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ThinkBox

The quest for achieving United Nations sustainability development goals (SDGs)

A dialogue with Huaccho Huatuco and Ball

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1. Introduction

The growing importance of and emphasis on sustainability development goals (SDGs) have been observed (Parker, 2017, Weybrecht, 2017). In addition, there is an emerging trend of increasing amount of scientific publications and workshops related to SDGs

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since their unveiling in 2015 (United Nations, 2015). A basic search in August 2019 of "sustainability development goals" via Google Scholar shows that around 16,700 and 17,400 results are available for 2018 and 2019, respectively.

In a recent thought-provoking publication, Huaccho Huatuco and Ball (2019, p. 357) ask "[. . .] how can academics, practitioners, policy-makers and wider stakeholders help achieve them (SDGs)?" Huaccho Huatuco and Ball introduce that the interdisciplinary approach has been drawn into research to address the complexities of achieving SDGs. As an SDG itself, education is argued as a paramount which may lead to the achievement of different SDGs. Technical tools such as SDGs Industry Matrix and the guidance on incorporating SDGs into business strategy (Anthesis group, 2019; UN Global Compact and KPMG, 2016) are also introduced by Huaccho Huatuco and Ball (2019). Based on the theoretical summary, a comparative analysis of the UK and Brazil's progresses and challenges toward achieving SDG 9: *Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation* is also provided by Huaccho Huatuco and Ball (2019).

However, although the importance of SDGs has been reflected in the growing size of scientific publications, it is noted that a large amount of them mainly uses SDGs as general research background, rather than focus on specific SDGs and, especially, specific SDG Targets. In addition, in comparison with micro-level research under the banner of SDGs, macro-level studies at national and/or international level using databases provided by United Nations (UN) agencies are relatively fewer. This is perhaps because of these databases that are relatively recent and operated or managed in a somewhat complicated style which is less familiar to non-UN professionals. Insufficient use of national and international data provided reduces the possibility of cross-national comparative research in line with country contexts, which further decreases the inclusiveness and compatibility of research related to SDGs. Limited use of national and international databases related to SDGs also decreases the possibility to develop and use suitable indicators to measure progress toward achieving SDGs. This can be revealed by relatively fewer mentions of the specific targets under SDGs and the 232 indicators which measure the specific targets.

As a dialogue with Huaccho Huatuco and Ball (2019), this paper examines Brazil and Saudi Arabia's progress toward SDG 9, with a specific focus on *Target 9.2: Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries*. More specifically, this paper uses Indicators *9.2.1 Manufacturing value added as a proportion of GDP and* per capita and *9.2.2 Manufacturing employment as a proportion of total employment* to measure the progress of the two selected countries. This enables a communication with Huaccho Huatuco and Ball (2019), especially via technical tools' roles in assisting stakeholders to achieve SDGs. This paper uses data from UN Industrial Development Organization (UNIDO) database and International Labor Organization (ILO) database to operationalize the two indicators.

This paper is presented as follows. Section 2 briefly introduces the UNIDO database and ILO database. This lays out the foundation of further analysis on how technical tools such as SDG indicators are supported by data. It follows by a comparison of country contexts of Brazil and UK, with particular emphasis on the two countries' efforts to achieve SDG 9. Sections 4 and 5 use data from UNIDO and ILO databases to describe the two countries' performances as measured by indicator 9.2.1 and 9.2.2.

Section 6 concludes this paper with dialogue with Huaccho Huatuco and Ball (2019), particularly on future research prospects.

2. Databases and country contexts

"UNIDO is the specialized agency of the United Nations that promotes industrial development for poverty reduction, inclusive globalization and environmental sustainability" (UNIDO, 2019a). UNIDO maintains databases comprising statistics of overall industrial growth, detailed data on business structure and statistics on major indicators of industrial performance by country in the historical time series (UNIDO, 2019b). The main UNIDO database used by this paper is its manufacturing value added (MVA) database, which contains country data for GDP, MVA and population (UNIDO, 2019c). That is the foundation for UNIDO's SDG 9 Monitoring. Interestingly, UNIDO also monitors Indicator 9.2.2, but the data is cross-quoted from ILO database.

"ILO brings together governments, employers and workers of 187 member States, to set labor standards, develop policies and devise programs promoting decent work for all women and men" (ILO, 2019a). ILO statistics have a wide coverage of labor supply, competitiveness, working conditions, social dialogue, labor migration and poverty and inequality. It monitors a number of SDG indicators including 9.2.2 (ILO, 2019b). For both UNIDO and ILO databases, manufacturing is defined as all economic activities within Division 10 – Division 33, Section C, under the International Standard Industrial Classification of All Economic Activities Revision 4 (UN Department of Economic and Social Affairs, 2008).

Before introducing the country context, this paper explains the rationale to select Saudi Arabia and Brazil as two comparator countries. First, this is because these two countries have similar overall industrial competitiveness (UNIDO, 2019d). Both Brazil and Saudi Arabia are "Emerging Industrial Economies" according to UNIDO classification (UNIDO, 2013). Second, Brazil and Saudi Arabia are both regional role models. Popular experience suggests that comparisons between different regional models would generate more insightful analysis and useful practical implications. Third, Brazil and Saudi Arabia are both rapidly growing economies which are also leading role models of emerging economies. Finally, industrial development in these two countries highly relies on natural resource. For example, Saudi Arabia and Brazil are among the top 10 oil producers (US Energy Information Administration, 2019).

Being different from Huaccho Huatuco and Ball (2019), this paper compares manufacturing development in two developing countries. A significant advantage of this is the two comparator countries have more similarities in country contexts, and therefore are more comparable. However, this does not deny Huaccho Huatuco and Ball's contribution by comparing Brazil with the UK, as the comparison between developed and developing countries may better identify the different priorities and challenges faced by different countries.

In Brazil, the SDGs are integrated to national development strategies. The most noticeable sign is the establishment of the National Commission for the SDGs in Brazil. An important step of internalization of the SDGs is to check the correspondence of targets with the attributes established by the current multi-year plan, which is the main instrument for planning of government actions in medium term (Brazilian Government, 2017). More specifically on SDG 9, Brazil has a range of tools to foster innovation and industrialization, including direct financial support, to tax incentives, and regulatory measures. The National Program Startup Industry Connection is an example which aims to identify industry needs and maps out startups that can supply them (Brazilian

Government, 2017, p63-64). Its Investment Partnership Program is an example of collaboration between public and private sectors aiming to expand investment and job opportunities in infrastructure.

In Saudi Arabia, Ministry of Economy and Planning (MEP) creates alignment of the national context with the SDGs. Furthermore,

> [. . .] MEP promotes the role of the private sector and charitable societies and associations towards realization of the SDGs, through development of methodologies and proposals designed to improve productivity and efficiency of the public, private and third sectors (Kingdom of Saudi Arabia, 2018, p. 24).

The Saudi Arabian national development strategy, Vision 2030, is aligned with achieving SDGs. For example, sub-strategic objectives of Vision 2030 along with national strategies and programs related to SDGs targets are identified to adequately reflect the alignment that can be implemented by executing agencies (Kingdom of Saudi Arabia, 2018). More specifically on SDG 9, the government support of industrial development span several dimensions, including necessary infrastructure, creation of industrial cities, launching the industrial clusters program and establishing a number of programs and specialized agencies such as the Saudi Industrial Development Fund.

It is noticed that a significant challenge of achieving SDGs (including SDG 9) in Saudi Arabia is the limited data availability and statistical capacity (Kingdom of Saudi Arabia, 2018, p. 28). In addition, it is widely understood that a large proportion of population and workforce in Saudi Arabia are foreign nationals. These are therefore needed to be considered when analyzing data in the next two sections. It also deserves attention that being different from many resource-rich countries (including Brazil), the national development strategy of Saudi Arabia strongly emphasizes the necessity to reduce oil-dependence (Kingdom of Saudi Arabia, 2016).

3. Indicator 9.2.1 manufacturing value added as a proportion of GDP and per capita

The following tables provide data of Indicator *9.2.1 MVA as a proportion of GDP and* per capita. As Brazil and Saudi Arabia use different local currencies, and the exchange rates between local currencies and USD vary, this paper uses the 2010 constant prices as a standard measurement.

The above table show that as measured by SDG Indicator 9.2.1, manufacturing production in Brazil was shrinking in recent years. This is particularly significant between 2014 and 2018. The shrinking manufacturing production could become a negative factor for Brazil's efforts to integrate SDG 9 with industrialization, economic growth and job creation (Brazilian Government, 2017). In addition, being contrary to Huaccho Huatuco and Ball (2019, p. 360), Table I does not provide evidence to support that scientific and technological research capabilities have been significantly fostered in Brazil over the past decade, at least not in realms under SDG Target 9.2. This can be observed by the continuous and sharp deterioration of MVA per capita in Brazil in the past five years, which is a reflection of limited technological and research progress in manufacturing production.

Being different from Brazil, manufacturing production in Saudi Arabia developed significantly over the past decade, as measured by SDG Indicator 9.2.1. This can be captured by both the absolute term (the scale of manufacturing production as reflected by the rapid and stable increase in MVA), and the relative term (the manufacturing productivity as reflected by the constant increase in MVA per capita). The development of manufacturing in Saudi Arabia reflects the country's achievements toward SDG 9, particularly the SDG

Target 9.2. Furthermore, it demonstrates the success of the country's emphasis on the connection between SDG 9 and reducing oil dependence.

4. Indicator 9.2.2 manufacturing employment as a proportion of total employment

Table II shows data for SDG Indicator 9.2.2. As data for Saudi Arabia is not available between 2010 and 2012, this paper selects data from 2013 onward to enable a better comparison between the two countries. Shown in Table II, manufacturing employment as a proportion of total employment in Brazil dropped by more than one percentage point between 2013 and 2018. In consideration of the significant increase of unemployment rate in Brazil, for example, age 15 and above unemployment rate increased from 6.7 per cent in 2014 to 12.5 per cent in 2018 (ILO, 2019c), data for Indicator 9.2.2 suggests that Brazil's achievements toward SDG 9 do not significantly contribute to the generation of jobs. This is different from the aim of Brazilian Government (2017), as described by Huaccho Huatuco and Ball (2019).

Share of manufacturing employment in total employment in Saudi Arabia, being different from Brazil, increased over one percentage point between 2013 and 2018. As the total unemployment rate in Saudi Arabia remained rather stable in recent years (ILO, 2019c), the increased share of manufacturing employment in total employment can reflect the industrialization in the country from the perspective of workforce expansion. However, it is essential to notice that the Saudi Arabian data for SDG Indicator 9.2.2 is collected from labor force survey, which may not accurately capture the existence of large proportion of foreign seasonal workers in Saudi Arabia, especially in manufacturing sector. This corresponds to

Table I.
Manufacturing value added (MVA) and relevant indicators in Brazil and Saudi Arabia, various years, in millions USD (2010 constant)

	MVA in Brazil and Saudi Arabia, various years, in millions USD (2010 Constant)		MVA as proportion of GDP in Brazil and Saudi Arabia (%)		MVA per capita in Brazil and Saudi Arabia, in USD (2010 constant)	
	Saudi Arabia	Brazil	Saudi Arabia	Brazil	Saudi Arabia	Brazil
2010	58.179	281.000	11.0	12.7	2,121.3	1,427.9
2011	63.359	287.000	10.9	12.5	2,243.8	1,444.5
2012	65.938	280.000	10.8	12.0	2,267.0	1,396.1
2013	68.161	289.000	10.8	12.0	2,276.2	1,427.8
2014	74.663	286.000	11.5	11.8	2,426.0	1,400.5
2015	79.584	257.000	11.7	11.0	2,521.9	1,247.8
2016	82.186	252.000	11.9	11.2	2,546.4	1,213.6
2017	84.858	248.932	12.4	11.0	2,576.3	1,189.4
2018	89.060	247.863	12.8	10.8	2,654.2	1,175.4

Source: UNIDO (2019c)

Table II.
Manufacturing employment as a proportion of total employment (5%) in Brazil and Saudi Arabia

	2013	2014	2015	2016	2017	2018
Brazil	12.6	12.8	12.6	11.4	11.5	11.5
Saudi Arabia	7.1	7.2	8.2	7.8	N/A	8.4

Source: ILO (2019b)

the concern of limited data availability and statistical capacity when working toward SDGs (Kingdom of Saudi Arabia, 2018, p. 28).

As shown in this and the two previous sections, we can see both Brazil and Saudi Arabia have made progress in relation to SDGs including SDG 9. For example, both countries have established governmental programs to promote industrialization, innovation and infrastructure. However, Brazil and Saudi Arabia may face different opportunities and challenges ahead. In achieving SDG 9 and also other SDGs, Brazil faces more challenges related to the whole economic downturn associated with strong reliance on foreign investment and market, while Saudi Arabia may have more challenges with its high dependence on oil sector.

5. Conclusion

Focusing on SDG 9, this paper uses SDG Indicators *9.2.1 Manufacturing value added as a proportion of GDP and* per capita and *9.2.2 Manufacturing employment as a proportion of total employment* to measure the progress toward SDG Target 9.2 in Brazil and Saudi Arabia. The data is from UNIDO and ILO databases, which are not widely used and are therefore briefly introduced in this paper as well.

Findings in this paper enable a dialogue with Huaccho Huatuco and Ball (2019) in a number of aspects. First, in addition to the existing studies on SDGs from micro perspectives (e.g. supply chains, organizations), more macro perspective research on SDGs would facilitate bringing together divergent views and providing an agreement for achieving SDGs. Second, effective technical tools including suitably selected indicators and SDG monitoring databases would assist stakeholders to achieve SDGs. This also demonstrates the importance of existing and emerging research on developing suitable indicators and measurements on sustainability. Third, this paper supports Huaccho Huatuco and Ball (2019) that the application of SDGs should take country contexts into consideration. As shown in the cases of Saudi Arabia and Brazil, the achievements toward SDG 9 vary significantly even though there are a number of similar efforts were taken.

This paper also supports Huaccho Huatuco and Ball's proposed research agenda of SDGs which should be prioritized in different approaches in line with their importance in different country contexts. In addition, this paper agrees with Huaccho Huatuco and Ball (2019) that it would be useful to develop common languages and tools which can be understood and accepted by different stakeholders of SDGs, including academics, practitioners and policy-makers. This is also a reason why this paper introduces the two less-known databases of UNIDO and ILO, which would serve as suitable common tools for different stakeholders to use.

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