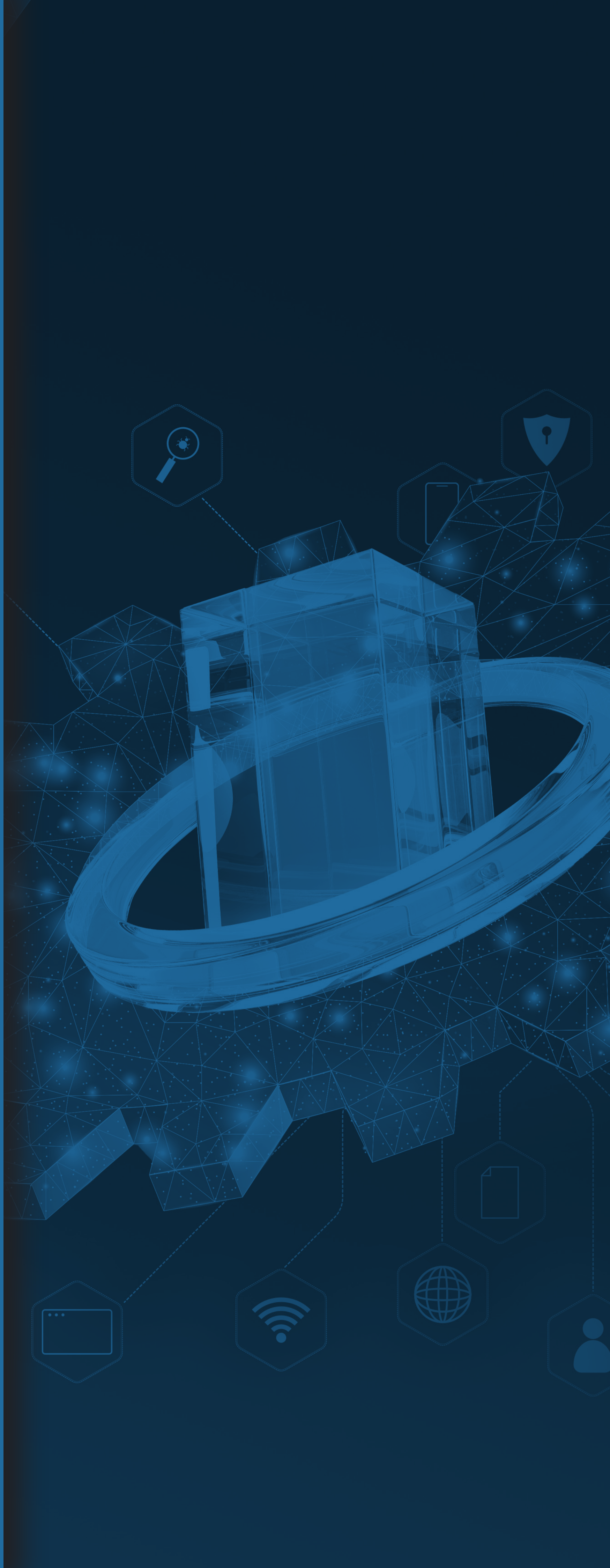
Institutional Capacity AND Its Impact on Productivity

Asian Productivity Organization

The Asian Productivity Organization (APO) is an intergovernmental organization that promotes productivity as a key enabler for socioeconomic development and organizational and enterprise growth. It promotes productivity improvement tools, techniques, and methodologies; supports the National Productivity Organizations of its members; conducts research on productivity trends; and disseminates productivity information, analyses, and data. The APO was established in 1961 and comprises 21 members.

APO Members

Bangladesh, Cambodia, ROC, Fiji, Hong Kong, India, Indonesia, Islamic Republic of Iran, Japan, ROK, Lao PDR, Malaysia, Mongolia, Nepal, Pakistan, Philippines, Singapore, Sri Lanka, Thailand, Turkiye, and Vietnam.



INSTITUTIONAL CAPACITY AND ITS IMPACT ON PRODUCTIVITY

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Institutional Capacity and Its Impact on Productivity

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FOREWORD

In a rapidly evolving global economy, institutional capacity is critical to fostering productivity and economic progress. Institutional capacity refers to the ability of organizations, whether governing business regulations, streamlining processes, or delivering public services, to efficiently design, implement, and sustain policies that promote economic growth. Strong institutions create an enabling environment where businesses can thrive by reducing barriers, ensuring transparency, and improving efficiency. To remain effective, institutions must continually assess and enhance their capacity to support productivity, adapt to new challenges, and raise living standards.

As digital tools become more prevalent in streamlining operations and improving transparency, it is increasingly important to measure and enhance institutional capacities and their impact on productivity. This research examined how institutional frameworks shape productivity by assessing regulatory and administrative practices across APO member economies, with case studies in Bangladesh, India, Malaysia, and Singapore. While all four members have made efforts to improve productivity through regulatory reforms and institutional enhancements, the study highlights significant variations in institutional effectiveness due to differences in governance structures and economic contexts. Bangladesh and India face challenges of regulatory complexity and enforcement within the country, while Singapore has excelled in digital governance but still needs greater flexibility to foster innovation. Malaysia, with progress in digital infrastructure, grapples with some regulation issues across regions and sectors. The report provides practical recommendations tailored to each country's context, while emphasizing the need for adaptability and continuous improvement in institutional practices to foster a more supportive business environment that may provide insights to other APO member economies.

Conducted in collaboration with the University of Technology Sydney, the analyses presented in this research report are relevant for productivity policymaking within APO members and beyond. As the global economy continues to evolve, the need for strong, adaptable institutions that can effectively promote productivity will only increase. It is our hope that *Institutional Capacity and Its Impact on Productivity* will contribute to the ongoing efforts of APO members to strengthen their institutional capabilities, ultimately leading to more robust, resilient economies.

Dr. Indra Pradana Singawinata
Secretary-General
Asian Productivity Organization

EXECUTIVE SUMMARY

This report analyzes key factors impacting organizations' pursuit of increased productivity based on business regulations administered by governments. Government institutions enforce business regulations, such as those related to planning, labor laws, and the environment, as well as guide business processes, such as registrations and licensing.

To examine this critical subject, our fieldwork focused on businesspeople with recent experience tackling these factors. Resources and time precluded the investigation of each of the 21 Asian Productivity Organization (APO) members. Therefore, expert interviewees were recruited from four representative countries. Respondents were asked how regulations contribute to or hinder their company's productivity and innovation. APO members were divided into four groups based on income levels: Group 1 (high income), Group 2 (upper-middle income), and Group 3 (lower-middle income). There were no APO members in the low-income group. As there were four countries in each group, we chose one country each from Group 1 (Singapore) and Group 2 (Malaysia). We included two countries from Group 3 (India and Bangladesh) of the 12 APO members in this group to represent the high and low ends of the lower-middle income group, respectively.

Governments impose strict restrictions on companies. In addition to productivity, their objectives include economic growth and social outcomes. While policy settings may benefit these macro objectives, they are sometimes in conflict. For instance, while targeting desirable social outcomes, planning regulations might negatively affect economic growth and productivity. Specifically, environmental regulations can be negative for productivity and economic growth but positive for social outcomes, at least in the short term.

The impact of regulations on a firm's productivity can be complex and can contribute positively or negatively to productivity levels. Institutions can significantly impact whether regulators choose a moderate or extensive regulatory approach. Lower regulation tends to result in lower costs and operational inefficiencies.

Various productivity measures indicate how resources can be used to produce goods and services, i.e., labor and capital productivity and TFP. Institutions involved in the labor market may generate potential rigidity with negative effects. However, improving work conditions can exhibit the opposite effects. Regulation can play an essential role in capital productivity, primarily when it is responsive to technological innovation. It can also establish an organizational environment that is innovative and business friendly. TFP combines the efficiency of labor and capital. It also includes other inputs such as materials, energy, and regulations directly impacting this measure.

This study first outlined APO members' performance based on their productivity and regulatory environment based on international publications, including APO reports. After determining the differing contexts of operation of APO members, we conducted a case study to examine details from the perspective of businesses. The case study comprised 20 interviews, five for each country selected as representative of different income groups among

APO members. Interviewees involved senior management employees who had interacted with regulatory bodies within the past two years. Interviewees from different sizes of organizations and varying industries were selected where possible.

This report describes findings from primary case study research conducted with businesses in Singapore, Malaysia, India, and Bangladesh to examine how regulations contribute to or hinder their productivity. Furthermore, this report synthesizes the case study discussion by drawing on general findings for all APO members.

Key Findings

Regulations establish rules and laws for businesses, enabling fair conditions for competition, innovation, and the efficient use of resources. However, regulations can result in additional costs. Large organizations seem more capable of passing on or absorbing regulation-based costs compared with startups and small- and medium-sized enterprises (SMEs).

While the social benefits of regulations, such as preventing child labor, are praised across countries, certain benefits of environmental regulations are not yet visible at the firm level in the short term. As business goals dictate differing priorities, businesses face trade-offs arising from long- versus short-term returns from regulations. Policymakers should consider such tensions when building a portfolio of regulations.

Common challenges concerning regulations relate to design and efficiency issues that call for more stable, clear, and transparent processes. Challenges are also evident in the use of digital technologies by government organizations that handle these regulations. Moreover, businesses invite policymakers to revise regulations while considering firm differences, such as size, which might only be possible with greater co-operation and engagement between the public and private sectors.

In addition to more obvious institutions, such as those related to the environment, labor laws, and planning, the government establishes laws and incentives to encourage innovation, entrepreneurship, and grants to promote productivity and economic growth.

Differences by Country

According to the interviewees, Singapore stands apart from the other three countries as the government and private sectors in this country work closely together. Regulations were described as stable and seemed to be enforced. Singapore's highly educated workforce is likely to understand the rationale and benefits of regulations. However, its "wait for the green light" culture may restrict innovation.

The other three countries appeared to exhibit a different business environment: one in which businesses act unless there is a "red light" to stop them. Labor laws were impactful; however, the impact of other laws, including environmental ones, depended on industry.

The interviewees from Malaysia and India worked in a wide range of organizations, from global firms with large export markets and high established standards to local firms with limited resources spending time dealing with government bureaucracy.

Firms in Bangladesh were pressured to comply with regulations instated to meet the requirements of international buyers. The ability of these businesses to pass on regulation costs was limited.

Conclusion of Results

This research encompassed senior executives in businesses and organizations with extensive experience with government institutions. Their experiences depicted positive and negative experiences of how regulations affect productivity. Because productivity impacts are among the multiple possible outcomes, governments must also consider the strategic implications of their institutional policies on economic growth and social outcomes. Priorities must be set as necessary policies do not always support each issue.

INTRODUCTION

Project Goals

This study measured key factors impacting organizations' pursuit of higher productivity performance based on business regulations. The study involved businesses interacting with licensing or regulatory procedures in the past 2 years (2022–2024).

The research was designed to gain insight directly from businesses operating in the four selected countries to understand the real-life impact of regulations on productivity, competition, and innovation.

Key areas of interest were regarding whether regulations

1. improve or hinder business productivity in general.

2. improve or hinder organizations' ability to compete.

3. impact how organizations innovate.

Additional research objectives included the following:

1. Observing the impact of regulations on economic growth and social benefits.

2. Exploring challenges posed by regulations in businesses, such as whether and how overlapping regulations hindered business productivity, whether there was a conflict between central and local government regulations, and whether the regulations of differing government agencies were discrepant.

3. Investigating solutions that can help mitigate regulation challenges.

Importance of Productivity Policy and Regulations on Business Performance

The implementation of regulations is essential in shaping organizational productivity, both as a catalyst for improvement and a challenge to operational efficiency. The impact of regulations on organizational productivity is multifaceted, from compliance costs to innovation incentives. Businesses have three core productivity goals: labor, capital, and TFP. While labor productivity measures the efficiency of utilizing labor to generate output, capital productivity is based on the efficiency of utilizing capital and TFP considers the use of all inputs in generating output.

Regulations safeguard public interests, including economic growth and social benefits. Thus, their impact on organizational productivity must not be overlooked. Regulations can impede efficiency while hindering economic growth by imposing compliance costs and administrative burdens that may result in disadvantages for businesses and society. Balancing regulatory objectives with business productivity is essential to facilitate a conducive environment for productivity and prosperity at the firm and national levels [1, 2].

Summary of Key Findings

Key findings from the interviews are summarized as follows:

1. All interviewees reported that they had to pay higher wages and invest in additional training or supervisory staff owing to regulations in the four countries. Those with sufficient capital or customer bases were able to pass on, absorb, or automate these costs; however, not all businesses were in a position to do so.

2. Environmental regulations impacted some interviewees and countries more than others due to the nature of their work. In our sample, the most affected were interviewees from factories using dangerous chemicals; these businesses must purchase expensive machinery, materials, or services and invest in training their workforce to comply with (often multiple) regulations.

3. Overlapping regulations and "cumbersome" or nondigitized administrative processes led to delays and inefficiencies for some businesses in all four countries. These inefficiencies made it more challenging for them to conduct business.

4. Suggested improvements included assistance for SMEs and startups; greater co-operation and engagement between the public and private sectors; more education for businesses and workers; more stable, clear, and transparent processes; and further investment in digital technology.

5. In India and Malaysia, where institutions and regulations exist at three governmental levels (federal, state, and local), the same regulation might sometimes exist on multiple levels, thus delaying government decisions and negatively affecting productivity.

6. In addition to more prominent institutions, such as those encompassing the environment, labor laws, and planning, the government sets laws and incentives to encourage innovation, entrepreneurship, and grants to promote economic growth and productivity.

This study reviewed the most effective institutional policies to optimize productivity. We examined the impacts of differing income growth among APO members. While each country is situated in a unique context, similarities can be investigated by examining their income levels. Based on the analysis and observations from the case study, we provide an eight-step process for assessing any APO member country's current position and likely areas for improvement. The steps are detailed below.

Step 1: Locate your country based on your income segment.

Step 2: Determine the ranking of your country's institutional policies and regulations in terms of regulatory environment.

Step 3: Review your country's historic productivity performance.

Step 4: Review your country's GDP growth.

Step 5: Compare your country's performance by observing its business environment ranking.

Step 6: Observe how your country meets the business's specific needs in terms of education and research.

Step 7: Balance goals carefully in implementing institutional environment regulations.

Step 8: Invest in digital technologies as institutional support for advancing your country's digital economy.

Each country must continually monitor and reassess its institutional and regulatory framework. The present research enables countries to assess what other similarly positioned countries consider important and review their performance regarding several key issues. While the overall strategy is complex, with productivity, economic growth, and social outcomes all deemed important, balancing relative priority is essential.

Based on the above, this research project focused on senior business executives' perspectives from various industries in four exemplary countries regarding how institutions can improve their services to help businesses enhance productivity. Based on these insights, an eight-step process was established to assist all APO members in applying these lessons to their organizations. For many of these insights, APO members' world ranking was used to determine their strengths and weaknesses.

Governments of APO members have several criteria to consider in formulating institutional strategies to enhance productivity. Along with productivity, economic growth and social outcomes must also be considered. In some cases, these considerations include making decisions that may be negative for business productivity improvement, such as addressing climate change or increasing competition in monopolistic and duopolistic markets. Furthermore, governments should consider telecommunication service regulation as these technologies are essential to improving a nation's digital economy while contributing to productivity [3].

While gathering insights from business executives; we did not attempt to cover all publicly available data or engage extensively with government officials to explore optimal practices for balancing business interests with broader governmental responsibilities. Nonetheless, we suggest that future studies can expand on our findings by exploring these aspects in greater depth.

RESEARCH METHODOLOGY

This research is based on a hybrid model using secondary data from a literature review and primary data from interviews conducted with high-level senior managers in organizations subjected to regulations in their respective countries.

Methodological Approach

Our approach focuses on a "grounded" exploration of the current knowledge on the impact of national regulations on organizational productivity, innovation, and competitiveness. This exploration is based on a detailed investigation using qualitative data. As Strauss and Corbin [4] have suggested, "qualitative methods can be used to uncover and understand what lies behind any phenomenon about which little is known. Also, qualitative methods can give intricate details of phenomena" (p.275).

First, a literature review was conducted to summarize academic publications and industry, government, and institutional reports on regulations and productivity.

Second, in-depth interviews were held with key interviewees across APO member economies to seek insights into technologies and government initiatives that were likely to be most beneficial from a productivity perspective. A questionnaire was designed, piloted, and finalized based on the findings of these interviews and the literature review. This research focused on the real-world impact of regulations rather than the intended effects sought by regulatory bodies.

Literature Review

Literature reviews are a fundamental component of academic research as they enable (a) the discovery of new theories or frameworks, (b) the identification of key research themes while determining research gaps, and (c) the acquisition of empirical findings linked to a narrow research question to support evidence-based practice [5]. As such, this report improves the empirical understanding of the relationship between regulations and productivity. First, we identify empirical findings that indicate the present state of knowledge. Second, through the literature review, we determine critical gaps to develop a questionnaire for our interviews, as detailed below.

Case Study Countries

APO members were divided into three groups as representative case study countries for the interview. The categorization was based on members' income levels, productivity, and regulatory environmental performance.

Based on total income, we established three major categories of countries: high-income (Group 1), upper-middle-income (Group 2), and lower-middle-income (Group 3) countries. There were no APO members in the low-income category. We assess the growth percentage of an economy's GDP over a decade (2010–2020) to determine the overall outcome of governmental regulatory efforts.

The productivity performance of countries varied, as shown in Sections 2.2 and 2.3. We examined representative countries with positive and negative TFP performance. However, we also considered changes in productivity to indicate the efforts of countries in that area. Regulatory environment and performance were based on the APO [6], World Intellectual Property Organization (WIPO) [7], and World Bank [8] reports.

We carefully selected countries that represented the three categories well for the case study. Our criteria were countries with a progressive track record in productivity and economic growth and high scores in fostering a positive business environment. Examining how the interviewees judged regulatory institutions positively and negatively can provide practical lessons for all APO member peers.

1. Singapore represents Group 1, one of the leading APO members with high income and high productivity performance. This is accompanied by a high rank in the regulatory environment and Ease of Doing Business indexes.

2. Malaysia represents Group 2, an upper-middle-income country that has had negative growth in productivity while still exhibiting the highest score for regulatory environment performance among its peers in this income group. It also displays a superior Ease of Doing Business ranking worldwide.

3. We included two countries from Group 3, India and Bangladesh, of the 12 APO members in the lower-middle-income group. India represents this group's high end with positive productivity gains, reflecting the most significant improvement in ease of doing business compared to other APO members between 2010 and 2020. Bangladesh represents the low end of the lower-middle-income group; it exhibited deteriorating productivity performance and one of the poorest regulatory environment scores and Ease of Doing Business rankings among APO members.

Selecting these countries enhances the relevance of the case study as it now covers countries with diverse populations ranging from 5.6 million to 1.4 billion.

Interviews

Interviews were conducted with five individuals from the four APO economies (20 interviews total): Bangladesh, India, Malaysia, and Singapore. Interviews were carried out on Zoom based. A semi-structured questionnaire (Appendix 1) was developed by the research team based on the findings of the literature review. Interviews were conversational to encourage respondents to share real-world examples and case studies. Each interview took around 40 minutes and was conducted in January and February 2024.

Interview selection was based on four criteria: company size, industry, experience with regulations, and role in the company. Table 1 provides an overview of the entire sample. We did not want to limit interviews to companies of a specific size or industry. Hence, we sought companies of all sizes: small (less than 20 employees), medium (more than 20 but less than 200 employees), and large (over 200 employees).

Interviewees represented businesses that had participated in licensing or regulatory procedures in the past 2 years. All respondents were responsible for dealing with these processes. Particularly, we selected respondents who were able to speak about one or more of the following areas of business regulation or licensing based on their experience:

1. Productivity

2. Environmental pollution

3. Employment regulations, including child labor

4. Food and drug safety

All participants occupied roles that addressed these issues; thus, they were knowledgeable on the relevant regulations' impact on their companies (Table 1). The distribution of the business sectors was diverse, ranging from services to manufacturing.

TABLE 1

DESCRIPTIVE INFORMATION ON INTERVIEWEES AND THEIR ORGANIZATIONS

Country	Firm Size	Business Type	Role in Organization
India 1	Large	AR and VR solutions	Co-founder; marketing and HR
India 2	Medium	Coal importer	Director
India 3	Small	Pharmaceutical	Drug and safety officer
India 4	Small	Hotel group	HR director
India 5	Medium	Technology	Senior financial head
Singapore 1	Small	Food and beverage retailer	Owner
Singapore 2	Large	Technology	HR director
Singapore 3	Medium	Logistics	Director
Singapore 4	Medium	Electrical manufacturing	Senior director
Singapore 5	Small	Print services	Owner
Malaysia 1	Medium	Technology	Owner
Malaysia 2	Small	Finance industry	CFO
Malaysia 3	Large	Signage manufacturer	Group CEO
Malaysia 4	Medium	IT equipment manufacturer	Director
Malaysia 5	Small	Food manufacturer	Owner
Bangladesh 1	Large	Textiles	Senior manager administration and HR
Bangladesh 2	Medium	Fashion	General manager
Bangladesh 3	Medium	Recruitment agency	Assistant director
Bangladesh 4	Small	Information technology	Owner
Bangladesh 5	Small	Management consulting	Managing director

Notes: VR, Virtual Reality; AR, Augmented Reality; HR, Human Resources; CEO, Chief Executive Officer; CFO, Chief Financial Officer
Source: Compiled by the authors.

The interview process was conducted as follows:

1. A member of the research team conducted the interviews.
2. Respondents were recruited by Acorn Marketing and Research Consultants from offices across Asia.
3. Potential interviewees were recruited via phone if they met the study criteria; participants gave written informed consent before joining the study.
4. Interviewees were informed that the study was conducted for the University of Technology Sydney on behalf of the APO.
5. Interviews were conducted in English.
6. Each interview took about 40 minutes.

7. Respondents who spoke and understood English were selected; in India and Bangladesh, an Acorn Marketing and Research Consultant employee was available to translate or explain when necessary.

8. Interviews were recorded and later transcribed.

9. Respondents were informed that the report would not name or identify them in any way.

INSTITUTIONAL CAPACITY AND PRODUCTIVITY PERFORMANCE

Literature Review: Productivity-Oriented Policy and Regulation

Impact of Regulations on Firm Productivity

The interplay between productivity and regulation is complex given that regulations may contribute positively or negatively to productivity levels. An appropriate mix of regulations (moderate to extensive) is required to balance societal concerns on specific issues (e.g., financial system transparency). This is critical for promoting efficiency while ensuring that productivity at the firm, industry, and economic levels is not compromised. Industries with light or moderately low levels of regulation are not typically challenged by cost increases or other operational inefficiencies. However, little to no regulation can have the opposite effect; it may provide a firm with a competitive advantage and even lead to environmentally damaging practices. This can negatively affect the firm in the long run, either through reputational damage or by limiting access to natural resources, particularly if these resources have been exploited over time [9].

In contrast, heavily regulated industries typically face compliance burdens that lead to operational inefficiencies at the firm level, thus negatively impacting productivity at the industry and economy levels. Such heavy regulation of industries can result in significant costs for firms, including reduced agility in (international) competition and production inefficiencies [10]. Excessive regulations may stifle productivity in ways that differ across labor- versus capital-intensive industries. Therefore, the distinct needs of various industries must be considered before blanket reforms and regulations are introduced.

Regulations impact firm performance, productivity, and economic growth. The forms of regulation that hinder productivity include extensive bureaucracy (e.g., excessive reporting and compliance processes), more stringent job-specific requirements (e.g., occupational licensing requirements and quality control on entry into an industry), restrictive labor laws (e.g., limiting weekly work hours) [11], health and safety standards (e.g., persistent regulation on product manufacturing safety) [12], environmental regulations (e.g., structured emission standards) [13], and tax and anti-competitive regulations [14]. Regulations that require excessive levels of compliance will divert resources toward these efforts, leading to increased costs and reduced efficiency and output. Regulation in the financial sector illustrates the significance of ensuring that regulation motivates innovation (financial service optimization) and trust (corporate transparency) while avoiding regulatory burdens that add to transaction costs. Transparency and corporate regulation are essential to ensure investor confidence and financial system stability [15]. However, when there are excessive regulations, compliance costs diverge resources, thus increasing inefficiencies and compromising on service delivery. Compounding these sector-specific regulations are overlapping regulations that increase the administrative burden and costs for businesses. These regulations can exacerbate the negative effects on firm productivity and performance.

Overlapping regulations also affect business productivity by heightening business complexity, especially when differing regulatory bodies have diverse expectations of firms. Such complexity directly impacts businesses by expanding operating and compliance costs. Enterprises sometimes compensate for these regulatory requirements by hiring additional workers to assist with meeting them, which can increase average production costs while diverting resources from more efficient use. Overlapping regulations can impact a firm's agility in responding to changing economic conditions and emerging technologies, thus stifling competitiveness and hindering innovation capacity [16].

However, other regulations may positively impact firm performance and productivity. Regulations encouraging productivity include those that support or promote competition; incentivize research, development, and intellectual property protection; promote workforce development by facilitating skill development; ensure flexibility in the labor market [10]; and promote efficient environmental and sustainable business practices. Intellectual property laws and data protection regulations incentivize businesses to invest in research and development (R&D), which fosters creativity and innovation. Competition policies can promote productivity by creating a level playing field, allowing firms to continually strengthen internal processes while improving efficiency.

Studies such as those by Jorgenson and Wilcoxen [17] and Dufour et al. [18] indicate that environmental regulation, such as mandatory pollution abatement schemes, reduced economic growth in the USA and productivity growth in Quebec's manufacturing sector, respectively. Rubashkina et al. [19] claimed that these losses represented significant opportunity costs related to resource allocation efficiency. However, Porter [20] challenged these views, suggesting a trade-off between productivity and regulation. Porter and Van der Linde [21] hypothesized that such environmental regulations can stimulate efficiency [12] if firms use these regulatory measures to enhance production techniques, thereby mitigating additional costs [22].

Types of Productivity

Various productivity measures, such as labor and capital productivity and TFP, describe how resources are used to produce goods and services. Labor productivity is a measure of output produced per unit of labor that indicates workforce efficiency. It is calculated as output per worker or output per hour worked. Labor productivity can be enhanced by providing training and improving ways in which labor can leverage technology in production or service delivery more effectively.

Regulation that interferes with labor market flexibility can instigate rigidities, undermining overall labor productivity. Heightened bureaucracy and overly restrictive labor laws can potentially trigger rigidities that negatively affect labor efficiency. Labor regulations that improve worker conditions may have the opposite effect, although their implementation may have some cost. Park and Park [11] found that a policy of reduced working hours in the Republic of Korea reduced overall per-worker hours and still increased per-worker output, suggesting subsequent growth in TFP.

Regulations are sometimes implemented to assist in labor market transitions influenced by significant technological changes or innovations that affect how workers perform tasks [22, 23]. These regulations may increase labor costs; however, they may improve labor productivity if labor-saving technology is introduced to compensate for increased production costs [24]. Alternatively, such regulations can reduce labor productivity if the associated costs hinder a firm's ability to innovate [25]. Agell [26] suggests that productivity growth is observed when regulatory measures that provide strong employment protections are enforced. These measures may encourage workers to undertake training investment, leading to enhanced productivity. In their study of 20 OECD countries, Storm and Naastepad [27] find that flexible labor markets could contribute to productivity decline when related policies negatively impact workers' ability to engage in organizational and technological innovation. Their collective findings suggest that although excessive labor market regulations negatively affect productivity, excessive labor market flexibility does not always exert an opposite effect. In other words, heightened labor market flexibility may not necessarily improve productivity.

Capital productivity measures capital use efficiency in generating output. This is measured as output per unit of capital. Increased capital productivity can be achieved by ensuring that (a) the most suitable capital is used during the production process, (b) capital is upgraded with the most recent technological advancements, and (c) workflows are optimized (including labor combinations) where capital is used more heavily. Digital technologies significantly increase efficiency and productivity growth wherever they are embedded. Such technologies have made information more readily accessible while reducing information asymmetry [28]. With the advent of AI, greater efficiencies are possible as vast amounts of data become more accessible to analyze in a timely manner [2]. AI also exploits the benefits of economies of scale [29]. Regulation is crucial in this context, particularly regulation that is responsive to technological innovation. Such regulatory responses must be agile to ensure that they support the development of emerging technologies while mitigating restrictions that would discourage innovation through cumbersome, uncompetitive bureaucracy [30]. This can be achieved by moving from rule- to goal-based regulation; the latter focuses on outcomes without defining technology, making the regulations "future-proof" [28, 31]. A prime example is Japan's agile safety regulations on autonomous self-driving cars that established regulatory objectives (e.g., automated vehicles shall not cause traffic accidents) without citing existing technologies or their disadvantages [28, 32].

TFP combines the efficiency of labor and capital with other inputs, e.g., materials, technology, and energy, in producing goods and services. TFP is typically measured as the ratio of all outputs to inputs to provide a more holistic measure of efficiency. Regulatory measures that directly impact any inputs in production will directly affect overall TFP.

APO Members' Productivity Performance

The performance of APO members is summarized in Table 2. Countries are ranked according to their performance on the WIPO's overall Regulatory Environment Index score [7] (Appendix 3). All productivity data were derived from APO statistics [6].

TABLE 2

PRODUCTIVITY OF APO MEMBERS

Country	Regulatory environment (rank among 211 countries)	Labor P growth* 2010–20	Capital P growth 2010–20	TFP growth 2010–20	GDP growth %	GDP per capita in 2020
High income						
Singapore	1	1.9	–4.0	0.3	3.5	60,700
Hong Kong, SAR China	7	1.1	–1.2	0.6	1.5	46,300
Japan	8	–0.1	–0.2	0.1	0.4	39,900
Rep. of Korea	53	1.5	–3.2	0.7	2.4	31,600
Upper-middle income						
Malaysia	65	1.4	–4.6	–0.2	3.8	10,300
Rep. of China	100	2.0	–1.7	1.0	2.9	28,400
Turkiye	110	4.1	–5.5	1.4	5.8	8,600
Thailand	112	2.5	–2.8	0.0	2.4	7,400
Lower-middle income						
Mongolia	52	5.2	–5.6	0.7	6.4	4,100
India	68	4.0	–7.6	0.8	4.8	1,913
Vietnam	98	4.5	–6.2	1.2	5.3	2,800
Cambodia	104	2.7	–7.1	–0.7	4.8	1,600
Philippines	108	2.4	–6.0	–0.3	4.5	3,300
Nepal	113	1.9	–5.6	0.2	3.5	1,200
Pakistan	116	1.2	–2.0	1.0	3.5	1,200
Islamic Rep. of Iran	121	–1.1	–2.2	–1.8	0.4	14,000
Bangladesh	122	5.4	–8.8	–0.3	6.8	2,200

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Country	Regulatory environment (rank among 211 countries)	Labor P growth* 2010–20	Capital P growth 2010–20	TFP growth 2010–20	GDP growth %	GDP per capita in 2020
Lao PDR	126	2.6	−9.0	−2.3	4.5	2,600
Indonesia	129	2.5	−6.4	−1.8	4.3	4,000
Sri Lanka	131	3.3	−5.3	−0.8	3.3	3,700
Fiji**		−0.2	−1.2	−0.5	1.1	5,000

*** Labor productivity is based on output change per worker. ** There is no data for Fiji at GII.**
Notes: P, productivity.
Source: Adapted from APO [6] and World Intellectual Property Organization [7].

Table 2 provides data regarding the labor, capital, and TFP changes between 2010 and 2020 among countries categorized based on their GDP. High-income countries exhibited positive TFP, except Malaysia, which fell within the upper-middle-income group. Except for four lower-middle-income countries (Mongolia, India, Vietnam, and Pakistan), others had negative TFP scores.

Regarding the regulatory environment, Singapore achieved the highest ranking. Of 211 countries ranked on the Global Innovation Index (GII) [7], only three APO members from the high-income group (Singapore, Japan, and Hong Kong SAR) had regulatory performance that ranked them among the top 50 countries. In contrast, 13 APO members did not make the top 100.

APO Member Performance Based on the Ease of Doing Business Index

Morano et al. [33] analyzed 141 countries and found that rules and regulations mediate the relationship between innovation and competition among nations. The study [33] strongly argues that policymakers should focus their efforts on ease of doing business aspects in a manner that enhances economic processes while supporting investors to make the most appropriate decisions when choosing countries in which they can invest their resources.

The World Bank publishes various reports on the business environment and investment climate in different countries and regions. A prominent report is the Doing Business report [8], which measures regulations that enhance or constrain business activity across 190 economies. The latest edition of this report was released in 2020 and comprises 10 topics on starting a business, obtaining credit, paying taxes, and enforcing contracts. The report ranks economies based on their ease of doing business scores, calculated from the aggregate scores on each topic. This report indicates that the top five economies with the highest ease of doing business scores in 2020 were New Zealand, Singapore, Hong Kong SAR, the Republic of China, Denmark, and the Republic of Korea.

The World Bank [8] suggests that the 10 factors used to score a country in terms of doing business include the following:

1. Starting a business: This factor measures the procedures, time, cost, and minimum capital required to establish a limited liability company.

2. Dealing with construction permits: This factor measures the procedures, time, and cost to complete all formalities necessary for building a warehouse. It encompasses quality control and safety mechanisms associated with the construction permit system.

3. Getting electricity: This factor measures the procedures, time, and cost required to get an electrical grid connection, the reliability of the electricity supply, and the transparency of tariffs.

4. Registering property: This factor measures the procedures, time, and cost required to transfer property and the quality of the land administration system.

5. Obtaining credit: This factor measures movable collateral laws and credit information systems.

6. Protecting minority investors: This factor measures minority shareholders' rights in related-party transactions and corporate governance.

7. Paying taxes: This factor measures payments, time, total tax, and contribution rates required for a firm to comply with all tax regulations and postfiling processes.

8. Cross-border trade: This factor measures the time and cost required to import and export products with comparative advantage.

9. Enforcing contracts: This factor measures the time and cost required to resolve commercial disputes and the quality of judicial processes.

10. Resolving insolvency: This factor measures the time, cost, outcome, and recovery rates for commercial insolvency and the strength of its legal framework.

Based on the World Bank's Doing Business Index, the performance of APO members is presented in Table 3. It lists countries based on their 2020 ranking, detailed in Appendix 2. Data indicate that of 21 APO members, the productivity of 11 members increased, whereas five maintained their position. India showed remarkable performance, improving its rank by 79 steps. Singapore was the highest-performing APO member, whereas Bangladesh was among the lowest performers.

TABLE 3

DOING BUSINESS RANKINGS OF APO MEMBERS

Country	2015 rank	2020 rank	Change in ranking
Singapore	1	2	–1
Hong Kong SAR, China	3	3	0
Korea, Rep.	5	5	0
Malaysia	18	12	6
Thailand	26	21	5
Japan	29	29	0
China, Rep.	90	31	59
Turkey	55	33	22
India	142	63	79
Vietnam	78	70	8
Indonesia	114	73	41
Mongolia	56	81	–25
Nepal	126	94	32
Philippines	95	95	0
Sri Lanka	99	99	0
Fiji	61	102	–41

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Country	2015 rank	2020 rank	Change in ranking
Pakistan	128	108	20
Iran, Islamic Rep.	130	127	3
Cambodia	135	144	–9
Lao PDR	139	154	–15
Bangladesh	173	168	5

Note: The World Bank database lists 190 countries. This table comprises APO members only
Source: World Bank [8].

Based on the 2020 ranking, three APO members were within the top 10, and five countries ranked between 10 and 50. Seven countries ranked between 50 and 100, while six ranked lower than 100. Based on Table 3, we selected exemplary countries to conduct a case study to understand how regulations affect business productivity across four groups classified by ranking: embryonic, nascent, emergent, and leaders. The study selected Bangladesh, India, Malaysia, and Singapore for examination.

The details of ranking based on each category used by the World Bank are presented in Appendix 2. A quick overview indicates that Singapore ranked highest in four categories: starting a business, registering property, protecting minority investors, and enforcing contracts. Hong Kong ranked highest in two categories: paying taxes and cross-border trading. Hong Kong and Malaysia had the same ranking in the category of getting electricity. Japan performed the highest in resolving insolvency, while China ranked highest among APO members dealing with construction permits. Three countries (Cambodia, Mongolia, and Vietnam) performed the highest among APO members in obtaining credit.

The lowest performers in each category differed. Bangladesh ranked lowest among APO members in five categories: getting electricity, registering property, cross-border trading, enforcing contracts, and resolving insolvency. Lao had the lowest score for protecting minority investors, while Fiji ranked lowest for obtaining credit. Cambodia exhibited the lowest performance in two categories: starting a business and dealing with construction permits.

Regulation Performance of APO Members Based on the GII Data

The relationships among regulation, productivity, economic growth, innovation, and competition are highly complex. There is no direct linear correlation between the diverse goals that governments want to achieve. Therefore, varying regulation portfolios across countries result in differing performances. This report draws on a key international index to highlight this complexity: the GII [7]. Table 4 indicates the world ranking of each APO member in terms of their regulatory and business environment and environmental performance. Variable details are presented in Appendix 3. Countries are listed based on their regulatory performance rank.

TABLE 4

APO MEMBERS' INCOME LEVELS, REGULATORY AND BUSINESS ENVIRONMENT, AND ENVIRONMENTAL PERFORMANCE

Country	GII rank	Regulatory environment				Business environment			Env. perf.
		O/A	Regulatory quality	Rule of law	Cost of redundancy dismissal	O/A	Policies for doing business	Entr. policies and culture	
High income									
Singapore	5	1	1	4	1	1	2	N/A	37

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Country	GII rank	Regulatory environment				Business environment			Env. perf.
		O/A	Regulatory quality	Rule of law	Cost of redundancy dismissal	O/A	Policies for doing business	Entr. policies and culture	
Hong Kong, SAR	17	7	13	17	1	9	20	6	N/A
Japan	13	8	19	15	1	64	33	64	25
Rep. of Korea	10	53	28	24	111	34	58	17	49
Upper-middle income									
Malaysia	36	65	43	40	104	20	30	8	93
Rep. of China	12	100	89	62	111	14	21	10	118
Turkiye	39	110	77	88	118	107	114	60	127
Thailand	43	112	65	59	124	73	97	36	80
Lower-middle income									
India	68	52	84	75	18	101	107	N/A	113
Sri Lanka	40	68	76	66	63	47	92	13	131
Vietnam	46	98	94	72	105	31	36	24	130
Philippines	101	104	110	116	84	74	78	N/A	112
Indonesia	56	108	69	106	114	51	81	22	116
Mongolia	108	113	105	92	109	100	106	N/A	120
Cambodia	88	116	113	104	109	98	55	80	128
Nepal	62	121	132	118	100	128	124	83	95
Lao PDR	105	122	118	102	121	76	79	N/A	129
Pakistan	110	126	120	105	123	56	61	N/A	107
Islamic Rep. of Iran	61	129	56	74	129	11	24	5	122
Bangladesh	90	131	92	61	130	89	86	N/A	94

*** Definitions of each construct are presented in Appendix 3**
Notes: Env., environmental; Ent., entrepreneurship; O/A, overall assessment (rank)
Source: World Intellectual Property Organization [7].

The overall regulatory quality ranking indicates governmental policies and regulatory ability to promote private sector development. Similarly, the Rule of Law Index instills confidence in organizations regarding established property rights and other societal rules, benefiting business development and productivity. The business environment figures indicate the extent to which the government should develop stable policies to encourage business and productivity.

Table 4 ranks APO members based on their innovation and environmental performance. Innovation performance is a complex metric derived from innovation and outputs. Singapore was the highest-performing APO member, ranking 5th and 37th among 132 countries in innovation and environmental performance, respectively. Thus, even leader countries such as Singapore, which have high rankings in terms of regulatory and business environments, might perform well in innovation but not necessarily in terms of environmental performance. Moreover, Japan, which ranked high in innovation performance and regulatory environment, ranked lowest among the high-income APO members in terms of business environment. These comparisons indicate that governments make different choices. Accordingly, they develop and implement various regulations to achieve the desired performance for their countries.

Overview of Case Study Countries

Governments of the four countries in this case study employed various strategies and regulatory frameworks to regulate and enhance productivity across different economic sectors. While no centralized mechanism exclusively regulates productivity, each government's approach encompasses many policies, institutions, and initiatives. These are designed to enhance efficiency, innovation, and competitiveness.

The following sections summarize recent literature on productivity and its relationship with regulations in these countries. Each section begins with a summary table based on the international statistics presented in Sections 2.2. to 2.4.

Bangladesh

Since the end of the COVID-19 pandemic, Bangladesh's economy has rebounded; however, its recovery remains challenged by high inflation, a persistent balance of payment deficits, vulnerabilities in the financial sector, and global economic uncertainty [34]. Efforts to improve environmental regulations to ensure sustainable industrial practices have been strengthened in recent years. The importance of such approaches cannot be understated. The World Bank's environmental analysis of Bangladesh indicates that environmental costs in monetary terms in 2019, arising from air and water pollution and poor sanitation and hygiene, amounted to 17.6% of the country's GDP. The impact on health has cost the economy 8.32% of GDP. Strengthening environmental standards through improved regulations can significantly reduce these costs; however, such measures generate additional compliance costs for businesses. For instance, environmental regulations in the textile manufacturing industry require technological improvements, necessitating significant investment and expenditure for upgrading capital equipment [35]. This finding was also noted in the interview responses discussed in Section 3.

Table 5 presents the basic data for Bangladesh, which falls toward the lower end of global ranking [6–8].

TABLE 5

SUMMARY DATA FOR BANGLADESH

Country	Pop (M)	EDB rank	Labor P growth* 2010–20	Capital P growth* 2010–20	TFP growth* 2010–20	GDP growth %	GDP per capita 2020	GII rank	Regulatory env.	Business env.	Env. perf.
Bangla-desh	167	168	5.4	−8.8	−0.3	6.8	2,200	105	122	76	129

***Pop, Population; M, Million; EDB, Ease of Doing Business; P, Productivity; Env., Environment**

Bangladesh has witnessed significant regulatory and development strides in its financial and corporate sectors, impacting efficiency, risk management, and compliance behaviors [36, 37, 38]. The following paragraphs provide insights into their impacts and implications.

The introduction of the Microcredit Regulatory Authority marked a pivotal shift for microfinance institutions in Bangladesh, aiming to enhance their efficiency and outreach. Ferdousi [36] found a sharp postregulation increase in productivity for 35% of these institutions. This indicates the potential benefits of regulatory oversight. However, the study also noted that the Authority should undertake more proactive measures to ensure sustainable growth and efficiency in this sector.

Banking regulations, particularly those related to capital adequacy and risk management, have evolved significantly. Rahman et al. [37] and Zheng et al. [38] indicate the positive effects of Basel-based capital regulations implemented since 1996. Specifically, higher regulatory capital ratios have reduced banks' risk-taking and increased profitability, contradicting concerns that such regulations can impede financial performance.

Islamic banking in Bangladesh has faced challenges in complying with Shari'ah-based accounting standards (IFSB standard-4); Rashid et al. [39] reported a compliance rate of only 44.83%. Their study underscores the importance of strengthening governance structures within Islamic banks to improve compliance with these standards.

Regarding corporate governance, Rahim [40] and Rahim and Alam [41] discussed the convergence of corporate social responsibility and corporate governance in Bangladesh. They advocate for developing more strategic legal regulations to foster a socially responsible corporate culture, particularly in weak economies where the convergence of broad practices is less visible.

The tragic collapse of Rana Plaza in 2013 led to a re-evaluation of labor regulations and safety standards within Bangladesh's garment industry [42]. Despite efforts such as the Accord on Fire and Building Safety, challenges remain in institutionalizing transnational labor governance and ensuring compliance with safety measures [3].

Furthermore, Bangladesh's commitment to green investment reforms and climate change risk management indicates an emerging focus on environmental governance. Studies [43, 44] have emphasized the transformative potential of these reforms in fostering sustainable practices within the garment and financial sectors.

The studies mentioned above emphasize the essential role of regulatory frameworks in shaping the efficiency, risk management, and compliance behaviors of financial and corporate entities in Bangladesh. This research underscores the need for continued reform and proactive governance in Bangladesh to address challenges and opportunities in the global business environment.

India

Despite current global headwinds and an increasingly protectionist global economy, India has exhibited significant resilience against these trends [45]. India's new National Logistics Policy (NLP, 2022) [46] has significantly reduced logistic costs, helping make Indian goods cheaper and businesses more competitive. This same policy aims to leverage new digital technologies to enhance logistics-related processes and reduce trade costs; in so doing, it boosts the country's competitiveness in international markets. Other factors contributing to India's strong economic performance include substantial investment in public infrastructure and the manufacturing sector [47] as well as greater use of digital technologies in the farming sector, as promoted through the 2020 farm bills. These farm bills aimed to liberalize agricultural markets so that farmers could access markets beyond state-controlled ones. Farmers became concerned that such laws would undermine prices. In response, they demanded minimum support prices to avert financial hardship and livelihood deterioration resulting from such regulations. The National Agriculture Market e-platform was created as a unified national market for agricultural products and aimed at increasing efficiency in the agricultural sector. This platform is one of the several technological strategies being supported by the Indian government. Additional strategies include a unified agricultural database linking farmers to their landholdings to provide more tailored support to farmers, soil health cards, and an agricultural accelerator fund to help promote agtech ecosystems [48]. However, India still lags behind other nations in agtech. Feedback received in the interviews conducted in this study indicates that more digitization efforts are required to support rural farms and make them more competitive. The consequences of new regulations would need to be considered simultaneously.

Table 6 presents the basic data for India, which has shown remarkable improvement over the last decade. India has moved up in virtually all global rankings, including the Ease of Doing Business index, in which it was ranked 63rd.

TABLE 6

SUMMARY DATA FOR INDIA

Country	Pop (B)	EDB rank	Labor P growth 2010–20	Capital P growth 2010–20	TFP growth 2010–20	GDP growth %	GDP per capita 2020	GII rank	Regulatory env.	Business env.	Env. perf.
India	1.39	63	4.0	−7.6	0.8	4.8	1,913	40	68	47	131

***Pop, Population; B, Billion; EDB, Ease of Doing Business; P, Productivity; Env., Environment**

The liberalization of the Indian economy, characterized by reduced government control and enhanced economic freedom, has been linked to significant economic growth. Aspects of economic freedom include a smaller government size and flexible regulations across credit, labor, and product markets [49].

Compared with the neighboring countries of China and Pakistan, the ease of doing agribusiness in India presents a mixed picture. While India offers easy access to land and regards business regulations and corruption as moderate obstacles, it lags behind in international quality certifications and technology licensing. The agribusiness sector, significant for rural income, requires substantial investments to effectively use the available raw materials and labor resources [50].

A comparison of the foreign direct investment (FDI) policies between India and China illustrates that foreign-invested enterprises in India face greater restrictions and perceive more significant obstacles in business operations than domestic firms. These obstacles are primarily related to government policy, regulations, and financial constraints for new investments. Despite comprehensive domestic reforms in India, a noticeable national preference discriminates against foreign enterprises to protect domestic interests. This has resulted in foreign investors perceiving a less favorable business environment compared with domestic firms. It highlights the need for India to focus on reducing these obstacles in future reforms [51].

Following the enforcement of CSR regulations in India in 2013, CSR has become a critical component of organizational strategies, involving stakeholders as beneficiaries. Research has emphasized the role of IT as a platform for implementing business policies, including CSR initiatives. A notable increase in CSR disclosures by India's Maharatna companies after the implementation of regulations implies a positive impact of IT usage on these activities [52].

India's 1991 economic liberalization marked a significant shift in policy, moving toward a more open, market-oriented economy [53]. These reforms encompassed reducing bureaucratic control over businesses, lowering tariffs and trade barriers, and encouraging foreign investment. Such measures spurred competition and efficiency, thereby enhancing productivity. In line with this liberalization, the Indian government introduced various sector-specific policies to foster productivity. For instance, the "Make in India" campaign, launched in 2014, aims to attract investment while enhancing domestic industrial productivity in manufacturing [54].

Being among the most populated countries, India's government recognizes the critical role of infrastructure in productivity. It invests heavily in improving transportation, energy, and digital infrastructure. Initiatives such as "Digital India," launched in 2015, are designed to reduce logistical costs, improve supply chains, and facilitate market access [55]. Another set of initiatives is related to skill development. Since the "Skills India" mission began in 2015, several programs have been established to enhance workforce skills, thereby improving labor productivity [56]. The World Bank financed $250 million to train six million young people, including the disadvantaged and vulnerable, in various commercial and professional skills.

Malaysia

Since 2010, Malaysia has averaged an annual economic growth rate of 5.4%. This growth is attributed to its openness to trade and investment. Some 40% of jobs in Malaysia are linked to the export sector. Malaysia's focus on investments in education and labor-intensive growth has contributed to a competitive business environment and allowed the country to maintain a relatively high average growth rate over time [57]. However, amid growing inequality, the World Bank has highlighted various areas requiring attention through policies or reforms, including labor compensation, environmental management, taxation, and social spending. Collectively, these areas impact business competition, productivity, and performance directly and indirectly. For instance, the Malaysian government legislated the PSMP Act of 2001 to collect a 1% human resource levy (Human Resource Development Fund) from organizations employing 10 or more employees (0.5% for employers with five to nine employees) to subsidize training and development of employees, trainees, and apprentices [58]. Firms registered with HDRF can access financial incentives and grants to offset the training costs of their staff, which can improve market productivity and competitiveness. However, some businesses that do not require additional staff training also contribute to this fund, thus bearing an additional cost that can be particularly challenging for small businesses. Some interview respondents noted the financial burden of this fund.

Malaysia consistently ranks among the top performers in the region, with a strong position globally, as shown in Table 7.

TABLE 7

SUMMARY DATA FOR MALAYSIA

Country	Pop (M)	EDB rank	Labor P growth* 2010–20	Capital P growth* 2010–20	TFP growth* 2010–20	GDP growth %	GDP per capita 2020	GII rank	Regulatory env.	Business env.	Env. perf.
Malaysia	33.2	12	1.4	−4.6	−0.2	3.8	10,300	36	65	20	93

***Pop, Population; M, Million; EDB, Ease of Doing Business; P, Productivity; Env., Environment**

Malaysia has engaged in various regulatory, governance, and economic transformative strategies to facilitate a conducive business environment, enhance corporate performance, and ensure sustainable economic growth.

Malaysia's economic landscape has evolved significantly from dependence on primary commodities to becoming a leading exporter of electronics and semiconductors. The country's open trade regime has played a crucial role in this transformation, supported by low tariffs and limited nontariff barriers. Additionally, Malaysia's focus on *Bumiputera* ("sons and daughters of the soil," citizens who are Malays, Orang Asli of Peninsular Malaysia, and various Indigenous peoples of East Malaysia), economic participation, and significant investments in infrastructure underscore a comprehensive development strategy aimed at equitable growth and inclusivity. However, emphasizing Bumiputera policies raises concerns regarding potential impacts on entrepreneurial dynamism and market competitiveness [59].

The government has modernized business regulations and digitalization initiatives to ease operational burdens on SMEs, highlighting its commitment to leveraging technology and innovation for economic advancement. For example, the Malaysia Productivity Blueprint outlines immediate priorities to transition toward productivity-driven growth, including restructuring foreign worker management, encouraging digitalization, and enhancing regulatory governance [60].

Since its inception in 2007, the Special Taskforce to Facilitate Business (PEMUDAH) has been instrumental in mitigating government bureaucracy, addressing policy implementation issues, and promoting transparency [61]. Malaysia's commitment to embracing the Fourth Industrial Revolution (i.e., Industry 4.0), strengthening global connectivity, and fostering competition underscores its strategic approach to regulatory reforms. Efforts to align with ASEAN regulatory standards through capacity building and establishing a comprehensive regulatory database signify a move toward regional co-operation and economic integration.

Research underscores the significant impact of governance practices on corporate performance in Malaysia [62]. Factors such as the frequency of board meetings, role separation, and board size are positively associated with corporate success, illustrating the effectiveness of the Malaysian Code of Corporate Governance. A nuanced understanding of governance seems to transcend mere compliance, emphasizing the role of internal governance mechanisms in driving company performance.

Regulatory advancements in fintech and Islamic banking are representative of Malaysia's proactive stance in governing emerging financial sectors. Efforts to regulate fintech operations and ensure Shariah compliance in Islamic banking reflect a balanced approach to fostering innovation while maintaining financial stability and ethical standards [63, 64].

Designed to support the welfare state objective, Malaysia's agricultural policies have significantly contributed to strengthening food security. By providing funding, supervisory programs, and legal certainty for crop prices, the government has effectively motivated farmers to enhance productivity, highlighting the role of agriculture in Malaysia's socioeconomic development [65].

Although Malaysia has strengthened regulatory reforms, corporate governance rules, and economic development, its government must address challenges such as unregistered franchise businesses and effects of global retail transformation. The effectiveness of anti–money laundering regulations and integration of Islamic marketing practices among businesses further demonstrate Malaysia's comprehensive approach to regulatory and economic development.

Singapore

Singapore ranked 5th of 132 economies listed in the GII in 2023, moving up from the 8th position in 2020. Of the 16 Southeast Asian countries on this index, Singapore was ranked the highest [7]. Much of this success stems from Singapore's reputation of having a business-friendly regulatory environment and robust policies on innovation investments, education, public services, and healthcare. Singapore also ranked very high on the World Bank's Human Capital Index, driven by its substantial investment in education and technology [66]. In 2021, Singapore launched a comprehensive national sustainability agenda called the Singapore Green Plan 2030. The plan was developed based on five pillars, including energy reset (transitioning toward cleaner energy sources) and green economy (driving innovation in green technologies) [67]. These initiatives and regulatory measures provide opportunities for economic growth by encouraging businesses to invest in renewable energy technologies, increase resource efficiency by improving waste management strategies, and develop new market opportunities for currently unavailable sustainable products. The plan is intended to strengthen business productivity and competition in an environmentally sustainable context. This plan is supported by green finance, which provides businesses access to sustainability-linked loans and other financial support to encourage investment in green technologies. However, beyond grants, loans, and subsidies, businesses must address the various costs associated with the plan's implementation and compliance, including financial risks associated with the transition, required operational changes, and upgrades to relevant infrastructure and capital. Interviewees regarded the adoption of emerging technologies as a concern in terms of the cost of such regulation, as detailed in Section 3.

Basic data for Singapore are presented in Table 8. Singapore is one of the top performers across several global indexes.

TABLE 8

SUMMARY DATA FOR SINGAPORE

Country	Pop (M)	EDB rank	Labor P growth* 2010–20	Capital P growth* 2010–20	TFP growth* 2010–20	GDP growth %	GDP per capita 2020	GII	Regulatory env.	Business env.	Env. perf.
Singapore	5.6	2	1.9	−4.0	0.3	3.5	60700	5	1	1	37

***Pop, Population; M, Million; EDB, Ease of Doing Business; P, Productivity; Env., Environment**

Singapore's efforts to enhance productivity and economic growth amid evolving global challenges highlight a multifaceted approach. This approach involves regulatory reforms, competition enhancement, digital transformation, and attention to the impacts of Industry 4.0. Some studies [68, 69, 70] provide a comprehensive overview of these efforts and their implications for Singapore's economic landscape.

Auyong [58] outlines Singapore's productivity challenges while emphasizing the nation's shift since 2010 toward reducing foreign workforce growth to combat dependency on lower-wage foreign labor. This was identified as a barrier to productivity improvement and a cause of wage stagnation. Despite becoming the wealthiest country by per capita GDP in 2013, Singapore struggled to meet its labor productivity growth targets. This prompted the development of sector-specific productivity measures and a crackdown on fraudulent claims under government incentives.

Tan and Jie [68] discuss the critical role of competition in fostering economic growth and improving productivity. They posit that while competition ensures competitive prices and drives innovation, its effectiveness depends on its complementarity with public policies, including sectoral regulation and trade policy.

Schou-Zibell and Madhur [70] indicate the necessity of regulatory reforms in fostering a business-friendly environment that supports sustained economic growth. They advocate for reducing regulatory barriers, encouraging private incentives, and promoting competition to enhance efficiency and competitiveness.

The OECD report [71] acknowledges Singapore's efforts in regulatory reforms to develop a favorable business environment through digital strategies and regular regulatory reviews. These reforms position Singapore among the top countries with the most attractive business environments.

Waring et al. [72] consider the challenges and opportunities of Industry 4.0. Their findings underscore the need for government intervention to ensure inclusive participation in the productivity benefits of new technologies while safeguarding the social fabric through redesigned social safety nets.

Wang [73] compares innovation activities in Singapore and Hong Kong. The findings demonstrate the effectiveness of government intervention in enhancing the scope and significance of innovation, primarily driven by policy and dominated by major players.

Pham et al. [74] examine the effects of environmental regulation on the Singapore stock market, indicating that such regulations have successfully impacted polluting sectors while boosting environmentally friendly ones. This highlights the effectiveness of Singapore's environmental governance approach.

These studies highlight Singapore's comprehensive and multi-pronged strategy for navigating its productivity challenges and regulatory landscape. The findings emphasize the importance of government intervention, competition, innovation, and environmental responsibility in fostering a sustainable economic future.

OBSERVATIONS FROM THE CASE STUDIES

Case studies of countries have provided a broader understanding of the impact of government regulations on businesses. Regulations impact productivity directly as well as indirectly through competition and innovation. This contributes to economic growth and social welfare. The overall findings are summarized in Table 9, and details are discussed in Sections 3.1–3.4.

TABLE 9

SUMMARY OF KEY THEMES FROM THE STUDIED COUNTRIES

	Singapore	Malaysia	India	Bangladesh
Regulation Impacts				
Productivity				
Expensive machinery	Productivity Services Grant	Govt. fund for machinery	Scope for reform (concessions or subsidies)	Onus on business to invest
Workforce training	Skills Future Credit	Govt. requires companies to contribute 1% of wages for training		
Legal requirements	Employment regulations		Environmental regulations	
Competition				
Compliance	Compliance achieves exports	Impact of noncompliance by local businesses		
Foreign direct investment	Mixed impacts	Benefit of cheap labor	Technology transfer	Benefit of cheaper labor
Innovation				
Policy and strategy	R&D for food	Malaysian Communications and Multimedia Commission	Smooth adoption of new technology	
	Unintended impacts	Fintech regulations	Driving sustainability	
Beyond Business				
Economic growth			Sense of nation building	
Social welfare	Worker protection from sexual harassment			
	Child labor laws			
Environment		Environmental damage and pollution		
Challenges Caused by Regulations				
Compliance costs	Meeting environmental standards	Goods in transit	Implementing labor laws	
	Recycling content percentage	Materials	Training	Inspection regimes

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	Singapore	Malaysia	India	Bangladesh
	Food safety regulations		Pharmaceutical regulations	
Administrative burdens: Overlapping or poorly designed regulations	Foreign worker quotas	Employment permits for nonlocal workers	Pharmaceutical licenses	Multiple workplace licenses
		Company registrar business category changes		
		Halal certification process		
		Targeting manipulators hinders creativity		
Suggestions for Overcoming the Challenges				
Assistance for SMEs and startups	Overseas expansion	Digitize systems, foster co-operation	Startup funding, subsidize costly investments	
Co-operation between the public and private sectors	Work hand in hand	Outdated mindset	Communication challenges	
Training and education	Role of trade associations	Primary level education	Tackle supply chain	Workers' rights
		Executive training		
Using digital technology for the administration of regulations	Adaption to emerging tech	Increasing digitization of services	Only 50% digitization, limited rural access	Lack of training inhibiting adoption
Clear, stable, and transparent processes	Reducing toxic waste	Frequent regulation change and high agency turnover	Lack of transparency in the pharmaceutical industry	

Source: Compiled by the authors.

Impact of Regulations on Business

Impact of Regulations on Productivity

Regarding the impact of regulations on businesses, respondents described two key regulatory actions and initiatives that boosted productivity:

1. Government grants and subsidies

2. Regulations that guide business practices

Grants and subsidies can help businesses secure expensive machinery required to improve productivity. This type of financial support strengthens firms' capital productivity and TFP. For instance, Singaporean businesses have access to the Productivity Services Grant, under which the government bears part of the cost of specific machinery or processes. These grants are claimed to have increased firms' productivity levels, as the interview excerpts below indicate.

> The government's approach has been to upscale our productivity and the company's productivity. For example, certain jobs, such as manual labor, can be performed by machines. So, forklift drivers and certain types of reach trucks are called material-handling machines to reduce the reliance on labor. (Singapore 3)

> If there is a new machine that you can bring into Malaysia to improve production, advanced technology, and things like that, there is a fund available from the government that allows you to apply so that the government will support you to bring in the machine. (Malaysia 3)

We did not encounter similar circumstances in India. However, one respondent regarded this type of grant as a possible future incentive for productivity.

> There can be some reforms to provide subsidies for new technologies being imported from other countries. I believe there can be some concessions in our industry as such imports will generate a lot of new employment where scaled employees are required. So, yes, the government can consider providing subsidies because importing technology is comparatively expensive, as are the gadgets and technology. So that could be an option for us to work better. (India 1)

Interviewees in Singapore highlighted the government's positive approach to education for enhancing the workforce.

> Domestically, there's this thing called SkillsFuture Credit, wherein the government provides a grant plus subsidies to help workers upskill themselves, take courses, access training, and even prepare for mid-career switches, moving into a completely different career pathway. This helps job seekers and companies because during this trial period, the government subsidizes company costs and encourages them to hire workers. (Singapore 3)

Malaysia also has an employee education initiative that interviewees indicate is an effective support measure:

> In Malaysia, over the last two years, the government, through the Human Resource Ministry, acquired a company to contribute 1% of wages into a funding pool. This is used for employee training. I would say this will impact the company positively, forcing the company to allocate 1% of wages to conduct annual training for employees. This training includes production processes, marketing strategy processes, and even a basic grammar communication seminar. We are upskilling or reskilling existing staff to be more competitive and provide better services to our end users, our consumers. (Malaysia 4)

In Bangladesh, interviewees did not share stories of current or potential support, placing the onus on businesses to secure investments. One respondent indicated that some companies did not invest in new machinery in the absence of regulations.

> Machines or chemicals specified in the regulations are sometimes expensive, but if there are regulations, companies willingly or unwillingly have to invest. (Bangladesh 2)

In addition to financial support, regulations guide businesses through the rule of law. For instance, an Indian hotel company made some improvements to meet environmental regulations, such as sewerage treatment. They believed these new standards would *eventually* result in improvements:

> Whoever visits our hotel, they feel more confident. They feel they're in a cleaner area and environment. That will help us attract more customers. (India 4)

Speaking for a technology firm in India, one respondent provided the following information regarding the government's role in doing business:

> In the longer term, everyone knows the regulations. They know what to do and what they should avoid doing, and it builds a habit. It creates a system, an ecosystem where you know what your dos and don'ts are [...] Everything is taken care of systematically when a certain system is followed in the work environment; for example, this can involve knowing the check-in and check-out timings of the employees in your workplace and their contributions. (India 1)

An interviewee in Singapore underscored how the "very, very, very, very strong employment regulations prevent disputes from arising between employees and employers" because everyone knows the rules (Singapore 5).

Impact of Regulations on Competition

From a local competition perspective, local businesses are theoretically regulated by the same laws. Thus, regulations should not affect local competitiveness. In Bangladesh and India, this was evident among "organized" businesses that comply with laws but not among the "unorganized" or "informal" sectors that neglect regulations to reduce costs and prices.

Specifically, "organized" businesses are likely to try to absorb costs imposed by regulations to remain competitive as buyers are presumed to be unwilling to pay more. If they have the necessary capital and strategic ability, these businesses attempt to recoup costs in the mid-to-long term while innovating when they can.

The "unorganized" sector competes by flouting laws. This point was supported by respondents in Malaysia, India, and Bangladesh, who mentioned that businesses may be asked to pay money (a "kindness," as one respondent described it) to a government inspector who has identified noncompliance or breach to avoid legal costs.

Regulations strengthen local competition and are also considered beneficial for local firms' international competitiveness. Interviewees in Singapore expressed that regulations help them achieve export sales.

> With the Singapore brand exporting overseas or expanding overseas through a franchise, [domestic consumers] will know that [the brand does not] engage in any kind of hanky-panky or monkey business when it comes to the quality or origin of the food. (Singapore 3)

This is notable for Singapore, where prices are high due to high labor costs. In contrast, regulations in Malaysia, India, and Bangladesh can help businesses compete as their products meet the standards expected in European countries and the USA but are sold at lower prices because of cheaper labor. Compliance with standards is essential for companies competing in large markets, such as Europe. However, individual companies make the decision to meet global standards (i.e., the International Standards Office).

Government support for foreign investment, such as FDI, is considered a factor that shifts the balance of competitiveness between local and foreign companies. Hence, interviewees' support for FDI in their countries varied. Some felt that foreign companies enter the market under certain conditions unfavorable to local businesses. For instance, one interviewee felt that the purchase of a small business by its large competitor was anti-competitive as the large company became a monopoly in the market with its "almost 90% share" (Malaysia 1).

Another interviewee complained that foreigners "crowd out the local market [...] A large brand can come in and buy [local players], like food factories. They are a very specialized property type and sell for quite a premium" (Singapore 1).

In contrast, interviewees who were less directly affected suggested that FDI was good for their country:

> There is a lot of FDI in Singapore. It's happening here [...] I think it's good for Singapore, and it is healthy. So, we are a hub. I think it would be good for more foreigners and foreign investors to come in. (Singapore 3)

> The first effect of FDI could be technology transfer, which is very important. Human capital development could also increase. There could be some type of job creation and increased competitiveness, which would improve the export process [opportunities] for us. (India 3)

Part of the evident appeal of FDI is the "clear and transparent regulation and its enforcement and the government who stand behind it wholly; it encourages foreign investment" (Singapore 4).

Another interviewee indicated that Singapore is not attractive to FDI, especially in manufacturing, due to high labor costs. However, interviewees from the other three case study countries described the appeal of their countries to foreign investors due to cheap labor.

> Foreign investment is required for every country to grow. Once you have investment, there is scope for improvement, better exports, better job opportunities, etc. Overall, this is a positive way of looking at it. (India 2)

Impact of Regulations on Innovation

Interviewees illustrated that the impact of regulations on innovation varies based on the degree to which the government in each country supports innovation through specific policies and strategies.

In Singapore,

> [t]here are more avenues for you to get help, specialized help. Like food labs and educational institutes that tie up with governments to provide free food testing [...] Specifically in R&D for food, the government has been quite helpful because it [specialized help] fits with the national agenda. (Singapore 1)

A technology firm in Malaysia described the Malaysian Communications and Multimedia Commission as a critical factor in innovation.

> The Commission's staff is co-operative, giving their advice or support, especially for new products regarding which they do not have specific guidelines. So, for any R&D, patent, or other such improvements […] let's say if a new machine can be brought into Malaysia to improve production, advanced technology, and things like that, there is a fund available from the government that allows us to apply so that the government can support us to bring in these machines. So yes, there is an initiative, a fund allocated by the government that encourages movement toward improving automation and things like that. (Malaysia 4)

An Indian respondent felt their company was free to innovate as there were no regulatory restrictions in his field of business.

> Being in an area where we are into marketing and providing solutions to our clients regarding augmented reality and virtual reality, our industry has no regulations because it is comparatively new. I don't think there is any stoppage on innovation or new ideas. So far, whatever technologies have been implemented, the journey has been smooth. We have been working according to the government's terms. There can be some reforms in terms of subsidies on the import of new technologies from other countries. So, I believe there can be some concessions in our industry because this will generate much new employment, and scaled employees are required. (India 1)

Other interviewees described the general guidance of regulations on innovation.

> Innovation regulations encourage new ideas. (Malaysia 2)

> We are being innovative and following guidelines to help us work toward sustainability. This is only because of regulations. (India 4)

One interviewee indicated how regulations facilitate market improvements through entrepreneurship support, generating new industries or innovative companies.

> I would say that these new fintech regulations encourage entrepreneurs to set up businesses to venture into financial technology. Finance is the biggest sector contributing to the world economy. It will act as a catalyst to boost and encourage new ideas by these so-called technopreneurs to conceptualize

> their business into a viable economic model and move forward. If they are successful, one of the contributors to such success would no doubt be the regulations that enable fintech businesses to be formed and capital to be raised in support of innovative business in the community. (Malaysia 2)

Although some regulations might help companies innovate, others can produce the opposite result, thus curbing innovation. This topic is further discussed in Section 4.3.2. Paradoxically, some regulations can stimulate innovation when businesses identify new or creative ways to overcome barriers imposed by regulations. For instance, a Singaporean firm relying on manual labor recently automated such roles because the firm was ineligible to employ additional foreign workers. An electrical manufacturing business manager in Singapore struggling to find a cheap workforce indicated the following:

> Playing the long game means being very strategic and more competitive. Gone are the days where you can just open shop and hire people, quote a low price, get the order in, and that's it. You must look at [...] all the resources and data analysis to know if you will make money. (Singapore 4)

Impact of Regulations Beyond Business

An immediate benefit of regulations beyond individual business growth is economic growth. Most stakeholders whom we interviewed recognized the impact of regulations in facilitating economic growth. A comment from India captures this sentiment.

> We are building a country when building a company because you have people working from different backgrounds and beliefs, so you need to respect that. And there are policies to keep workers safe, policies that are essential for ensuring a safe environment: safe in terms of finances, safe in terms of gender. This gives people confidence. When people have confidence, they perform better. Productivity and efficiency are better, and people don't have fear in their minds. Accordingly, they get financial support on a timely basis. This will help improve the economy of the business. When the business improves, it will directly improve the country's economy. (India 1)

In addition to economic growth, regulations can foster various societal benefits. This theme was common in the responses of interviewees across the four case study countries. In particular, the social benefits of regulations, such as protecting workers from sexual harassment or banning the employment of children under 18, were prominent. All interviewees stated their support for laws prohibiting child labor.

> These policies make sense when I look at them from an ordinary Singaporean citizen's perspective. (Singapore 3)

> Businesses and industries must comply with these regulations to align everyone with the country's aspirations. (Malaysia 2)

> In India, I believe in corporate culture. There are examples where there has been harassment in the name of gender or color or caste. I believe these new [POSH] policies and reforms will have a positive impact and [abusive practices] will not be tolerated. This makes the environment better for working. (India 1)

> We are considerably harming our environment and habitat. The belief that industrialization and money are the only things we should focus on needs to be addressed. We should focus on the place we live in; otherwise, our very existence will be at risk. So, [regulations] should be implemented. We should work hard to liberate all the people and entities in a way that they have that awareness. (Bangladesh 2)

Interviewees were asked about environmental regulations and climate change. They did not provide any comments regarding climate change, other than saying that they were not impacted by it. The feedback we received on this topic pertained to environmental issues, particularly pollution. The key theme was that environmental regulations benefit countries rather than businesses. Furthermore, interviewees recognized that perceived benefits for companies were restricted to increased competitiveness.

The social benefit aspect of regulations was expressed by interviewees, as indicated in the following concerns regarding environmental damage in the respondents' respective countries.

> Much development and [...] cutting down of trees, and then the beach, such a beautiful beachside [...] Not to say for all, but there is so much trash on parts of the beachside. People just do not keep it clean [...] Plastic and other trash are dumped into the ocean, and that's it. It kills all the coral and things like that. These are the environmental factors we still lack [awareness about] compared to other developed countries. (Malaysia 3)

> The entire area was flooded due to rain. Why is that? Because there was a lake here before, which had been encroached upon and covered with sand. So where does the water go? There is nowhere for the water to pass. That is the reason that this [flooding] is happening. The people over here, the bureaucrats, and the officials have no sense; nothing is there. If it's a lake, let it be a lake. Okay, they covered the lake. So, ultimately, if it's raining, where would the water go? It's going to flood the roads and all those things. (India 2)

> Every day, dust and chemical water goes to the river. Some people use this river water. As a result, they are affected by many diseases and by the climate, thus becoming sick. (Bangladesh 1)

Challenges Caused by Regulations

Some businesses face challenges when attempting to comply with specific regulations. These challenges vary between countries and across industries.

These challenges can be summarized as follows:

1. Compliance costs

2. Administrative burdens

Compliance Costs

Regulations often impose compliance costs on organizations, including expenses related to monitoring, reporting, and implementing the required changes. Such costs divert resources away from productive activities [74]. None of the interviewees provided any examples of regulations that decreased their organizational costs. Costs have increased for their businesses, including with regard to labor, materials, and machinery.

An importer in India describes incurring significantly increased labor costs for goods in transit:

> We must follow certain regulations regarding cargo vehicles and how we staff, pack, and load them. So, we have to be extra cautious. […] The cost has increased by almost 15% to 20%. I would say that sometimes the increase is almost double, maybe 40% or even 50%. It all depends upon the commodity in question. (India 2)

In Bangladesh, the situation appears more complex. In theory, rules about working hours, training, and safety and the ban on child labor all increase labor costs. However, one respondent indicated that "all the pressure goes on labor. They do not get their minimum living wages" (Bangladesh 5).

The above statement indicates how some businesses do not comply with regulations. Interviewees in India and Bangladesh reported the productivity impacts of laws limiting who can work and for how many hours. These limitations have led to higher operating costs for these businesses. For example, in Bangladesh, a factory inspector explained the following:

> Call the workers individually and ask them about the [work] environment, organization, why they are working here, how much salary they are getting, what are their payment times and dates of receiving

> salaries. They [factory inspectors] are doing internal and external audits. Sometimes, they are talking with them outside of the factory. (Bangladesh 1)

Interviewees also described increased training costs.

> There are costs involved in training. When we hire a new employee, we spend a lot of money on their training and induction. In the induction period, employees do not work and the organization only provides them with an orientation regarding their work. This period of 15 days to one month is wasted on every new employee. (India 4)

Costs related to electrical waste were provided as an example, as mentioned by a respondent from Malaysia:

> To comply with this environmental standard, we must request our suppliers to switch [products or materials] [...] We are paying extra costs to ensure compliance and use safe, environmentally friendly materials. I would say that we incur more costs, and I think this will be a burden for newcomers or new startups. It will cost them maybe 10% to 15% more compared to non–environmentally friendly products or materials. (Malaysia 4)

Additional costs based on more expensive materials were presented in an example from a respondent from Malaysia:

> I think the main impact to our company is that it will incur extra costs […] close to about 20% of the [expected] cost. The overall cost of the material is 20% more. (Malaysia 4)

Regarding costs incurred by factories, another respondent explained that inspectors "come and try to reach our officials and then do their query. They try to visit every floor and go through every single detail they need to go through" (Bangladesh 2).

Some businesses cannot absorb or pass on costs incurred when complying with regulations. Evidently, smaller companies are less capable of passing on regulatory costs to their buyers, as indicated by a respondent from Singapore.

> That is challenging for us because if we follow their standards of a certain percentage of the recycling content, the cost increases. When the cost is high, I try to increase the [product] price, but buyers get agitated; they say, no, you have to follow the old price. If not, we are changing suppliers. (Singapore 5)

This was particularly evident among Bangladeshi employers attempting to comply with regulations and run their businesses effectively. Although buyers expect compliance, they will not necessarily pay a higher price to accommodate the increased costs incurred by employers.

> It is a huge investment. How can we make it when buyers do not agree to increase their contribution margin? (Bangladesh 5)

> The labor law [...] is for labor workplace safety and environment safety; for their payments, wages, and benefits. Labor laws state the accepted working hours and abolish forced labor or harassment. Implementing this law is challenging because factory owners do not always want to comply. They need investments for labor law implementation. So, they do not always agree to implement the labor law. However, garment factory buyers want them to implement the labor law and code of conduct. Based on this pressure, Bangladesh garment owners are bound to comply with this law. (Bangladesh 5)

Some interviewees in Singapore explained that they passed the costs of environmental regulations on to their customers.

> The regulations are not that onerous. It is not that difficult to get this license. But you have to invest in getting a licensed contractor to institute the containment zone. Then, the walls need to be reinforced.

> So, it is not difficult. It just takes money. It's just expensive. But, of course, we pass this cost over to the customer. (Singapore 3)

A notable point was made by interviewees in Malaysia: established businesses might be able to absorb such costs, but startups cannot.

> There's another ministry [...] that strictly regulates the environmental requirement for controlling electrical waste. It requires companies to comply with specific environmental standards.
>
> The company will incur more costs to comply with these standards. For instance, we need to request our suppliers to switch from conventional materials to [...] materials that are less harmful to our environment but come with a slightly higher price.
>
> Thus, the company incurs extra costs to comply with the requirement of using safe, environmentally friendly materials. Basically, I think that these increased costs will burden newcomers or new startups, possibly boosting their expenditure by 10% to 15% compared to the expenditure on non–environmentally friendly products or materials. (Malaysia 4)

A Singaporean food and beverage business claimed that food safety regulations limit the type of materials that they can use in their kitchens. The interviewee working in this business suggested that the rules were created by people who were not material specialists. This resulted in companies having to use unnecessarily expensive materials (Singapore 1).

A pharmaceutical company in India anticipated regulatory changes that could significantly affect its revenue, as indicated by the following interview excerpt.

> Some pharmaceutical revenue might come down by 25% if the regulation is completely changed. […] Several important patterns also emerge when we control costs. [The government may] introduce poorly enforced policies [...] The policies are only for specific companies that are registered and not for unorganized players. I think these price controls reduce the level and growth rate of the pharmaceutical revenue. (India 3)

The garment industry in Bangladesh is caught between local people in desperate need of food and international buyers imposing regulations on companies.

> The law is not considering [workers' welfare] in a way. They're imposing restrictions. They made the law to have a better impact. However, every jurisdiction and every disciplinary act has certain limitations. So, you need to find 360° solutions for such problems and address them in a way that benefits all aspects. Otherwise, measures benefit certain aspects and harm others. (Bangladesh 2)

Administrative Burdens Due to Overlapping or Poorly Designed Regulations

> Compliance is good, but it should not take longer than the business itself. (Malaysia 5)

A Malaysian respondent encountered delays when sourcing talent from outside Malaysia, as described below.

> Getting a particular skillset from the local employment pool was very difficult. When I found an ideal candidate, they turned out to be residing in Sydney. [The hiring process] was quite difficult because the Malaysian Digital Agency, which is responsible for issuing employment permits, requires you to justify why you can't get the skillset locally. We had to do resource planning with them instead of doing it alone. It took considerable time before I could hire the person, delaying the entire project. (Malaysia 1)

As shown in the above example, costs sometimes arise from the need for government inspectors to validate and verify that foreign workers meet the relevant criteria. The financial burden of this process on businesses encouraged some interviewees to invest in training local staff instead of recruiting foreign talents.

The number of regulations that required compliance, including the number of licenses necessary, posed a challenge for some businesses.

Interviewees explained that such challenges resulted in varying types of productivity deficits, illustrated by the interview excerpts below. Productivity deficits ranged from confusion to delays and increased bureaucracy.

A large technology business in Malaysia planned to employ professional staff from different countries. One interviewee explained the process:

> You still must deal with, let's say, ten different agencies to get what you want. [...] If I have my admin person or my admin staff or HR person deal with so many people at once, it will take a lot of time because not all agencies are aligned or exchange information with one another. (Malaysia 1)

This interviewee expected that one of these specialized "one-stop" government agencies he was dealing with would forward his passport information to the immigration department:

> These are one-stop centers, but when you go to immigration, you must do everything from scratch again. [...] You're supposed to deal with only one person. Then, suddenly everybody says that you're supposed to deal with each of them at the same time. (Malaysia 1)

A pharmaceutical manufacturer in India that addresses all types of compliance issues related to the Industries (Development and Regulation) Act indicated the following:

> Renewing a license from the central government is required for manufacturing a limited number of drugs. This license is required for each drug and manufacturing location in India. [...] There are some policies, such as the public procurement policy, that we must adhere to for procuring raw materials for manufacturing drugs and ensuring safety. There are also pharma marketing practices that we usually adhere to according to the central government's rules. (India 3)

The Bureau of Manpower, Employment and Training in Bangladesh is a regulatory body for international workers. Bangladesh garment factories require "many licenses such as trade, factory, fire, environmental, generator, and boiler licenses […] around 15 types of licenses..." The following interview excerpt illustrates that a higher number of licenses requires a greater number of inspections:

> Several government representatives visit our office, factory, and showroom each month. They check our site license, our organization's license, workers' salary sheet, information about our service group and their biodata, their references, and their birth certificates. (Bangladesh 1)

Some businesses face challenges when trying to comply with regulations because of the way in which regulations have been designed. For instance, companies must comply with regulations that do not fit their business model or operating environment, as shown in the below examples.

Businesses employing unskilled workers in Malaysia and Singapore must meet government-imposed quotas regarding the number of cheap foreign labor they are permitted to employ. Different sectors and business types are allocated varying quotas. For example, a logistics company in Singapore, classified as a service business despite primarily employing truck and forklift drivers, can only accommodate a few foreign workers. However, the problem is that local staff, especially those who are well-educated, do not want to work in these roles. These companies may fill their foreign worker quota but not all the available jobs (Singapore 3).

Changing regulations can also impact productivity. When changes occur, a business must adapt to meet the new requirements, which may affect productivity. Staying updated with changing regulations can be a significant challenge for businesses. This is particularly evident in countries such as India and Bangladesh, which still have low levels of digital capability. Communication regarding changes is typically much slower in these countries, as illustrated below.

> The company registrar in Malaysia changes the business categories used in the country every few years. [...] I'm unsure whether they're trying to streamline things or are simply confused about what businesses do. This is minor, but it affects some of our administrative work that requires us to go to the company registrar and change things [paperwork]. (Malaysia 1)

Furthermore, regulations can impede productivity when they are inefficiently implemented. Examples of inefficiency include a lack of online resources, reliance on paper-based technology, and unnecessary bureaucracy. For instance, a food business owner in Malaysia reported that

> [t]he Halal certification process takes about 3 months for us, and the expiration date is within 2 years. So, we must start processing our documents a year and a half in advance. Being a small business, this takes up a lot of our time. Although we can get this done in a month, obtaining the certification or renewal can sometimes take more than 3 months. (Malaysia 5)

As the interview excerpt shows, this business owner questioned why paper documentation was so time-consuming and why the end-to-end certification process was so long.

The interviews illustrate how regulation can stimulate business innovation in certain contexts and act as a barrier in others. Interviewees from Malaysia, India, and Bangladesh identified one such critical barrier: their countries' regulations were designed to "rein in the cowboys," as one respondent described it. For instance, a Malaysian interviewee distinguished regulations as follows.

> Some regulations came into being out of "curiosity" and some because the regulators wanted to rein in the so-called cowboys who were doing such [fraudulent] business. Such players have done it for so long that they know all the loopholes to get around and manipulate the rules. Manipulation is the key. To manipulate [the regulations] for their benefit. (Malaysia 2)

This is why some regulations target mitigating the system's manipulation; however, these types of regulations might constrain innovation by creating additional administrative inefficiencies. A similar point was made in India.

> When these kinds of regulations are introduced, they often hinder the efficient and effective ways in which normal businesses are run, i.e., using creative thinking. (India 2)

Suggestions for Overcoming the Challenges Induced by Regulations

The interviewees suggested ways in which regulators can help businesses overcome key challenges:

1. Assistance for SMEs and startups
2. Co-operation between the public and private sectors
3. Training and education
4. Use of digital technology
5. Well-designed regulation processes

Assistance for SMEs and Startups

Interviewees indicated that regulators could assist businesses by providing support in terms of funding and education, explicitly targeting SMEs rather than large companies.

Larger corporate organizations may have greater capacity to adapt to and cope with regulations compared with smaller businesses. This is because larger businesses may be able to employ people whose only role is to manage compliance, for example. Such initiatives were noted in Singapore:

> The government realizes that they [government officials] must work more closely with the private sector, especially with SMEs, to help SMEs improve in terms of productivity and efficiency. This can help certain SMEs expand beyond Singapore. Singapore is a very small market, and I think they realize this and are very helpful. The economic boards not only assist local SMEs [in domestic growth] but also help SMEs who want to expand overseas. (Singapore 3)

Some of the larger businesses in India and Malaysia have complied with standards such as ISO 14064 or ISO 14000 to meet the requirements of their international clients. These companies have already had the personnel and processes to meet such international standards, making it relatively easy to comply with local regulations. In contrast, to meet government guidelines, small businesses and new startups must typically create new processes and procedures.

Compliance becomes one of the many "hats" that small business owners must wear. If regulations are complex or time-consuming, these owners can become "overwhelmed with bureaucracy" (Malaysia 5). A small business owner described the process of acquiring Malaysia's Halal certification as follows:

> We could spend time adopting new systems and new technologies rather than wasting our time on compliance. While compliance is good, it should not take more time than the business itself. (Malaysia 5)

The respondents generally accepted that SMEs, including startups, faced more challenges in innovating compared with larger businesses because of their capital constraints. Another way for the government to support innovation in SMEs trying to innovate independently is to foster co-operation between businesses facilitated by technology. A respondent commented, "We don't pull our technical know-how together […] we are very fragmented" (Malaysia 4).

Interviewees from some large businesses in Malaysia and India recognized the need for greater startup funding for economic benefits and not merely business productivity.

> It's quite hard for newcomers, particularly in terms of innovating. They must comply with various standards before selling to the end user market. The sets the bar quite high for new startups. (Malaysia 4)

In India, a respondent suggested that the government should help startup businesses.

> They just need one step. I would say just need a path that they can walk on, with a small amount of exposure. Once exposed, they'll get it. I'm certain that if the government gives funding to startups, [this can be achieved] (India 5)

To meet environmental regulations that require business investment, an interviewee stated the need for government support to convert business premises or replace machinery.

> If the government subsidizes or contributes heavily, we can invest expensive resources. […] I will give you the example of a sewerage treatment plant, which involves several costs. So, for recycling waste material, the government should provide subsidies. (India 4)

Co-operation Between the Public and Private Sectors

Co-operation and engagement are other ways in which governments can help businesses. As a Singaporean respondent said,

> One good thing about doing business in Singapore is that the public and private sectors are very close. They are very open to feedback. They are very responsive. They are there. They'll reach out to you. […] They are very helpful. (Singapore 3)

Interviewees from Singapore described employment regulation that involved the public and private sectors "working hand in hand":

> For the betterment of the organization and to benefit the workers, three bodies must work hand in hand: the unions, the company, and the government itself. Basically, policies should be designed to adopt a balanced approach toward the employer and their employees. They should not be skewed toward one side.
>
> We can resolve issues quickly or determine solutions to [the regulators'] concerns. This will help us in our work. […] Thus, can actually accelerate your work process. (Singapore 2)

Having cordial conversations with regulators is one approach reported by a respondent from Singapore.

> You can meet with regulators, have coffee, and present your pain points. Perhaps you can approach them from a trade association perspective. Specifically, let us say you have a trade association with businesses in the same industry facing the same issues. Collectively, these businesses can help regulators identify the cause of the issues they face. The businesses can record and explain their circumstances and conduct surveys. (Singapore 4)

No participant from the other three countries described their relationship with their government in this manner. However, some interviewees in Malaysia had asked their government to be more consultative.

> The government should try to change the mindset and get away from this mentality of saying, "Okay, all my regulations are meant to rein in the cowboys." [They should] start thinking about how to engage or have conversations with traditional businesses, as I find that they may be losing touch with them. They think they know [the industry] because they've been regulating it for the last 40 years. But because they don't talk to people in the industry, they may be a bit outdated about what businesses require.
>
> They're not just the big GICs, GLCs, government-linked corporations. They'll tell you the same old stories. Talk to people who are from the private sector, who are trying to run a bona fide business, to see what they actually need. What kind of support, what kind of supportive regulation would they appreciate? (Malaysia 2)

A solution to the issue of inappropriate regulations is communication. The representative of a corporate organization in India argued that "exchanging thoughts is critical because many people are talking at once. Many people have different thoughts" (India 5).

Training and Education

Almost all interviewees suggested that training and education were the ways forward for their respective countries.

> It's education that's needed. (Malaysia 4)

However, one respondent (Singapore 3) indicated that a different type of education is necessary: specifically, teaching the community why they should behave responsibly rather than simply waiting for the green light.

Trade associations can play a key role in educating businesses. For instance, a Singaporean respondent took courses in recycling and waste management, primarily motivated by the industry's commitment to corresponding regulations (Singapore 5).

According to one Malaysian respondent, education can be a more effective solution than regulation as people often complain about regulation.

> Regulation [...] may or may not always [suit] both sides. Then, people start to complain. We should start with primary schools or kindergarten education. We must have the mindset that the trash or the

> plastic on the floor affects fish. That's probably the first thing we must impose through education to create awareness of the importance of the environment and safety. (Malaysia 3)

For another respondent from Malaysia, it is the C-Suite that needs education.

> The government should encourage CEO or C executive level management to undertake so-called training or attend seminars to upskill or reskill top managements with appropriate or improved management capabilities. This issue is quite severe in small- and medium-sized companies. Because of budget constraints, these companies' CEOs and CFOs usually lack the training to learn the latest management skills or technological innovations. The government should provide funds to encourage C-level executives to receive increased exposure to the newest technological innovations and different talent management skills.
>
> Implementing this training or upskilling for top management prepares the company for technological innovations. Companies can come up with better products and can look at products from different perspectives, not so much in terms of technological innovation but from the perspective of end users or how they will deploy these products in the commercial Malaysian market. These factors can help companies and CEOs pursue high innovation, resulting in a better market share and healthy profit and loss books. (Malaysia 4)

In India, education was also described as an alternative to regulations that are "too strict."

> Sometimes, [regulations] become too strict [...] This is restricting the growth of both the country and our organization. So, these regulations are not only related to our product but several other products harming the environment. Just recently, they had banned single-use plastics in India. In the last 10 or 15 days, they lifted their ban. See? That is what is happening. They're not even really focusing on the problem. They say the basic problem is you have to attack the manufacturers […] and [the burden falls upon] the end consumer. (India 2)

One interviewee from Bangladesh described education in the context of the labor force as follows:

> We want to establish rules and regulations: environmental regulations, safety, fire safety, electric safety, building safety, and social compliance. Like their humanity subjects and personal life improvement subjects, we also work for this, giving them various kinds of training, and we owe them their rights. We owe workers their rights. (Bangladesh 5)

Using Digital Technology for Administration of Regulations

Burdon et al. [60] indicate that across all four income categories of the APO, the paramount technology for fostering productivity growth is establishing a mobile network, followed by implementing data management and AI technologies. Thus, respondents were asked about the current state of digitization in their country and the context of meeting these regulations.

Much communication in India and Bangladesh is conducted via mail and in person. An Indian pharmaceutical company's representative explained how 50% of their interaction with the government was digitalized and 50% was conducted on paper. However, productivity would be improved if more work was performed online: "they can easily approve and reject [production permissions] through the online process" (India 3). Some approvals are conducted offline because they need the personal attention of ministry officials. However, conducting this process offline requires more time.

> I feel it should be online so that we don't have to wait for such a long time for the ministry to approve or reject. Everyday affairs can be easily conducted quickly without hindrance or time-lapse. (India 3)

As presumed, Singaporean respondents reported greater access to reliable online and digital tools compared with the other countries. Notably, the government has initiated new regulations for new technologies such as AI.

> I think they will start a new regulation of what industry can or cannot do with [AI]. That is just one example of how regulators will continue to add on and maybe modify the old [regulations]: adapting the old while increasing and adding new issues. (Singapore 4)

Elsewhere, access to digital technology was said to be "improving." The push to digitalize government services in these other countries came from their international clients.

> In certain departments, they have improved [...] such as drastic improvements in the tax collection department, which directly affects the economy of any country. But for certain other departments, like environment, they are lagging behind, so they have to work on that. (India 2)

Malaysian interviewees reported the prevalence of online and digital processes and methods.

> I think digital technology is an area that businesses are quickly latching onto. The government is quickly promoting digitization and digitalization in everyday life. This is not only in terms of government administrative methods but also for applications [such as product permission] submitted to government offices. (Malaysia 2)

Interviewees from India viewed the integration of digital technology as "rising to a satisfactory level":

> After COVID-19, things are becoming digital. Earlier, you were supposed to visit the office and finish your work. Now, you can simply apply online. You have government portals, so things have become easier. It's more digital now. (India 1)

However, factory workers and the general public do not have the same level of access to technology, particularly in rural areas. This was evident in the following response:

> They know all those things but are unaware of digital technology [...] Digitally, you can say [people in rural areas] use mobile phones more than tablets or laptops. These people don't carry a tablet, laptop, or anything. The preferred mode of communication is the mobile itself. The way they carry the mobile […] they're using it a bit roughly. They're not familiar with using apps and all those things. While there is internet connectivity, many other factors play a role in its efficient use. (India 1)

As the least developed country among the case studies, Bangladesh requires help accessing reliable digital technology and internet connectivity. While there is pressure from international clients, business owners indicate they need additional technological training.

> Our factory level or our working instruments should be digitalized. They [workers] need training for handling machinery with state-of-the-art technological maintenance. The government has to provide this. They need to help to get [user-friendly] digital equipment for their process flow. […] The government should bring external expertise to train our technical personnel on state-of-the-art technology and digital issues through BGMEA or another factory association. (Bangladesh 5)

Clear, Stable, and Transparent Processes

> I think it's a good system. It's very transparent. It's clearly communicated. It protects everybody. (Singapore 3)

Transparency and stability is necessary in business regulatory processes. In this context, Singapore seems to have very clear and enforceable rules on environmental waste, for example.

> The Toxic Waste Control Act [...] encapsulates the handling, transportation and disposal, and treatment of toxic waste, which we do. We store many chemical items in our warehouse. These types of waste are detrimental to public health. They can't go into our waste system, the drains, and whatnot. If there's a spillage, we can't just clean it up and pour it into the drain. You can't do that. The penalties are severe if you do that in Singapore. So you have to call one of these waste management companies.

> They're licensed, and they will come and clean it up. […] They will take it back to their disposal facility and dispose of it properly. (Singapore 3)

However, this was not true for the Indian pharmaceutical market. As one interviewee explained,

> India needs to do more to make sure that inspection records and the review of drug applications are made public. Generic manufacturers are subject to the same tests as companies making new drugs. These tests should be more transparent so that the government and corporates can easily analyze the generic business and take further steps [...] There could be some kind of public inspections, records, and reviews of these drug applications, and this information could be made transparent. (India 3)

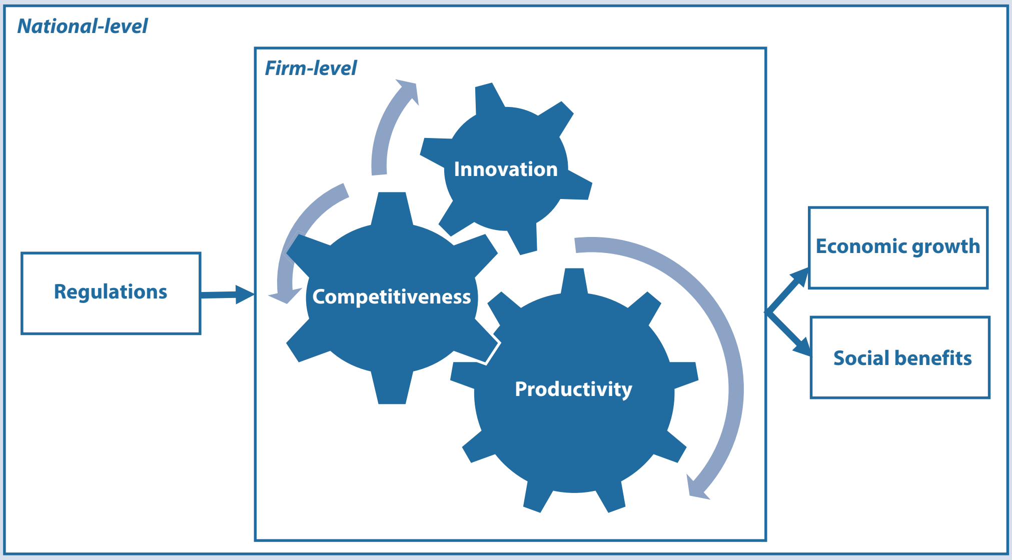
The business environment also suffers when regulations change frequently, especially when "we don't know who we are dealing with" (Malaysia 1). This interviewee described their dealings with a government agency where "the agency's turnover rate is extremely high, so you don't see the same people every time.... [They] don't know all the documents and everything. Many things in the Malaysian context are very fragmented" (Malaysia 1).

KEY FINDINGS AND CONCLUSIONS

This report investigated the role of government regulations on businesses' productivity performance in APO member economies from a company management perspective. To this end, our research gathered insights from business executives from four countries. The case study analysis illustrates the complexity of the relationship between regulations and productivity. Each government determines how to balance its regulatory and business environments to deliver outcomes related to productivity, economic growth, and social benefits (Figure 1). While productivity is a primary objective, economic growth is also essential, as it correlates with productivity. However, social benefits such as environmental performance can sometimes hinder progress in the short term. Yet, managers highlight that society expects policymakers to deliver them in the long run. Once priorities for these objectives are determined, policy rules and objectives can be established for institutions and can significantly foster a business environment that is conducive to productivity.

FIGURE 1

IMPACT OF REGULATIONS AT THE NATIONAL LEVEL



Source: Compiled by the authors.

This study did not engage with government officials to examine optimal practices for balancing business interests with broader governmental responsibilities from the perspective of governments. We suggest that future studies expand the findings by exploring these aspects in greater depth. These efforts could enrich the understanding of the complexities of regulations and their multifaceted impacts.

Analysis of the Four Case Study Countries' Regulation Performance

As companies measure their institutional capacity to improve productivity, it is essential for them to also recognize that they have a responsibility to promote economic growth and social welfare, such as by reducing environmental damage and prohibiting child labor. The most effective policies balance such different objectives and are likely to vary based partly on their countries' respective income ratings. This study's four case study countries can be characterized as follows: Bangladesh represents the lower-income level of the lower-middle-income group, while India represents the upper end of this group. Malaysia and Singapore are representative of the upper-middle-income and high-income groups, respectively.

Government institutions face dilemmas in balancing competing objectives. Environmental regulation is a suitable example of how nations that exhibit high compliance with environmental standards will likely impede productivity growth in the short term. All four case study countries exhibited poorer environmental performance compared to their innovation and business environment rankings.

The four case study countries' average labor productivity and TFP reveal a notable trend. Table 2 (Section 2.2) illustrates how developing countries such as Bangladesh show higher average labor productivity than developed nations like Singapore. Interestingly, TFP scores are relatively weak across the board. This indicates that these countries can enhance productivity by emphasizing institutional support for capital services to strengthen the efficiency of other inputs (e.g., materials, technology, and energy) in producing goods and services.

Table 2 presents the four countries' labor and capital productivity and TFP growth over a decade (2010–2020). For all four countries, labor productivity improved while significantly contributing to TFP. TFP growth was negative in Bangladesh and Malaysia. However, GDP increases were not directly reflected in the TFP. Bangladesh doubled its economic output towing to a decade of labor productivity. Considering that economies with labor-intensive industries benefit the most from labor productivity improvements, this result is not surprising.

The APO report [6] clearly shows that several countries have exhibited a negative capital productivity growth rate, i.e., "capital deepening," regardless of the observation period. This measure evaluates how labor can use more capital, calculated as capital input per hours worked. The APO report emphasizes that a decline in capital productivity is necessary to increase labor productivity through capital deepening. Two main reasons for a decline in capital productivity are (1) using capital stock to replenish outdated or obsolete capital and (2) shifting labor to more labor-intensive service sectors. However, if declining capital productivity results in negative TFP, this has not been considered a problem. The countries studied in this research imply that although they experienced a decline in their capital productivity like many other APO members, India and Singapore have managed to maintain their TFP above zero.

Each case study country's regulatory and business environments are described below based on the Ease of Doing Business index [8] and GII [7].

During the study period, Bangladesh experienced rapid improvement from a low start despite its low GDP per capita. Regarding its Ease of Doing Business ranking, Bangladesh has made progress in the finance and starting a business categories [8]. However, the major areas in which Bangladesh still lags significantly include enforcing contracts, dealing with construction permits, and registering property. High levels of corruption and bureaucratic red tape pose challenges to business activities [7]. Like many developing nations, Bangladesh could benefit from an enhanced regulatory environment, particularly in terms of regulatory quality that supports economic growth and productivity [7].

India has witnessed considerable growth in GDP per capita. Its regulatory environment showcases notable quality and adherence to the rule of law. This is reminiscent of British-era laws and regulations [6]. India's positive approach is complemented by a thriving business environment conducive to entrepreneurship. However, business policies are mixed, with some restrictions for nonlocal companies. Regarding the Ease of Doing Business index, India has made significant strides in helping companies get electricity, protect minority investors, and resolve insolvency through its new business regulations [8]. However, India faces key challenges in areas such as enforcing contracts, dealing with construction permits, and starting a business. Corruption and complex regulatory environments continue to pose difficulties for businesses in India [8].

As a booming emerging economy, Malaysia boasts a robust business environment while earning an overall rating of 20 in the Business Environment category [7]. This is supported by its policies and culture that are conducive to entrepreneurship. While its environmental improvement efforts may have a slower trajectory, they contribute to short-term productivity growth. However, there is room for strategic enhancement in the country's regulatory environment to strengthen private sector development and productivity, as indicated by its middling overall rating of 65 [6]. The Ease of Doing Business index [8] indicates that Malaysia excels in protecting minority investors, cross-border trade, and obtaining credit. The country has significantly improved its handling of construction permits and contract enforcement. However, improvements are required in the fields of starting a business and registering property. The complexity of tax payments is another area in which businesses in Malaysia face challenges.

Singapore's performance has been impressive, with its regulatory and business environments receiving the highest scores in the GII [7]. Singapore exhibits exceptional regulatory quality and rule of law while facilitating private sector development and productivity. A strong rule of law can foster confidence among organizations while reinforcing societal norms. This is crucial for contract enforcement and therefore beneficial for productivity enhancement. The country performed well in several regulatory areas in the Ease of Doing Business rankings, including starting a business, enforcing contracts, dealing with construction permits, and protecting minority investors [8]. The country's efficient regulatory framework and robust legal institutions contributed to its high ranking. While Singapore performs exceptionally well overall, the cost of doing business, particularly in real estate and labor, remains challenging for some businesses [7]. Moreover, sustaining success is another area of concern, requiring the country to undertake continual efforts in order to develop and renew its regulations and leverage opportunities.

Lessons from the Analysis of Government Initiatives to Improve Productivity

Adopting a case-study approach, this report examined how businesses in the four Asian countries of Singapore, Malaysia, India, and Bangladesh experienced regulation. We investigated how these experiences impacted their productivity. Interviewees generally supported regulation because of the accrued benefits to the government, both social and economic.

Impact on Productivity

The report findings show that regulation can positively affect productivity. Specifically, the interviewees described having achieved productivity benefits from the following:

1. Grants and subsidies

2. Business guidance

All countries have developed diverse grants and subsidies to support capital investments or employee training. These financial support mechanisms have helped businesses invest in resources, resulting in efficient transformations. This finding aligns with other studies concerning APO members [75]. Such regulations have guided businesses by clearly indicating the rule of law and serving as effective disciplining mechanisms.

In addition to their positive impacts, regulations generate challenges for businesses. These include costs that cannot be passed on immediately or otherwise; delays; staying updated with regulations; adhering to multiple conflicting regulations; and complying with poorly designed, out-of-date, or inefficient regulations.

Labor laws can lead to increased wages, mandate the provision of training, and, in some cases, require businesses to employ additional staff. Limits on the number of foreign workers a company can employ also denote increased costs. Labor laws primarily affect most or all companies in the corresponding country or market sector.

Environmental laws have differing effects as regulations are often industry-specific. In this study, interviewees mentioned that a hotel had to invest in new sewerage infrastructure, a printing company had to establish recycling procedures, or a garment factory had to dispose of chemical waste in an environmentally friendly manner. Meeting environmental regulations can be expensive, and businesses may require new machinery or costly materials. Some companies whose representatives were interviewed had to comply with industry-specific regulations, such as those governing pharmaceuticals.

Regulations can lead to compliance costs, causing delays and frustration in some cases. Based on the case studies, these costs were generally incurred for the following reasons:

1. A lack of stable, clear, and transparent policies and procedures
2. Overlapping regulations
3. Regulations that change often
4. High staff turnover in the relevant ministry or government agency

Interviewees suggested ways in which regulators could help businesses improve productivity:

1. Grants and subsidies
2. Assistance for SMEs and startups, including funding
3. Greater co-operation and engagement between the public and private sectors
4. More education for businesses and workers
5. Clear, stable, and transparent regulatory processes
6. Further investment in digital technology

The impact of regulations on productivity also depends on the nature of the regulation: in other words, it is necessary to achieve a balance between the "carrot" and "stick" approaches and determine how strictly a regulation needs to be enforced. This point was evident across all countries, except Singapore, where rules designed to "rein in the cowboys" constrain other businesses.

Small businesses and startups may overcome the challenges created or imposed by regulations more effectively if strategies exist to support them. Clear and transparent regulations can help business productivity. Moreover, greater co-operation and consultation between the private and public sectors can help businesses acquire training, education, and widespread digitalization.

Impact on Competitiveness

In highly compliant countries, local competitors are generally impacted by the same regulations and face the same costs. In this context, regulations may not affect local competition. However, the same cannot be said for countries with low compliance. Interviewees reported frustration with competing with noncompliant businesses because regulations were not enforced or enforced to different degrees.

From an international perspective, interviewees in Singapore believed that the high standards created by regulations generate high levels of trust in Singaporean exports. However, the country's high labor costs make any price-based competition difficult.

Elsewhere, cheap labor costs currently support export businesses. From a regulatory perspective, exporters seem to rely on meeting international standards expected in export markets to boost their competitive advantage.

Interviewees' support for foreign investment in each country varied. This could make it challenging for local, less-funded businesses to compete. Others indicated that the entry of large international companies has had a positive economic impact.

Impact on Innovation

Some interviewees indicated that regulations can stimulate innovation. For example, interviewees in Singapore and Malaysia described government initiatives such as R&D labs and establishment of specific government departments that encourage investment in technology.

In contrast, interviewees also noted that excessively strict regulations can stifle creativity; businesses wait for permission rather than taking initiative. A country's degree of maturity and the organization's size appear to be critical factors in this context.

Guidelines for Each Group

While the findings documented above apply to all four countries, the circumstances in each country differ in certain key ways, as described below.

High-Income Group (Singapore)

Regulation seemed to not only be expected but valued among the Singaporean interviewees. Companies are expected to comply with regulations. interviewees also highlighted that Singapore's public and private sectors communicate effectively. Communication and engagement can help remove certain roadblocks businesses experience. The Singaporean respondents also reported greater access to reliable online and digital tools than respondents from other countries.

Singaporean business approaches to regulation could perhaps be equated with the "U-turn" culture of Singapore. This culture entails that drivers in Singapore will take a U-turn only when they have explicit permission. Comparatively, Singaporean businesses may innovate or step outside accepted practice only when explicitly allowed to.

Governments in the high-income group might perform well in terms of professional government services. However, they may still need to benchmark regulations to achieve the expected impact by balancing multiple, sometimes conflicting, goals.

The specific goal of countries in this group can extend to maintaining a sustainable level of productivity. High-income countries should focus on maintaining their global competitive edge by enhancing productivity in high-tech and service sectors. This can be achieved through strategic international partnerships, global market integration, and maintaining leadership in innovation by adopting cutting-edge technologies such as AI.

High-income countries typically have complex regulatory environments. This can lead to unnecessary administrative burden and compliance costs for businesses. Simplifying regulations, reducing overlapping rules, and generating transparent processes can strengthen operational efficiency. Additionally, policymakers in these countries might adopt more flexible regulatory frameworks that can quickly adjust to new industries, innovations, and business models (e.g., digital platforms, AI, and green technologies). The Singapore example shows that policymakers might consider incorporating regulatory sandboxes or adaptive regulations that encourage experimentation without heavy penalties for noncompliance during the innovation process, such as during the startup phases of high-tech companies.

Upper-Middle-Income Group (Malaysia)

From a regulatory perspective, interviewees suggested that Malaysia was "not there yet." In contrast to Singapore, there seemed to be more variability between ministries and departments in terms of their approach to regulation in Malaysia. For example, we learned of instances in which bureaucratic regulatory processes made certain business processes unproductive, although these processes have already been digitalized in some other countries. Moreover, the disparity in productivity levels between urban and rural areas was a concern. This signals problems in regulation implementation and differences in skill levels depending on geography.

Malaysia must also improve with regard to overlapping regulations, i.e., when a business may have to interact with several agencies to complete a straightforward task. Malaysian business interviewees seemed to believe that the purpose of regulation is for the government to specify what not to do, i.e., giving businesses red lights. These red lights "stop the cowboys" from causing environmental damage or mistreating workers. Malaysian companies would not expect to ask permission in this context.

Other countries in the upper-middle-income group might face issues similar to those in Malaysia, where businesses do not comply with regulations. A proposed solution is to strengthen institutional frameworks by streamlining regulations, reducing bureaucracy, and improving governance. This could result in a more beneficial environment for business and productivity growth. Effective institutions can help enforce contracts, protect property rights, and reduce corruption.

Another concern that was evident in this group is establishing a diversified industrial base to reduce dependency on a limited number of sectors. This challenge could be resolved by encouraging the growth of high-value manufacturing and service industries through innovation hubs. It could also be addressed by incentivizing private sector investment in R&D, thus helping generate new growth opportunities. These efforts can be strengthened by creating a flexible, adaptable workforce that can meet the demands of more advanced industries.

Lower-Middle-Income Group (India and Bangladesh)

India led this group of APO members in terms of regulatory performance. As described earlier, one interviewee used the state of the river Ganges to illustrate the country's approach to regulation. Specifically, pollution remains a considerable problem in India despite regulations.

This report highlights how challenging it can be for businesses to comply with environmental laws owing to the expenses involved and because owners and workers may need to see the connection between their actions and the more significant problems. Interviewees indicated that regulations that are "too strict" are not complied with. This suggests that better education and greater co-operation between private and public sectors is required.

While Bangladesh is less populated than India, businesses in Bangladesh face similarly strict regulations. However, the regulations imposed in Bangladesh have their origin in international pressure. For instance, garment manufacturers face demands from international clients to conform to strict employment and environmental laws. This enforcement can be challenging because many small businesses may need help understanding why they must comply with these regulations. Interviewees indicated that some Bangladeshi businesses refrain from complying with regulations that increase costs that they cannot pass on to their buyers.

Of the four case study countries, interviewees in Bangladesh were the most likely to complain about needing multiple licenses to run their businesses or having to spend considerable time away from productive activity during inspections and audits. Countries like Bangladesh also require access to more reliable digital technology and internet connectivity.

As lengthy bureaucratic processes for registering businesses and obtaining licenses can discourage entrepreneurship and productivity, low-income countries should focus on simplifying and streamlining these procedures. Implementing online registration systems, reducing paperwork, and creating "one-stop shops" for business services can accelerate business setup and encourage formalization, leading to greater economic activity.

A significant challenge in low-income countries is the lack of access to affordable credit, particularly for SMEs. Therefore, policymakers should implement regulations to encourage financial institutions to provide these companies with loans and other financial products. Such products could include credit guarantee schemes, government-backed grants, or low-interest loans for productivity-enhancing investments (e.g., technology and equipment).

Finally, countries in this income group should adopt traditional productivity-enhancing strategies, particularly basic infrastructure development (e.g., roads, electricity, and water supply) and education and skill development (e.g., technical and vocational training). These strategies can help improve low capital productivity performances that indicate low returns from capital investments. For instance, agriculture often plays a crucial role in low-income economies. As such, regulations tailored specifically to agriculture (e.g., supporting better farming techniques, educating farmers, supplying access to quality seeds, and building efficient irrigation systems) can significantly impact productivity performance.

Lessons for All APO Members

To identify the most effective institutional policies to optimize productivity, this study examined how regulations impact APO member economies with different income growth patterns. While each country faces different circumstances, some similarities can be investigated through the lens of income levels. The study selected Singapore to represent high-income countries and Malaysia to represent countries with upper-middle income. From the lower-middle-income group, the study chose India (upper quartile), which has exhibited remarkable improvement in its regulatory environment, and Bangladesh (lower quartile), which had the lowest Doing Business Index score among APO members [6]. The statistics for each APO member based on this categorization are detailed in Section 2.

Experienced senior executives from various industries and organizations of different sizes in the four countries were interviewed in our study. Respondents were asked about their experience of dealing with government institutions and the issues that need to be addressed to improve productivity. The key issues identified are listed below.

1. Business environment: policies for improving business entrepreneurship and culture

2. Close relationship between businesses and the government in developing institutional policies and training

3. Innovation policies: labor laws, taxation, and depreciation

4. Regulatory approach: “light” or “heavy” regulations and the subsequent development of red tape

5. National productivity improvements for labor and capital productivity and TFP

6. Impact of new environmental regulations: social benefits can negatively affect productivity in the short term

7. Human capital: organizing minimum wages, labor restrictions, and education

8. Digital economic transformation

Based on the observations from and analysis of the case studies, we provide an eight-step process for assessing any APO members’ current positions and likely target areas for improvement. These steps are delineated below.

Step 1: Locate your country in Table 2. You will see the other countries allocated to the same income segment. This can inform you about countries with a similar income level; thus, you can expect to have similar market structures, opportunities, and threats.

Step 2: To determine how your country’s institutions and regulations are positioned in terms of supporting a robust business environment, refer to the assessment ranking in Tables 2 to 4. Regarding the regulation environment, the total number of countries in this ranking system is presented in Tables 2 and 4 at 211; the lower the number, the better is the score. For example, Singapore ranks first, making it the best location for APO members to undertake business. Table 3 shows the ranking of 190 countries in the Ease of Doing Business index; the lower the number, the better the environment is to conduct business.

Step 3: Review historic productivity performance. Table 2 shows your country's labor and capital productivity and TFP growth over time. By comparing your country's performance with peer countries, you can identify how well your nation is performing and what additional efforts are needed.

Step 4: Additional insight can be obtained by reviewing your GDP growth in Table 2. There is often a strong relationship between productivity and economic growth. You can obtain ideas for optimization by reviewing countries in your income level.

Step 5: Innovation support from institutions covers multiple players, including labor and taxation laws. Each country can compare its performance by comparing its Ease of Doing Business ranking in Table 3 and innovation scores in Table 2 with the performance of other countries. Countries in the high-income group tend to have more regular support for innovation.

Step 6: A close relationship between business and government is significant for meeting specific business needs in education and research. Regulations concerning secondary, tertiary, and technical education contribute significantly to improving labor productivity in organizations. Institutional R&D support is also essential, either directly with businesses or through universities or other governmental agencies.

Step 7: Institutional environmental regulation requires institutions to provide a favorable regulatory environment for environmental outputs; such regulations are likely to be negative for short-term productivity. Achieving the right balance is contingent upon complex decisions. Table 2 presents each country's ranking in enforcing the most effective environmental regulations, indicating how each country has reached its decision.

Step 8: Countries are faced with the key challenge of transforming their economies into digital economies. Institutional support for advancing a nation's digital economy is increasing, becoming essential for productivity and competition. Whether to improve supply chain management or integrate AI in business processes, digital transformation is essential for productivity; thus, strategies for support via grants and taxation should be carefully designed.

Each country must monitor and reassess its institutional and regulatory framework continually. This research enables countries to assess what other similarly positioned countries perceive as important and review their performance on several key issues. The overall strategy is complex, with productivity, economic growth, and social outcomes serving as important factors; balancing their relative priority is key.

Concluding Remarks

In an ideal world, governments would achieve regulatory impact without damaging the business environment. However, this ideal is not practical. Business environments evolve and change. New regulations are likely always going to increase certain costs. Furthermore, old regulations may only use outdated processes until they can be updated.

Based on the above discussion and evidence from these case studies, governments that strive to establish an effective dialogue with businesses can at least minimize damage to business productivity. Through such dialogue, regulators can recognize when regulatory burdens on businesses become unfair or unmanageable, whether for businesses across the board or in particular sectors.

This study suggests that businesses will become more productive if administrative inefficiency is mitigated, for example, if they do not have to navigate between various government departments or submit huge volumes of paperwork to regulators. Clear, transparent, and streamlined processes can be effective in this context.

Finally, governments can help businesses manage their compliance obligations. This can include implementing policies to educate the public and businesses regarding the reason for establishing necessary regulations.

REFERENCES

[1] OECD. Regulatory policy and governance: supporting economic growth and serving the public interest. Paris: OECD Publishing; 2013.

[2] OECD. OECD Digital Economy Outlook 2020. Paris: OECD Publishing; 2020.

[3] Burdon S., Stewart C., John C., et al. Powering National Outcomes from New Digital Technologies: An Analysis of Government Policies to Maximize the Economic and Social Benefits. Tokyo: APO; 2023.

[4] Strauss A., Corbin J. Grounded theory methodology: an overview. In: Denzin N.K., Lincoln Y.S., eds. Handbook of Qualitative Research. London: Sage Publications, Inc; 1994, p. 273–285.

[5] Roztocki N., Weistroffer H.R. Research trends in information and communications technology in developing, emerging and transition economies. Collegium of Economic Analysis 2009; 20: 113–127.

[6] APO. Productivity Databook. Tokyo: APO; 2022.

[7] World Intellectual Property Organization (WIPO). Global Innovation Index 2023. Geneva: WIPO; 2013.

[8] World Bank. Ease of Doing Business Index. Washington, DC: World Bank; 2020.

[9] Zou H.L., Zeng R.C., Zeng S.X., et al. How do environmental violation events harm corporate reputation? Business Strategy and the Environment 2015; 24: 836–854.

[10] Koçu L. Business-IT alignment effects on business agility. International Journal of Commerce and Finance 2018; 4: 60–93.

[11] Park W., Park Y. When less is more: the impact of the regulation on standard workweek on labor productivity in South Korea. Journal of Policy Analysis and Management 2019; 38: 681–705.

[12] Lamm F., Massey C., Perry M. Is there a link between workplace health and safety and firm performance and productivity? New Zealand Journal of Employment Relations 2006; 32: 75–90.

[13] Kozluk T., Zipperer V. Environmental policies and productivity growth: a critical review of empirical findings. O.E.C.D. Journal: Economic Studies 2014; 2014: 155–185.

[14] Conway P., De Rosa D., Nicoletti G., et al. Regulation, competition and productivity convergence. OECD Economics Department Working Paper No.509. SSRN Electronic Journal 2006.

[15] Bushman R., Smith A. Transparency, financial accounting information, and corporate governance. Economic Policy Review 2003; 9: 65–87.

[16] Böhringer C., Keller A., Bortolamedi M., et al. Good things do not always come in threes: on the excess cost of overlapping regulation in EU climate policy. Energy Policy 2016; 94: 502–508.

[17] Jorgenson D.W., Wilcoxen P.J. Environmental regulation and U.S. economic growth. RAND Journal of Economics 1990; 21: 314–340.

[18] Dufour C., Lanoie P., Patry M. Regulation and productivity. Journal of Productivity Analysis 1998; 9: 233–247.

[19] Rubashkina Y., Galeotti M., Verdolini E. Environmental regulation and competitiveness: empirical evidence on the Porter Hypothesis from European manufacturing sectors. Energy Policy 2015; 83: 288–300.

[20] Porter M.E. America's green strategy. Scientific American 1991; 264: 168–168.

[21] Porter M.E., Van der Linde C. Toward a new conception of the environment-competitiveness relationship. Journal of Economic Perspectives 1995; 9: 97–118.

[22] Slabe-Erker R., Klun M. The contribution of institutional quality to lowering company compliance costs. African Journal of Business Management 2012; 6: 3111–3119.

[23] Scarpetta S., Tressel T. Boosting productivity via innovation and adoption of new technologies: any role for labor market institutions? World Bank Research Working Paper 3273. SSRN Electronic Journal. Washington, DC: World Bank; 2004.

[24] Autor D.H., Kerr W.R., Kugler A.D. Does employment protection reduce productivity? Evidence from US states. Economic Journal 2007; 117: 189–217.

[25] OECD. OECD Annual Report. Paris: OECD; 2007.

[26] Agell J. On the benefits from rigid labor markets: norms, market failures, and social insurance. Economic Journal 1999; 109: 143–164.

[27] Storm S., Naastepad C.W.M. Labor market regulation and productivity growth: evidence for Twenty OECD Countries (1984–2004). Industrial Relations 2009; 48: 629–654.

[28] Yashiro N., Carey D., Purwin A. Boosting productivity by unleashing digitalization. In: OECD Economic Surveys: New Zealand. Paris: OECD 2022.

[29] Brynjolfsson E., McAfee A., Sorell M., et al. Scale without mass: business process replication and industry dynamics. Harvard Business School Technology & Operations Mgt Unit Research Paper, No. 07-016. SSRN Electronic Journal 2008.

[30] WEF. Agile Regulation for the Fourth Industrial Revolution: A Toolkit for Regulators. Geneva: World Economic Forum; 2020.

[31] OECD. Recommendation of the Council for Agile Regulatory Governance to Harness Innovation, Meeting of the Council at Ministerial Level. Paris: OECD; 2021.

[32] METT. Governance Innovation Redesigning Law and Architecture for Society 5.0. Tokyo: Ministry of Economy, Trade and Industry; 2020.

[33] Morano R.S., Jacomossi R.R., Barrichello A., et al. The interdependence between ease of doing business, innovation, and competitiveness of nations. B.A.R – Brazilian Administration Review 2023; 20: e220103.

[34] World Bank Group (WBG). Building back a greener Bangladesh. Washington, DC: WBG; 2023. https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099032624044525190/

p1759081e3a5d909a18d3f17f5402e40eba?_gl=1*1j2alho*_gcl_au*MTQwMjc4NDU4Ny4xNzIzNzYyNjk4, accessed on 20 June 2024.

[35] International Labour Organisation (ILO). Effective regulations? Geneva: ILO; 2021. https://www.ilo.org/sites/default/files/wcmsp5/groups/public/@asia/@robangkok/documents/publication/wcms_802429.pdf, accessed on date month year.

[36] Ferdousi F. Efficiency analysis of microfinance institutions in Bangladesh: does regulation matter? European Journal of Business and Management Research 2020; 5.

[37] Rahman M.M., Zheng C., Ashraf B.N. Bank size, risk-taking and capital regulation in Bangladesh. Eurasian Journal of Business and Economics 2015; 8: 95–114.

[38] Zheng C., Rahman M., Begum M., et al. Capital regulation, the cost of financial intermediation and bank profitability: evidence from Bangladesh. Journal of Risk and Financial Management 2017; 10: 9.

[39] Rashid M.H.U., Khanam R., Ullah M.H. Corporate governance and IFSB Standard-4: Evidence from Islamic banks in Bangladesh. International Journal of Islamic and Middle Eastern Finance and Management 2022; 15: 1–17.

[40] Rahim M.M. Legal regulation of corporate social responsibility: evidence from Bangladesh. Common Law World Review 2012; 41: 97–133.

[41] Rahim M.M., Alam S. Convergence of corporate social responsibility and corporate governance in weak economies: the case of Bangladesh. Journal of Business Ethics 2014; 121: 607–620.

[42] Kang Y. The rise, demise and replacement of the Bangladesh experiment in transnational labor regulation. International Labour Review 2021; 160: 407–430.

[43] Alamgir F., Banerjee S.B. Contested compliance regimes in global production networks: insights from the Bangladesh garment industry. Human Relations 2019; 72: 272–297.

[44] Rana T., Lowe A., Azam M.S. Green governmentality and climate change risk management. Accounting, Auditing and Accountability Journal 2023; 36: 801–829.

[45] ANI News. World Bank raises India's growth to 7 pc from 6.6 pc for FY25. ANI; 2024. https://www.aninews.in/news/business/world-bank-raises-indias-growth-to-7-pc-from-66-pc-for-fy2520240903130235/, accessed on 15 October 2024.

[46] Ministry of Commerce and Industry (MCI). National logistics policy. MCI, Government of India; 2022. https://logistics.gov.in/policy-regulation/national-logistics-policy/, accessed on 21 February 2024.

[47] Mujimdar R. India economic outlook. Deloitte; 2024. https://www2.deloitte.com/us/en/insights/economy/asia-pacific/india-economic-outlook.html, accessed on 3 October 2024.

[48] Dubashi N., Gupta A., Fiocco D., et al. How Agtech is poised to transform India into a farming powerhouse. McKinsey; 2023. https://www.mckinsey.com/industries/agriculture/our-insights/how-agtech-is-poised-to-transform-india-into-a-farming-powerhouse, accessed on 12 January 2024.

[49] Pattanaik F., Nayak N.C. Economic freedom and economic growth in India: what is the empirical relationship? Economic Change and Restructuring 2014; 47: 275–298.

[50] Khan W., Singh T.P., Jamshed M. Understanding the ease of doing agribusiness in emerging Asian economies: evidence from world enterprises survey. Journal of Enterprising Communities: People and Places in the Global Economy 2023; 17: 419–432.

[51] Huang Y., Tang H.F.D.I. FDI Policies in China and India: evidence from firm surveys. World Economy 2012; 35: 91–105.

[52] Charumathi B., Padmaja G. The impact of regulations and technology on corporate social responsibility disclosures – Evidence from Maharatna Central Public Sector Enterprises in India. Australasian Accounting, Business and Finance Journal 2018; 12: 5–28.

[53] Bardhan P. Economic reforms, poverty and inequality in China and India. In: Basu K., Kanbur R., eds. Arguments for a Better World: Essays in Honor of Amartya Sen, Volume 2: Society, Institutions, and Development. Oxford: Oxford Academic; 2009, p. 350–364.

[54] Asian Development Bank (ADB). Asian Development Outlook. Manila: ADB 2024.

[55] Kaka N., Madgavkar A., Kshirsagar A., et al. Digital India: Technology to Transform a Connected Nation. New York: The McKinsey Global Institute; 2019.

[56] World Bank. Helping India build a skilled, inclusive workforce for the future. Policy Brief 2023. https://www.worldbank.org/en/results/2023/11/03/helping-india-build-skilled-inclusive-workforce, accessed on 4 September 2024.

[57] World Bank. The World Bank in Malaysia. World Bank; 2024. https://www.worldbank.org/en/country/malaysia/overview, accessed on 4 September 2024.

[58] Ministry of Human Resources. Pembangunan sumber manusia berhad act 2001. Government of Malaysia; 2001. https://hrdcorp.gov.my/psmb-act-2001, accessed on 7 February 2024.

[59] Economic Analytical Unit. An Economy Transformed. London: Economist; 2005.

[60] EPU. Malaysia productivity blueprint: driving productivity of the nation. EPU; 2017. https://www.epu.gov.my/sites/default/files/2020-02/MPB_Full_0.pdf, accessed on 1 June 2024.

[61] Seman A., Majid M. Good regulatory practice in Malaysia. In: Intal P., Pangestu M., eds. Integrated and Connected Seamless ASEAN Economic Community. Indonesia: ERIA; 2019, p. 234–241.

[62] Mohd Ghazali N.A. Governance and ownership in Malaysia: their impacts on corporate performance. Asian Journal of Accounting Research 2020; 5: 285–298.

[63] Diniyya A.A., Aulia M., Wahyudi R. Financial technology regulation in Malaysia and Indonesia: A comparative study. Ihtifaz 2020; 3: 67–87.

[64] Nomran N.M., Haron R., Hassan R. Shari'ah supervisory board characteristics effects on Islamic banks' performance. International Journal of Bank Marketing 2018; 36: 290–304.

[65] Hidayah K., Mahphoth M.H., Bachri S., et al. Welfare state-based agricultural policies in Malaysia. Cogent Social Sciences 2023; 9.

[66] World Bank. Singapore overview. World Bank; 2024. https://www.worldbank.org/en/country/singapore/overview, accessed on 23 September 2024.

[67] Singapore Green Plan (SGP). Singapore Green Plan. 2024. https://www.greenplan.gov.sg/overview/, accessed on 5 October 2024.

[68] Auyong H. Singapore's productivity challenge: a historical perspective. NUS; 2016. https://lkyspp.nus.edu.sg/docs/default-source/research-centres-document/20160210-singapores-productivity-challenge-a-historical-perspective.pdf?sfvrsn=e00c960b_2, accessed on 5 May 2024.

[69] Tan C., Jie N.M. The role of competition in Singapore's economic growth and public policies. CCCS; 2016. https://www.cccs.gov.sg/resources/publications/occasional-research-papers/archive/role-of-competition-in-singapore-economic-growth, accessed on 3 May 2024.

[70] Schou-Zibell L., Madhur S. Regulatory reforms for improving the business environment in selected Asian economies-how monitoring and comparative benchmarking can provide incentive for reform. ADB Working Paper Series on Regional Economic Integration, Issue 40, 2010.

[71] OECD. Good Regulatory Practices to Support Small and Medium Enterprises in Southeast Asia. Paris: OECD; 2023.

[72] Waring P., Bali A., Vas C. The fourth industrial revolution and labour market regulation in Singapore. Economic and Labour Relations Review 2020; 31: 347–363.

[73] Wang J. Innovation and government intervention: a comparison of Singapore and Hong Kong. Research Policy 2018; 47: 399–412.

[74] Pham H., Nguyen V., Ramiah V., et al. The effects of environmental regulation on the Singapore stock market. Journal of Risk and Financial Management 2019; 12: 175.

[75] Knechel W.R. Audit quality and regulation. International Journal of Auditing 2016; 20: 215–223.

APPENDICES

APPENDIX 1: OUTLINE FOR INTERVIEWING BUSINESS REPRESENTATIVES FROM THE SELECTED COUNTRIES

Thank the interviewee for participating in the interview. Explain the purpose and duration.

Introductions

a. Interviewer: Introduce yourself.

b. Topic: How regulation affects business productivity, both positively and negatively.

c. The study is being conducted for the University of Technology in Sydney (UTS) on behalf of the Asian Productivity Organization (APO). The UTS team will compile a report for the APO. The names of individuals and organizations who participate will not be identified in the report for confidentiality.

d. Confidentiality. The information you share will be used only for the purpose of conducting this research.

e. Recording. Do I have your permission to record this interview so I can transcribe it? All recordings are stored securely on our server. They are never shared with anyone other than the transcriber. I will delete the recording at the end of the project.

f. If yes, start recording. If no, take notes.

Getting to Know the Respondent

a. Their role. What is your role here? How long have you been with the organization?

b. Regulations you work with: I understand that you have been working with... Based on the answers provided, the following categories are to be discussed:

    i. Environmental pollution

    ii. Child labor

    iii. Employment regulations

    iv. Food and drug safety

    v. Any other similar type of regulation that is relevant to the respondent's business

Case Study: Deep Dive

Which of the regulations is the respondent most familiar with?

Ask the respondent the following questions about the selected regulation only.

Ask for example:

a. What is this regulation?

b. How long has this regulation been in place (e.g., is it the result of a recent transformation policy or an older legacy)?

c. Is this digital or paper-based?

d. What is your opinion about this regulation? Probing question: Why is that?

e. How would you describe this regulation's impact on your organization: positive, neutral, or negative?

f. Why is that? Follow up below.

g. How easy is it for you to do business? (scale and probe as above)

h. Capital productivity: If you think about everything you need to conduct business, such as computers, vehicles, and warehouses, does this regulation help you keep these costs down or does it add to your costs? Ask for examples.

i. Material productivity: What about the labor cost and the resources you require? Does this regulation help you keep these costs down or add to them? Ask for examples.

j. How easy is the regulator to deal with? (very easy, fairly easy, fairly difficult, very difficult) Why is that? What makes it easy/difficult?

k. Ask about the impact on competitiveness: positive, neutral, or negative. Probe by asking what would help the business become more competitive.

l. Does it make responding to changes in the economy or your marketplace easy or difficult? Ask for examples.

m. Is this better or worse or the same compared with how it used to be (check when that was)? Ask for examples.

n. How well does the regulator administer this regulation (e.g., do they make mistakes or have long delays)? Ask for examples.

o. Please describe three ways in which this regulation could be improved.

Further Questions about Business in the Respondent's Country

a. How do regulations affect your innovativeness: positive, neutral, or negative? Probe: What would help you be more innovative?

b. How does FDI impact an effective regularity environment and an efficient business environment?

c. How attractive is the country in which you are working compared with alternative locations?

d. Speedy response to regulatory approvals and requirements is likely an attractive outcome: How would you rate the agencies you have dealt with?

e. Although our research is focused on productivity, do you want to make any comments on economic growth or social outcomes that could be of secondary interest?

f. Is there a specific regulation that you believe may harm the productivity and innovativeness of businesses? Ask for examples. If it does not affect you, can you think of other businesses in different sectors that might be affected by regulations? Ask for examples and reasons for issues in that specific industry

g. In your opinion, what type of regulatory approach leads to a better business environment?

h. Overall, does your country have local, state, and federal government regulatory laws? Do they overlap? If yes, how do they overlap?

i. How has your business addressed the risks of climate change? Do the environmental regulations impact your productivity?

j. Does your country have regulations considering inclusivity (based on gender, disability, age, etc.)? What do you do to become an inclusive business? Do you think inclusivity impacts productivity?

k. Do you think governmental organizations' adoption of digital technologies is at satisfactory levels? What must be done so that they can help business productivity? Any further suggestions?

Is there anything we have not discussed that you think is important?

Thank you for your time.

APPENDIX 2: EASE OF DOING BUSINESS DATA FOR APO MEMBERS

	Starting a business	Dealing with construction permits	Getting electricity	Registering property	Obtaining credit	Protecting minority investors	Paying taxes	Cross-border trade	Enforcing contracts	Resolving insolvency	2020 rank	2015 rank	Change (%) 2015–20
Bangladesh	**82.4**	**61.1**	**34.9**	**29.0**	**45.0**	**60.0**	**56.1**	**31.8**	**22.2**	**28.1**	**168**	**173**	**5**
Cambodia	52.4	44.6	57.5	55.2	80.0	40.0	61.3	67.3	31.7	48.5	144	135	–9
China, Rep.	94.1	77.3	95.4	81.0	**60.0**	**72.0**	**70.1**	86.5	80.9	62.1	31	90	59
Fiji	73.6	67.8	72.8	71.9	25.0	54.0	71.1	77.9	57.1	43.8	102	61	–41
Hong Kong	98.2	93.5	99.3	73.6	75.0	84.0	99.7	95.0	69.1	65.7	3	3	0
India	**81.6**	**78.7**	**89.4**	**47.6**	**80.0**	**80.0**	**67.6**	**82.5**	**41.2**	**62.0**	**63**	**142**	**79**
Indonesia	81.2	66.8	87.3	60.0	70.0	70.0	75.8	67.5	49.1	68.1	73	114	41
Iran, Islamic Rep.	67.8	71.2	69.4	68.1	50.0	40.0	59.5	66.2	58.2	35.1	127	130	3
Japan	86.1	83.1	93.2	75.6	55.0	64.0	81.6	85.9	65.3	90.2	29	29	0
Korea, Rep.	93.4	84.4	99.9	76.3	65.0	74.0	87.4	92.5	84.1	82.9	5	5	0
Lao PDR	62.7	68.3	58.0	64.9	60.0	20.0	54.2	78.1	42.0	0.0	154	139	–15
Malaysia	**83.3**	**89.9**	**99.3**	**79.5**	**75.0**	**88.0**	**76.0**	**88.5**	**68.2**	**67.0**	**12**	**18**	**6**
Mongolia	86.7	78.2	55.0	74.2	80.0	74.0	77.3	60.8	61.4	30.1	81	56	–25
Nepal	81.7	67.3	60.9	63.6	75.0	58.0	47.1	85.1	46.0	47.2	94	126	32
Pakistan	89.3	66.5	64.0	48.6	45.0	72.0	52.9	68.8	43.5	59.0	108	128	20
Philippines	71.3	70.0	87.4	57.6	40.0	60.0	72.6	68.4	46.0	55.1	95	95	0
Singapore	**98.2**	**87.9**	**91.8**	**83.1**	**75.0**	**86.0**	**91.6**	**89.6**	**84.5**	**74.3**	**2**	**1**	**–1**
Sri Lanka	88.2	72.3	74.5	51.9	40.0	72.0	59.8	73.3	41.2	45.0	99	99	0
Thailand	92.4	77.3	98.7	69.5	70.0	86.0	77.7	84.6	67.9	76.8	21	26	5
Turkiye	88.8	73.8	84.5	81.6	75.0	76.0	86.6	91.6	71.4	38.5	33	55	22
Vietnam	85.1	79.3	88.2	71.1	80.0	54.0	69.0	70.8	62.1	38.0	70	78	8

Note: Bold lines are the case study countries. Except for ranking, numbers represent scores out of 100. Rep. stands for Republic
Source: World Bank, 2020.

APPENDIX 3: REGULATORY ENVIRONMENT MEASURES

Regulatory Quality

The Regulatory Quality Index* (2021) is an indicator that reflects perceptions of the government's ability to formulate and implement effective policies and regulations conducive to private sector development. Scores are standardized.

Source: World Bank, Worldwide Governance Indicators (http://info.worldbank.org/governance/wgi). Data year: 2021.

Rule of Law

The Rule of Law Index* (2021) measures perceptions of the extent to which individuals have confidence in and adhere to societal rules, including contract enforcement, property rights, law enforcement, and the judicial system, as well as the likelihood of crime and violence. Scores are standardized.

Source: World Bank, Worldwide Governance Indicators (http://info.worldbank.org/governance/wgi). Data year: 2021.

Cost of Redundancy Dismissal

The Cost of Redundancy Dismissal (2020) is calculated as the sum of the notice period and severance pay for redundancy dismissal, expressed in weeks of salary for workers with different tenures (one, five, and ten years). If the redundancy cost is eight weeks or fewer, a value of eight is assigned; otherwise, the actual number of weeks is published.

Source: World Bank, Employing Workers Project (www.worldbank.org/en/research/employing-workers). Data year: 2020.

Policies for Doing Business*

The Policies for Doing Business* indicator (2022) evaluates how governments maintain a stable policy environment for business operations. Responses are averaged from a survey question asking experts to rate the government's efforts in ensuring a stable business policy environment, with a scale ranging from 1 (not at all) to 7 (to a great extent).

Source: World Economic Forum, Executive Opinion Survey 2022 (www.weforum.org). Data years: 2018–2022.

Entrepreneurship Policies and Culture*

The Entrepreneurship Policies and Culture Index* (2022) is derived from the average perception scores provided by experts over five years. These scores reflect experts' assessments of entrepreneurial policies and culture in their respective countries. The assessments are based on statements from the Global Entrepreneurship Monitor (GEM) National Expert Survey, with a scale ranging from 0 (completely false) to 10 (completely true). The number of experts and years contributing to this index may vary depending on each country's participation in GEM.

Source: Global Entrepreneurship Monitor, National Expert Survey (www.gemconsortium.org/wiki/1142). Data years: 2015–2022.

Environmental Performance*

The Environmental Performance Index* (EPI) for 2022 evaluates 180 countries across various categories encompassing environmental health and ecosystem vitality. These categories serve as indicators to measure how closely countries align with established environmental policy targets. The EPI serves to identify leaders and laggards in environmental performance, offering practical guidance for nations striving toward sustainability. Scores on the index range from 0 to 100, with 100 representing the highest level of performance.

Source: Wolf, M.J., Emerson, J.W., Esty, D.C., de Sherbinin, A., Wendling, Z.A., et al. (2022). 2022 Environmental Performance Index. New Haven, CT: Yale Center for Environmental Law & Policy (https://epi.yale.edu). Data year: 2022.

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